An investigation of the Young Interpreter Scheme on children's development of metalinguistic awareness, empathy, and intercultural awareness.

Doctor of Philosophy

School of Psychology and Clinical Language Sciences

Debra Katy Page

September 2023

Word count: 84646

Authorship

Declaration:

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Debra Katy Page

Acknowledgements

This research would not have been possible without the support, encouragement, and contributions of numerous individuals and organisations. Thank you.

♥   To Hampshire Ethnic Minority and Traveller Advisory Services for the Young Interpreter Scheme. It was a privilege to delve into this fabulous scheme.

♥   To the wonderful schools and the incredible children who took part for your enthusiasm and cooperation. Your perspectives and experiences are the very essence of this research.

♥   To Professor Ludovica Serratrice.

♥   To Professor Naomi Flynn.

♥   To Astrid Dinneen.

♥   To Dr (no longer Miss) Emily Wright. Through every high and low, advice and camaraderie made our PhD journey a little lighter and a lot more bearable. An ear for all the PhD dramas and the emotional rollercoaster.

♥   To the South East Network for Social Sciences (SenSS) for funding both my MSc and PhD. You provided the financial foundation that made this research viable.

♥   To Covid. Grrrr!

♥   To Sue

♥   To anyone else not named above who deserves an acknowledgement – thank you!

♥   **To me**, for the unwavering commitment despite facing a roller coaster of emotions: from stress and tears to moments of sheer joy and elation. This thesis is not just an academic pursuit, but a turbulent personal journey that tested my resilience, showcased my tenacity, and deepened my understanding of my own capabilities and strengths.

♥   To my father - your memory has been a silent compass, guiding and inspiring me. This one's for you, Dad.

List of Figures

List of tables

Abstract

This research focused on evaluating the impact of the Young Interpreter Scheme on the metalinguistic awareness, empathy, and intercultural competence of the children involved. The study employed a longitudinal design with quantitative and qualitative data collection. Participants were 30 Young Interpreters (YIs) and 29 control students from four primary schools in England. The YIs received training as part of the YIS program, while the control students served as the control group. The age range of the participants was 7-11 years.

Data collection occurred at three time points: before YI training, immediately after training, and at a 6-month follow-up. The study evaluated the Young Interpreters development in empathy, awareness, intercultural competence, and metalinguistic awareness. Baseline assessments included quantitative measures of non-verbal IQ, and vocabulary breadth and depth. Empathy levels were measured using a questionnaire. Qualitative data were obtained through content analysis of children's responses to questions about intercultural awareness based on cultural intelligence dimensions proposed by Earley and Ang (2003). Metalinguistic awareness was measured using a word re-ordering task to assess syntactic awareness, based on work by Nation and Snowling (2000) and an explaining words task to measure morphological awareness.

The analysis compared the outcomes of the YI group with the control group, examining changes over time and potential differences between the two groups. Mixed effects models were utilised to assess the impact of YI training on metalinguistic awareness and empathy. The findings revealed that while there were no immediate effects on metalinguistic awareness, cognitive abilities and vocabulary showed positive associations with performance over time. The qualitative analysis highlighted the YIs' application of learned strategies to create supportive environments for new students and their developing intercultural awareness. In terms of empathy, no immediate increase was observed post-training, but significant improvements in affective empathy were seen at the six-month follow-up. This research fills a literature gap by providing insights into the implementation of formal interpreter schemes in schools, emphasising the potential of the YIS in creating an inclusive and supportive educational environment for EAL learners.

Chapter 1: Introduction

1.1 Linguistic Diversity in Classrooms in England

In todays interconnected world, English classrooms now serve as miniature reflections of the broader global community. The recent School Census (DfE, 2023) shows that 22% of primary school children in England are English as an additional language (EAL) learners. A pupil is "recorded to have English as an additional language if he/she is exposed to a language at home that is known, or believed to be, other than English" (DfE, 2019, p. 9). Such increasing linguistic and cultural diversity is both an asset and a challenge. Multilingual pupils can promote positive orientations to diversity in classrooms, but their well-being may be negatively impacted by the effort of learning English and curriculum content simultaneously. Pressure on teachers' to focus predominantly on language acquisition can take precedence over a concern for their children's socio-emotional wellbeing (Heineke & Vera, 2022). Since children's linguistic development takes place in a rich context of human relationships, a more holistic approach to EAL leaners in school needs to consider not only how they develop language skills but also how they become empathetic and culturally competent individuals.

1.2 The Loss of EAL Support Systems

In the current educational landscape, EAL learners do not find their needs consistently represented in national policies. Beginning in 2010, there was a decrease in resources allocated for EAL support, traced to a shift in the UK government's direction (Flynn & Curdt-Christiansen, 2018). This shift resulted in reduced funding for children with EAL (Strand et al., 2015) and a reduction in centralised EAL support services (Hutchinson, 2018). Prior to 2010, the National Curriculum provided comprehensive guidelines to assist educators working with ethnic minority students, refugees, and EAL learners. However, this level of guidance was not sustained in subsequent years (Flynn & Curdt-Christiansen, 2018). Further, the current OFSTED inspection framework lacks explicit mention of EAL (DfE, 2023). Consequently, educators are navigating a context with limited guidance from the Department for Education and Skills while addressing the instructional needs of an expanding English language learner population (Flynn, 2019). The consequence of this situation, and the persisting problem, is that some groups of EAL learners might not achieve the necessary progress either socially or academically.

1.3 Statement of the problem

1.3.1 The Importance of Proficiency in English

The primary determinant impacting the achievement of students with EAL is their level of English language proficiency (Demie, 2018). Without adequate proficiency in English, EAL learners often struggle to engage with the curriculum effectively (Strand & Demie, 2005), which can result in lower test scores in reading, writing and maths than their monolingual peers at key stage 2 (Demie,

2018; Strand et al., 2015) and GCSE's (Strand & Lindorff, 2021). This linguistic barrier may not only hinder academic performance but can also isolate students socially (Heineke & Vera, 2022). Therefore, it is important to foster EAL students' sense of belonging to the school community (Coyle et al., 2021).

1.3.2 Supportive Initiatives and the Potential of Peer mentoring Schemes

The importance of fostering a welcoming environment for EAL students cannot be overstated (Lucas et al., 2008). As they navigate the challenges of a new linguistic, cultural, and academic landscape, it is imperative that the learning environment bolsters their confidence, aids in their linguistic transition, and cultivates mutual respect and understanding among peers and teachers. One method of assisting new pupils is to have buddy systems or peer support in schools (Gibbons, 1991). A peer can explain classroom activities, helping a beginner learner of English access the curriculum (Walqui, 2010). Peer support involves different strategies and techniques to aid the child with EAL and is different from interpreting or translating, yet peers may provide a linguistic model. However, there is an absence of policy and guidance for this practice. Cline et al. (2014) argues that this absence reveals an underlying ambivalence towards this practice and by extension bilingualism and the use of a second language. Moreover, the study of such support offered by buddy schemes for children with EAL remains in its infancy in the UK (Messiou & Azaola, 2018).

There is plentiful evidence suggesting that peer mentoring schemes can raise academic outcomes (Carhill-Poza, 2017; Galloway & Burns, 2015; Topping & Ehly, 2001), with some evidence linking buddy schemes to non-academic outcomes (Osterman, 2000). However, such studies exhibit limitations (Calderón et al., 2011; Higgins, 2013) such as short-term insights (Tzani-Pepelasi et al., 2019), a case-study approach limiting wider applicability (Tzani-Pepelasi et al., 2019), atypical populations (Carter et al., 2016; Dolva et al., 2011) or lack of a control group (Houlston et al., 2011). A key issue is sustainability: several schemes were not designed with long-term integration in school contexts as the primary consideration. Considering these concerns, attention turns to initiatives filling these gaps. One such initiative that stands out due to its longevity and significant recognition, both nationally and internationally, is the Young Interpreter Scheme (YIS).

1.4 Introducing the Young Interpreter Scheme

Hampshire Ethnic Minority and Traveller Achievement Service (EMTAS) developed the Young Interpreter Scheme (2014). Hampshire EMTAS is a specialised service to support educational outcomes for children and young people from Black, Minority Ethnic (BME), and Traveller heritages, especially those learning English as an additional language (EAL). This scheme trains students to assist EAL newcomers as Young Interpreters (YIs). The concept of being a YI is being an empathetic friend and YIs use their language skills to support informal and routine situations in school. The programme addresses the linguistic challenges faced by EAL learners and delves deeper by aiming to instil values

of empathy, cultural understanding, and mutual respect among the broader student population. This holistic approach offers several advantages: Empathy fosters interpersonal relationships and boosts emotional intelligence (Eisenberg et al., 2010); understanding diverse cultures encourages a more inclusive and tolerant society (Banks, 2006) and, mutual respect enhances cooperation (Cornelius-White, 2007). These factors contribute to developing a sense of school belonging through the quality of social relationships in school (Osterman, 2000) and enhancing social-emotional well-being (Collier & Thomas, 2007), which in turn helps sustained academic engagement (Roeser et al., 1996).

Exercises during training sessions help YIs understand how the pupils they support may feel in their first days or weeks of school. Further, they think about strategies to help communicate with the new arrivals, whether they have a shared language or not. Young Interpreters learn how to use different strategies to clarify, explain and interpret a range of school activities to new arrivals, for example using body language and pictures. Notably, the Young Interpreter Scheme stands out for its uniqueness and innovation. Unlike any other programme, it distinctively blends practical skill development with empathetic understanding, setting a precedent in educational support for new arrivals.

1.5 Integrating Empathy, Intercultural Competence, and Metalinguistic Awareness

The efficacy of the YIS lies in its commitment to three foundational pillars: empathy, intercultural competence, and metalinguistic awareness. Each element complements the other and are central to the success of buddy schemes (Topping & Ehly, 2001), creating an environment tailored to the diverse needs of students with EAL. Empathy, the capacity to understand and resonate with another's feelings, is a cornerstone of the YIS, with peer mentoring programs increasing empathy in children (Channon et al., 2013; Tzani-Pepelasi et al., 2019) The YIS ensures EAL children are not only accommodated but understood and supported in their unique educational and emotional journeys. Such empathetic relationships transcend mere language assistance; they offer emotional support to EAL students, granting them the confidence to actively engage in the learning environment and develop a sense of school belonging (Heikamp et al., 2020).

Intercultural competence can enhance cultural appreciation. In the multifaceted classrooms of contemporary England, a myriad of cultures, traditions, and histories exist. The YIS recognises that navigating linguistic barriers alone is insufficient. Students must also bridge cultural divides, fostering an atmosphere of mutual respect and appreciation. Intercultural competence ensures that children are linguistically supported and culturally embraced, turning the classroom into a place where differences are not only accepted but celebrated.

Metalinguistic awareness, the third pillar, is about understanding the intricacies of language use. It is not just about literal interpretation but about facilitating comprehension. The YIS champions this

approach, guiding YIs on how to adjust their language and use non-verbal cues to support understanding. It equips them with the ability to communicate ideas effectively, with appreciation for linguistic nuances, ensuring that they can support their peers in diverse ways beyond words.

These pillars are interconnected, creating an inclusive learning atmosphere. By endorsing these three principles concurrently, the YIS presents a comprehensive approach to supporting EAL learners, addressing their linguistic, cultural, and emotional needs in a harmonised manner.

1.6 Significance in the Educational Landscape

Over fifteen years, the YIS has established its significance in the educational sector, reflecting its lasting relevance. However, a research gap exists regarding its effects on empathy, intercultural awareness, and metalinguistic awareness—central components of YI training, as detailed in Chapter 2. Analysing the YIS achieves two goals: for the academic audience, it enriches the EAL support literature with empirical data on a structured peer mentoring scheme. For Hampshire EMTAS, our collaborative partner in this research, the findings will be instrumental in evaluating and refining the effectiveness of the YIS. In the current context, the term 'collaborative partner' refers to an external organisation that actively shapes the research by offering insights, resources, and expertise, ensuring its real-world relevancy. In this context, the findings will guide Hampshire EMTAS in refining their approaches, ensuring the YIS continues to align with optimal EAL learner support practices.

This research is pivotal in the broader educational context for multiple reasons. First, it uniquely addresses a gap in the existing literature on buddy schemes by using a mixed methods approach with pre-and post-training measures argued by Tzani-Pepelasi et al. (2019) to be lacking in the field of peer mentoring research. Secondly, it sheds light on the impact and experience of implementing a formalised peer mentoring scheme like the YIS in schools. Given the diverse student populations in many schools without a cohesive framework, this study's findings are invaluable for educators, decision-makers, and academic bodies. Furthermore, with the ever-increasing globalisation and migration trends, English classrooms are witnessing increased diversity. There is an urgent need to understand and cater to the requirements of children with EAL to ensure they receive quality education that respects their unique linguistic and cultural backgrounds. This study's focus on EAL learners, therefore, is timely and crucial. Additionally, the research extends beyond mere academic implications. By evaluating the YIS's holistic approach - which marries linguistic support with cultural integration and emotional support - the study highlights the importance of a comprehensive strategy in education. This is particularly significant in today's education landscape, where holistic development is increasingly recognised as a key to fostering resilient, informed, and empathetic global citizens (Ashdown & Bernard, 2012). Lastly, providing empirical evidence of YIS outcomes, the study contributes to creating a more informed blueprint for future educational policy for EAL regionally and

nationally. It sets a precedent for other educational institutions and regions to consider adopting or adapting similar schemes, thereby potentially impacting the broader trajectory of EAL education in the UK and beyond.

1.7 Aims and Objectives of the Present Research

Within the landscape of informal support systems, this doctoral research stands out by examining the structured and formalised approach of the YIS, a peer mentoring scheme, through a longitudinal examination of the impact of the YIS on the participating Young Interpreters (N=42) in four primary schools in England (aged 7-11 years). Quantitative and qualitative data was collected over three time points; before YI training, immediately after training and at a 6-month follow up. The analysis contrasted these findings with a control group of control participating students (N=42) from the same schools, providing comparative insights into the impact of the YI scheme. One of the primary motivations behind this study is to empower Hampshire EMTAS with robust data and insights, allowing for the optimisation of the YIS to better support EAL learners.

The study evaluated children's development in empathy, intercultural competence, and metalinguistic awareness. Participants completed a battery of assessments in non-verbal IQ and, vocabulary breadth and depth. Levels of empathy were measured through a questionnaire (Rieffe et al., 2010). A researcher-designed task for intercultural awareness was used whereby children were asked six questions based on the cultural intelligence dimensions proposed by Earley and Ang (2003). Metalinguistic awareness was evaluated through a task involving the reordering of words to gauge syntactic awareness, drawing on the methodology developed by Nation and Snowling (2000). Additionally, an exercise focused on explaining words was used to assess morphological awareness.

1.8 Structure of the Dissertation

This thesis is organised as follows: Chapter 2 provides an in-depth exploration of the Young Interpreter Scheme. Chapter 3 articulates the research methodology employed. Chapters 4, 5, and 6 address distinct components of the study, focusing on empathy, intercultural competence, and metalinguistic awareness respectively. Concluding the dissertation, Chapter 7 provides a discussion of the research findings.

1.9 References

Ashdown, D. M., & Bernard, M. E. (2012). Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children? *Early Childhood Education Journal*, *39*(6), 397-405. https://doi.org/10.1007/s10643-011-0481-x

Banks, J. A. (2006). *Diversity and citizenship education: Global perspectives*. John Wiley & Sons.

Calderón, M., Slavin, R., & Sanchez, M. (2011). Effective instruction for English learners. *The future of children*, 103-127.

Carhill-Poza, A. (2017). "If you don't find a friend in here, it's gonna be hard for you": Structuring bilingual peer support for language learning in urban high schools. *Linguistics and Education*, *37*, 63-72. https://doi.org/https://doi.org/10.1016/j.linged.2016.09.001

Carter, E. W., Asmus, J., Moss, C. K., Biggs, E. E., Bolt, D. M., Born, T. L., Brock, M. E., Cattey, G. N., Chen, R., & Cooney, M. (2016). Randomized evaluation of peer support arrangements to support the inclusion of high school students with severe disabilities. *Exceptional Children*, *82*(2), 209-233. https://journals.sagepub.com/doi/abs/10.1177/0014402915598780

Channon, S., Marsh, K., Jenkins, A., & Robling, M. (2013). Using Motivational Interviewing as the basis for a peer support programme in high school. *Pastoral Care in Education*, *31*(1), 66-78. https://doi.org/10.1080/02643944.2012.731426

Cline, T., Crafter, S., & Prokopiou, E. (2014). Child language brokering in schools: a discussion of selected findings from a survey of teachers and ex-students. *Educational & Child Psychology*, *31*, 34-45. https://oro.open.ac.uk/48377/

Collier, V. P., & Thomas, W. P. (2007). Predicting second language academic success in English using the Prism Model. In *International handbook of English language teaching* (pp. 333-348). Springer. https://oro.open.ac.uk/48377/

Cornelius-White, J. (2007). Learner-Centered Teacher-Student Relationships Are Effective: A Meta-Analysis. *Review of Educational Research*, *77*(1), 113-143. https://doi.org/10.3102/003465430298563

Coyle, D., Bower, K., Foley, Y., & Hancock, J. (2021). Teachers as designers of learning in diverse, bilingual classrooms in England: an ADiBE case study. *International Journal of Bilingual Education and Bilingualism*, 1-19. https://doi.org/10.1080/13670050.2021.1989373

Demie, F. (2018). English language proficiency and attainment of EAL (English as second language) pupils in England. *Journal of Multilingual and Multicultural Development*, *39*(7), 641-653. https://doi.org/10.1080/01434632.2017.1420658

DfE. (2019). *Schools, pupils and their characteristics*. Nottingham: DfE Publications Retrieved from https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2019

DfE. (2023). *Schools, pupils and their characteristics*. London: Department for Education. Retrieved from https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics

Dolva, A. S., Gustavsson, A., Borell, L., & Hemmingsson, H. (2011). Facilitating peer interaction–support to children with Down syndrome in mainstream schools. *European Journal of Special Needs Education*, *26*(2), 201-213. https://www.tandfonline.com/doi/abs/10.1080/08856257.2011.563607

Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press.

Eisenberg, N., Eggum, N. D., & Di Giunta, L. (2010). Empathy-related Responding: Associations with Prosocial Behavior, Aggression, and Intergroup Relations. *Soc Issues Policy Rev*, *4*(1), 143-180. https://doi.org/10.1111/j.1751-2409.2010.01020.x

Flynn, N. (2019). Teachers and Polish children: capturing changes in the linguistic field. *British Journal of Sociology of Education*, *40*(1), 65-82. https://doi.org/10.1080/01425692.2018.1481366

Flynn, N., & Curdt-Christiansen, X. L. (2018). Intentions versus enactment: making sense of policy and practice for teaching English as an additional language. *Language and Education*, *32*(5), 410-427. https://doi.org/10.1080/09500782.2018.1475484

Galloway, K. W., & Burns, S. (2015). Doing it for themselves: students creating a high quality peer-learning environment [10.1039/C4RP00209A]. *Chemistry Education Research and Practice*, *16*(1), 82-92. https://doi.org/10.1039/C4RP00209A

Gibbons, P. (1991). *Learning to Learn in a Second Language*. Heinemann.

Hampshire, E. (2014). *Hampshire Young Interpreter Scheme Guidance Pack*. Hampshire County Council. https://www.hants.gov.uk/educationandlearning/emtas

Heikamp, T., Phalet, K., Van Laar, C., & Verschueren, K. (2020). To belong or not to belong: Protecting minority engagement in the face of discrimination. *International Journal of Psychology*, *55*(5), 779-788. https://doi.org/https://doi.org/10.1002/ijop.12706

Heineke, A. J., & Vera, E. M. (2022). Beyond Language and Academics: Investigating Teachers' Preparation to Promote the Social-Emotional Well-Being of Emergent Bilingual Learners. *Journal of Teacher Education*, *73*(2), 145-158. https://doi.org/10.1177/00224871211027573

Higgins, S., Katsipataki, M., Kokotsaki, D., Coleman, R., Major, L., & Coe, R. (2013). *The Sutton Trust - Education Endowment Foundation Teaching and Learning Toolkit.* Education Endowment Foundation. http://www.educationendowmentfoundation.org.uk/toolkit

Houlston, C., Smith, P. K., & Jessel, J. (2011). The relationship between use of school-based peer support initiatives and the social and emotional well-being of bullied and non-bullied students. *Children & Society*, *25*(4), 293-305. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1099-0860.2011.00376.x

Hutchinson, J. (2018). *Educational outcomes of children with English as an additional language*. T. B. Foundation. https://www.bell-foundation.org.uk/eal-programme/research/educational-outcomes-of-children-with-english-as-an-additional-language/

Lucas, T., Villegas, A. M., & Freedson-Gonzalez, M. (2008). Linguistically Responsive Teacher Education: Preparing Classroom Teachers to Teach English Language Learners. *Journal of Teacher Education*, *59*(4), 361-373. https://doi.org/10.1177/0022487108322110

Messiou, K., & Azaola, M. C. (2018). A peer-mentoring scheme for immigrant students in English secondary schools: a support mechanism for promoting inclusion? *International Journal of Inclusive Education*, *22*(2), 142-157. https://doi.org/10.1080/13603116.2017.1362047

Nation, K., & Snowling, M. J. (2000). Factors influencing syntactic awareness skills in normal readers and poor comprehenders. *Applied Psycholinguistics*, *21*(2), 229-241. https://doi.org/10.1017/S0142716400002046

Osterman, K. F. (2000). Students' Need for Belonging in the School Community. *Review of Educational Research*, *70*(3), 323-367. https://doi.org/10.3102/00346543070003323

Rieffe, C., Ketelaar, L., & Wiefferink, C. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*, 362-367. https://doi.org/10.1016/j.paid.2010.03.046

Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of educational psychology*, *88*(3), 408. https://psycnet.apa.org/record/1996-01787-003

Strand, S., & Demie, F. (2005). English language acquisition and educational attainment at the end of primary school. *Educational Studies*, *31*(3), 275-291. https://www.tandfonline.com/doi/abs/10.1080/03055690500236613

Strand, S., & Lindorff, A. (2021). English as an additional language, proficiency in English and rate of progression: Pupil, school and LA variation. https://www.bell-foundation.org.uk/eal-programme/research/english-as-an-additional-language-proficiency-in-english-and-rate-of-progression-pupil-school-and-la-variation/

Strand, S., Malmberg, L., & Hall, J. (2015). English as an Additional Language (EAL) and educational achievement in England: An analysis of the National Pupil Database. https://ora.ox.ac.uk/objects/uuid:5fe64adb-a4b8-465c-aa9c-0e80697e28bb

Topping, K. J., & Ehly, S. W. (2001). Peer Assisted Learning: A Framework for Consultation. *Journal of Educational and Psychological Consultation*, *12*(2), 113-132. https://doi.org/10.1207/S1532768XJEPC1202_03

Tzani-Pepelasi, C., Ioannou, M., Synnott, J., & McDonnell, D. (2019). Peer Support at Schools: the Buddy Approach as a Prevention and Intervention Strategy for School Bullying. *International Journal of Bullying Prevention*, *1*(2), 111-123. https://doi.org/10.1007/s42380-019-00011-z

Walqui, A. (2010). Growth of Teacher Expertise for Teaching English Language Learners: A Socio-Culturally Based Professional Development Model. In T. Lucas (Ed.), *Teacher Preparation for Linguistically Diverse Classrooms: A Resource for Teacher Educators*. Routledge.

Chapter 2: Chapter 2: The Young Interpreter Scheme©

1.1. About the scheme

The YIS consists of training school pupils aged 5 to 16 to help new pupils who have EAL. YIs are trained to help new students acclimate to the school. Embodying the role of empathetic friends, YIs use their language skills to guide newcomers through everyday school activities and routines. YIs buddy up with newcomers to showcase school routines, accompany them during breaks, introduce them to clubs and activities, assist with communication, and guide non-English speaking visitors around the school.

The training for YIs does not intend to transform them into professional interpreters or to substitute bilingual teaching assistants. YIs are selected based on their capacity to exhibit qualities such as care, patience, and effective communication rather than solely their language proficiency. Through structured exercises, YIs gain insights into the emotions experienced by new students during their initial days or weeks at school. They are introduced to diverse strategies, from employing body language to using illustrations, to aid communication. The YI coordinator (YIC) in each school oversees the scheme, ensuring the well-being of the YIs and their appropriate involvement.

2.1 Development of the scheme

Initiated in 2004, the YIS scheme was developed in Hampshire, UK, to address the increasing number of students joining schools with minimal English proficiency. The pilot implementation in four Hampshire schools was successful, leading to a rising demand for its training materials from neighbouring schools. Today, over 800 schools both in the UK and overseas, have incorporated YIS materials, attesting to its widespread acceptance and perceived effectiveness, extending well beyond Hampshire. The scheme's potential to offer an affordable, self-reliant support structure for EAL learners in an inclusive environment is viewed as a significant advantage (Dinneen, 2017). However, rigorous research is imperative to validate these perceptions. Given funding constraints and inadequate policy guidance, the scheme's cost-effectiveness becomes particularly crucial to ensuring EAL students realise their utmost potential.

2.2 YI Training

To become a YI, students undergo four specific training sessions, typically overseen by the YIC, an educator from their respective schools. These sessions equip them with various techniques, such as utilising pictures and body language, to assist their peers in regular, informal school situations. It is imperative to emphasise that this training does not equate to the standards of professional adult interpreting, and YIs are not intended to supplant bilingual teaching assistants. The training materials are accessible through Hampshire EMTAS Moodle, a digital platform replete with a comprehensive

array of e-learning materials. These resources provide schools with the necessary guidance, support, and strategies to establish the YI scheme and direct YIs in their roles. The YIC assumes responsibility for training and oversight. Given the copyrighted nature of these materials, only summaries are publicly available. For comprehensive access, schools must purchase them from Hampshire EMTAS's Moodle at a one-off fee of £70. However, the four schools involved in this research received access at no cost.

2.2.1 Step 1: Setting up the YIS®

The YIC initiates their role through an e-learning module on Hampshire EMTAS Moodle. This defines the YIS's goals, describes desired YI traits, offers pupil selection guidelines, and details YI utilisation with a focus on safeguarding. The module also describes how the available YI kits can help and support children in their role. The YIC then conducts an audit for the scheme's integration into their school. Available resources on the Moodle include an aide-mémoire on best practices, presentation slides for colleagues and pupils, movie trailers, an invitation letter for potential YIs, and a guide for scheme implementation.

2.2.2 Step 2: Training the pupils as Young Interpreters

The second module offers lesson plans and resources for training pupils within their school environment. Each of the four sessions consists of structured activities, supplemented by examples, models, and provided answers to aid the YIC in facilitating the training. Training is conducted in group settings, usually comprising fewer than 10 potential YIs.

In Key Stage 2 (KS2), the YI training spans four sessions, each lasting approximately 30 minutes. These sessions are spread out over approximately four weeks, delivered by the YIC at school based on what suits pupils and staff. Supporting materials available on the Moodle for this stage include: a language map, a YI qualities map, role play cards and a completion congratulatory letter for pupils.

During the first session, pupils delve into their personal language experiences. They introduce themselves, sharing their origins and the languages they speak. The group learns greetings in various languages represented within their circle. Subsequently, they engage in a conversation on the significance of languages in their lives, facilitated through a language map.

During the second session, pupils learn about the role and responsibilities of Young Interpreters. They contrast the duties of YIs with those of professional interpreters and discuss the ways YIs can assist their peers. The trainees learn how to communicate with each other in diverse ways, beyond speaking a common language. To wrap up, they use the qualities map to contemplate the essential traits needed for a YI to excel in their role.

In the third session, pupils delve into empathy by experiencing the sensation of listening to an unfamiliar language. They are presented with a story in a language they do not recognise, which is

later revisited using visual aids. Pupils then share their reactions and emotions from this exercise. Towards the end of the session, those who have relocated from another country share their personal journeys, fostering discussions on how YIs can facilitate smoother transitions for newcomers to the school.

In the fourth session, learners partake in three key components: leveraging vocabulary to explain unfamiliar terms, engaging in role plays to simulate YI interactions, and mastering the utilisation of the YI kit. A modified version of the Aesop (1867) fable 'The Ant and the Grasshopper' (Appendix B) introduces them to the Word Detective strategies from the Word Aware methodology for vocabulary enhancement (Parsons & Branagan, 2014) - an approach approved for use in this project by its creators. Following the role-plays, pupils discuss their emotions, coping strategies, and best practices for each situation presented. Trainees are then introduced to the YI kit and guided on its usage. Lastly, participants are reminded to seek assistance when needed, concluding with the distribution of badges, certificates, and diaries.

2.2.3 Step 3: Co-ordinating the Young Interpreters - Post training

For the scheme to run successfully, effective coordination of the YIs is paramount, encompassing their role guidance and sustained motivation post-training. The YI training module recommends a follow-up program to keep pupils engaged. YICs are encouraged to regularly connect with pupils, pair them with new arrivals, monitor their progress, and involve them in school activities. In cases where assignments are limited, alternative activities within the school are suggested. These encompass creating multilingual welcome videos, designing interactive school maps in different languages, conducting assemblies to explain YI roles, and establishing friendship stops in the playground. Attending YI conferences, writing an article for the YI newsletter, and creating communication strategy fans are also encouraged. Updates and celebrations are also emphasised, including letters to parents, website updates, and recognition through Hampshire EMTAS channels. The scheme provides a self-evaluation framework with steps for implementation, best practices, and three key aspects: Leadership & Safeguarding, Recruitment & Training, and Sustainability & Outreach. This framework assists both new and experienced YICs in establishing and maintaining the scheme effectively.

YIs are trained to understand and practice empathy when assisting new arrivals, but translating this knowledge into empathetic actions can be complex. YICs play a continuous role in helping YIs refine their empathetic skills beyond initial training. Moodle provides interactive cartoons depicting scenarios like the first day of school and teasing, enabling YICs to guide YIs in analysing and responding empathetically. Small group discussions and collective resolutions are encouraged, followed by whole-

group discussions centred on empathy. YIs can also create their own scenarios using art, photography, or apps to highlight empathetic assistance strategies.

New Young Interpreters can be trained every academic year to join the group and/or to replace children who have moved to another school. Co-ordinators are encouraged to continue using the YI self-evaluation framework to monitor practice, sustain the scheme and maintain children's motivation. Resources such as special YI badges, certificates, hats, tabards, pencils, and stickers can be purchased from Hampshire EMTAS.

2.3 YI Diary

The original YIS setup lacked a method to document tasks and YIs experiences. To address this gap, a YI diary (appendix A) was developed and approved by Hampshire EMTAS, essential for the longitudinal study's task recording. The diary tracked task frequency, types, and YIs' feelings, serving research and school motivation purposes. It adhered to Hampshire EMTAS' branding through a purple and green colour scheme. Figure 2.1 shows the example completed page provided to children at the beginning of their diary.

Figure 2.1 Example completed page of the YI diary

Aesop. (1867). *The Ant and the Grasshopper*. http://taleswithgigi.com/tale/14

2.4 References

Dinneen, A. (2017). The Hampshire Young Interpreter Scheme: A coming of age. *National Association for Language Development in the Curriculum - EAL Matters*. https://doi.org/https://naldic.org.uk/wp-content/uploads/2017/06/EAL-Matters-2.pdf

Parsons, S., & Branagan, A. (2014). *Word Aware: Teaching Vocabulary across the day, across the curriculum*. Routledge.

Chapter 3: <u>Chapter 3: Methodology</u>

Introduction

The primary goal of this study was to investigate the effect of participation in the YIS on Young Interpreter's levels of empathy, intercultural competence, and metalinguistic awareness. This chapter describes the participants and schools, the tasks in the assessment battery and the procedure. This chapter is organised into five sections: 1) participants, 2) participating schools' information, 3) materials, 4) procedure, and 5) ethics.

2.1 Participants

3.1.1 Recruitment process

Schools were recruited between September and December 2020 after ethical approval from the University of Reading's Research Ethics Committee using various strategies. An initial email about the research project was dispatched to 417 schools affiliated with Hampshire EMTAS. Of these, 23 schools, representing a 4.8% response rate, sought more details. However, 11 were unable to participate due to COVID-19 restrictions, six responded after the recruitment had concluded, two were secondary schools (whereas the project was centred on primary schools), one was an international school not suitable for testing, and three did not pursue further after expressing initial interest. One school, (referred to as school 5) met with the researcher, comprehended the project requirements, and agreed to join the study. The specialist teacher advisor, who oversees the scheme at Hampshire EMTAS, reached out to five schools that were strong advocates of the scheme to participate in the research. However, due to COVID-19 restrictions, these schools were unable to participate. A colleague of the researcher e-mailed all primary schools in one region about the research project, with the advertisement also posted on EALchildren.org. Of those, five schools expressed interest. Meetings were conducted with EAL coordinators from three schools, leading to three of them (schools 1, 2 & 4) committing to the project. Two declined due to COVID-19 restrictions. In another region, another colleague reached out to schools, with two showing interests. After meetings with their EAL coordinators, one school joined the project (school 3). The other could not participate as its EAL coordinator went on maternity leave, leaving no one to oversee the YIS and research. Twenty primary schools in another region received project information from the specialist teacher advisor for EAL. The project was also advertised at EAL network meetings, on the specific EMTAS Moodle, blogs, and Twitter, but these channels yielded no results. The six schools that agreed to participate received complimentary access to the YIS Moodle. One school, an infant school (school 6) met with the researcher but was deemed unsuitable as the children, aged 5 and 6, could not understand the assessment battery because of low reading levels associated with their age. Additionally, due to the

COVID-19 pandemic causing staff absences and access issues, school 1 was unable to complete all data collection points and excluded from the study. Overall, children from four schools were in the final sample.

3.1.2 Consent

Thirty-one children were identified by the YIC for YI training, and their parents / guardians received information sheets and consent forms. All parents consented for their child to become a YI and take part in the project. The YIC for each school also aided the selection of control children for the screening test to match the YI child. The parents/guardians of these thirty-one children were sent a participant information sheet via the child and consent forms. Children were matched on 1) attending the same school, 2) being the same age (within 3 months), 3) gender, 4) monolingual or bi/multi-lingual status, and 5) achieving a standard score of at least 85 on the standardised baseline measures Ravens Progressive Matrices.

3.1.3 Inclusion and Exclusion criteria

Children scoring below 85 on the Raven's Coloured Progressive Matrices Test (Raven et al., 1998), a measure of non-verbal intelligence were excluded. Additionally, children with Communication and Interaction or Cognition and Learning needs, as identified by the 2015 Special Educational Needs and Disability code of practice, were intended to be excluded, though none in the sample met this criterion. In total, two children were excluded for scoring below 85 on the Raven's test (one YI child from school 2 and one control child from school 5).

3.1.4 Participant sample at times 2 and 3

As the consent process covered three data collection time points, the same schools and participants were included in the second phase of data collection (Time 2) approximately one month after the first data collection point (Time 1) which coincided with the completion of their YI training. Data collection took place during May to June 2021. The third phase of data collection (Time 3) took place between 5 and 6 months later for schools 2 to 5 during November and December 2021. One control child was not tested at time 3 due to leaving the school.

3.1.5 Final sample

The final sample was 30 YI children (group A) and 29 non-YI / control children (group B). At time 1, the YI group's average age was 9 years 4 months (ranging from 7 years 6 months to 10 years 8 months), while the control groups was 9 years 5 months (ranging from 7 years 8 months to 10 years 8 months). Collectively, both groups spoke 19 unique languages: Arabic, Bangla, Greek, Japanese, Kurdish, Lithuanian, Portuguese, Punjabi, Romanian, Russian, Tamil, Twi, Urdu, Italian, Latvian, Shona, Slovakian, Spanish, and Wolof. The demographics are shown in table 3.1.

Table 3.1 Demographics of final sample included in data analysis

Factor	Group		Total sample	School 2		School 3		School 4		School 5	
	A	B		A	B	A	B	A	B	A	B
Gender											
N	30	29	59	9	9	9	8	7	7	5	5
Male	10	9	19	1	1	4	4	3	3	2	2
Female	20	20	40	8	8	5	4	4	4	3	3
Language status											
Monolingual	9	9	18	2	2	3	3	4	4	0	0
Bilingual	16	14	30	5	5	6	5	1	1	3	4
Multilingual	5	6	11	1	2	0	1	2	2	2	1
Age in years (time 1)											
7	6	0	6	5	0	0	0	0	0	1	0
8	5	9	14	4	7	0	0	0	0	1	2
9	5	8	13	0	1	2	4	1	1	2	2
10	14	12	26	0	1	7	4	6	6	1	1

Note. Children were matched based on age in months. A = YI children. B = Control children.

3.1.6 Characteristics of participating schools

Table 3.2 Overview of Key Characteristics and Performance Indicators

School	Location	Ofsted Rating	Total Pupils	Pupils with SEN (%)	EAL Pupils (%)	Pupils for Free School Meals (%)	Key Stage 2 Standards (%)
School 2	West Yorkshire	Good (2022)	680	7.7	21.1	31.6	64
School 3	Cambridgeshire	Good (2015 & 2019)	2025	7.7	Not specified	22.6	47
School 4	West Yorkshire	Good (2018)	412	20.9	47.3	51.7	32
School 5	Northeast England	Good (2012 & 2019)	260	13.5	36.9	48.6	63

School 2, located in West Yorkshire, is a state-maintained primary school rated 'good' by Ofsted in 2022. It serves 680 pupils: 7.7% with special educational needs, 21.1% who speak English as a second language, and 31.6% eligible for free school meals. In 2018/2019, 64% of Key Stage 2 pupils met the expected reading, writing, and math standards, slightly below the national average of 65%. The staff

comprises 28 teachers, 50 support assistants, and a six-person leadership team. The YIS program commenced in Autumn 2020.

School 3, a specialist mathematics and science academy in Cambridgeshire, caters to students aged 7-19. The Junior school (years 3-6) was rated 'good' in both 2015's full inspection and 2019's short inspection. In 2015, the entire academy had 2025 pupils, with 362 in the Junior section by 2020. Across the academy, 22.6% qualify for free school meals, and 7.7% receive special educational needs support. In the Junior school, 24% are eligible for the pupil premium, which benefits disadvantaged pupils, and there are 92 EAL students. In 2018/2019, 47% of Key Stage 2 pupils achieved the expected reading, writing, and math standards, falling below the national 65% average. The staff includes 24 teachers, 48 support assistants, and a six-member leadership team. They began the YIS program in Autumn 2020.

Located in West Yorkshire, School 4 is a state-maintained primary school. It was rated 'good' by Ofsted in 2018 and had 412 pupils that year. Among these, 20.9% received special educational needs support, 47.3% had English as their second language, and 51.7% qualified for free school meals. During 2018/2019, only 32% of Key Stage 2 pupils reached the expected standards in reading, writing, and math, notably below England's 65% average. The school staff consists of 21 teachers, 39 support assistants, and a four-person leadership team. They implemented the YIS program in Autumn 2020.

School 5, situated in Northeast England, is a state-maintained primary institution. It earned a 'good' rating from Ofsted in 2012's full inspection and maintained this in 2019's short inspection. In 2019, there were 260 pupils enrolled: 13.5% with special educational needs support, 36.9% non-native English speakers, and 48.6% eligible for free school meals. During 2018/2019, 63% of pupils achieved expected reading, writing, and math standards, slightly below England's 65% average. The school team comprises 10 teachers, 20 support assistants, and a four-member leadership team. The YIS program was introduced in Autumn 2020.

3.2 Materials

The assessment measures used in this study were: a set of baseline measures (Ravens Progressive Matrices (Raven et al., 1998) (Appendix C), British Picture Vocabulary Scale – 3rd Edition (Dunn & Dunn, 2009) (Appendix D) and Test of Word Knowledge (Wiig & Secord, 1992)) (Appendices E & F); The Empathy Questionnaire (EmQue) (Rieffe et al., 2010) (Appendix G), an intercultural competence task (Appendix H), a word re-ordering task (Appendix O), and An explaining words task (Appendix P). A story-based task designed by the researcher was incorporated into the YI training to teach children ways to help peers using English grammatical language based on Word Aware methodology for teaching vocabulary (Appendix B) (Parsons & Branagan, 2014).

3.2.1 Training materials - teaching word-learning strategies through stories (TWLSS)

A new grammatical element was added to complement the existing YI training. Its purpose was to strengthen word-learning strategies prevalent in educational settings, allowing pupils to deduce the meanings of unfamiliar words through derivational morphology and metalinguistic awareness. The National Curriculum (DfE, 2013) requires that children are "familiar with…fairy tales and traditional tales" (p.28) from year 1 (age 5). Therefore, embedding this additional module into a story was deemed appropriate. In the book 'Word Aware – Teaching Vocabulary', Parsons and Branagan (2014) introduce a technique termed 'Word Detective'. This method equips children with independent word-learning skills, essential for deciphering unfamiliar words during independent reading. The authors detail three primary tools children can employ: word context, identification of the part of speech, and morphological elements. Given that children begin differentiating between nouns, verbs, and adjectives from year 1, these word types were the focus. To comprehend a word's meaning, a systematic six-step approach is suggested: 1) examine the word's context: reading surrounding text, assessing related images, and identifying potential synonyms, 2) determine the word's part of speech, 3) identifying any prefixes and 4) suffixes and their effect on meaning, 5) predict the potential meaning of the word, and 6) ask someone or consult a dictionary.

To incorporate the Word Detective strategy into a story, a Google search was performed searching for 'traditional tales and fables.' Twinkl.co.uk provided a list of 42 'traditional tales' that were then shortlisted to neutral stories about animals, most of which were by Aesop. Each of these fables was read by the researcher and shortlisted based on length (approximately 300 words) and content. Two stories were identified for use: The Tortoise and the Hare (273 words) and The Ant and the Grasshopper (311 words). A specialist teacher advisor at Hampshire EMTAS confirmed that The Tortoise and the Hare was most suited to Key Stage 2 children. The story was accessible at no cost on 'taleswithgigi.com', a platform offering printable stories. The story was transferred to a word document, with punctuation removed and contractions expanded for corpus entry. The story text was analysed using the Subtlex-UK corpus (van Heuven et al., 2014) , which sources word frequencies from subtitles of British children's TV channels. Brysbaert et al. (2011) indicate that these frequencies are more reflective of word processing times than those from books. The CBBC, launched in 2013 by the BBC, caters to children aged 6-12. Its database, with roughly 13.5 million tokens from 4848 broadcasts, uses the Zipf scale (Zipf, 1949) ranging from 1 (low-frequency words) to 6-7 (high-frequency content and function words). The output from Subtlex-UK was exported to an Excel worksheet. Words that were not categorised as a noun, verb, or adjective were removed and unidentified parts of speech were inputted manually by the researcher. This left 64 words (43 verbs, 12 nouns and 9 adjectives). Words with a Zipf frequency of 3.99 and above were then removed as low frequency words (with a

value of 3 and below) allowed the Word Detective strategies to be more thoroughly employed as children would be less likely to know these words. This resulted in 14 words (see table 3.2) that were then assessed by the researcher for their ability to be solved using one or more of the six steps in the Word Detective strategy described by Parsons and Branagan (2014). However, since the initial version of the narrative did not encompass enough desired words that aligned with all the outlined criteria, certain modifications and supplements to the content became necessary. These adjustments were conducted by using the researcher's expertise, employing the synonym feature in Microsoft Word to find alternatives, evaluating words amenable to a Word Detective approach, referencing the National Curriculum to identify grammar concepts taught in schools, and conducting targeted Google searches for words exhibiting specific attributes such as the prefix "over." Each potential target word underwent inclusion in the Subtlex-UK corpus to determine its Zipf frequency. Subsequently, terms exhibiting a Zipf frequency of 3.99 or lower underwent evaluation for their contextual coherence within the existing narrative framework. Table 3.2 shows the final six words used in the story.

Table 3.3 Original Story Words

Word	Zipf frequency	Part of Speech	Word Detective strategy	Used?
slowest	3.13	Adjective	-	No
persistent	3.71	Adjective	Synonym ('tireless' used)	No
sleepy	3.78	Adjective	Synonym ('lethargic' used)	No
snooze	3.13	Noun	-	No
disgrace	3.77	Noun	-	No
snack	3.82	Noun	-	No
tortoise	3.82	Noun	-	No
hare	3.98	Noun	Part of Speech knowledge. Context using picture in story.	Yes
jeered	2.33	Verb	-	No
sobbing	3.09	Verb	-	No
teasing	3.44	Verb	-	No
dreamed	3.82	Verb	-	No
shouted	3.86	Verb	-	No
rushed	3.95	Verb	-	No
Additional words – added via a short sentence or clause to include the target word.				
Tireless	*2.91*	*Adjective*	*Part of speech knowledge. Identify the compound word contains the root word 'tire' (related to tired) and the suffix -less. Knowledge that the suffix means 'without.' Without tiring.*	**Yes** – *synonym of original word 'persistent.'*
Lethargic	*2.77*	*Adjective*	*Part of speech knowledge. Context of picture. Predict*	**Yes** – *synonym of original word 'sleepy.'*

Word				
			based on surrounding words of 'snooze,' 'wake up,' 'dreamed' and 'woke up.'	
Glanced	2.73	Verb	Part of speech knowledge. Context of picture. Predict based on surrounding words of 'saw,' 'see,' 'looked around.'	**Yes** – synonym of original word 'looked.'
Overslept	2.64	verb	Part of speech knowledge. Identify the compound word contains the root word 'slept / sleep' and the prefix -over. Knowledge that the prefix means 'above / too much.' Too much sleep.	**Yes** - added by researcher as a verb with a prefix was needed. A list of 865 words beginning with the prefix -over was sourced from thefreedictionary.com. These words were manually assessed by the researcher for suitability of inclusion in the story
Slumber	2.89	Noun	Part of speech knowledge. Context of picture. Predict based on surrounding words of 'dreamed' and 'woke up.'	**Yes** – synonym of original word 'sleep.'

3.2.2 Baseline measures

At the initial time point, several tests were administered: the Raven's Coloured Progressive Matrices Test (Raven, Raven, & Court, 1998) for non-verbal intelligence; the British Picture Vocabulary Scale III (Dunn & Dunn, 2009) for receptive vocabulary breadth; and two subscales from The Test of Word Knowledge (Secord & Wiig, 1992) (the word opposite subscale, and the synonym subscale) — the word opposite and synonym subscales — for vocabulary depth. No significant differences were observed between the two groups for these baseline measures. Descriptives for the sample and groups are presented in tables 3.3 and 3.4. The R script for the descriptive analyses is in appendix Q.

Table 3.4 Raven's Coloured Progressive Matrices

Raven's Coloured Progressive Matrices Test

	Ravens' raw score				Ravens' standard score				Ravens' Percentile			
	Sample	A	B	p value	Sample	A	B	p value	Sample	A	B	P value
Average	28.08	28.30	27.87	0.65	95.17	96.50	93.83	0.37	38.65	41.41	35.83	0.34
Range min	20	20	24		85	85	85		16	16	16	
Range max	35	35	34		120	120	120		91	91	91	

Table 3.5 Baseline measures descriptives

	BPVS raw score				TOWK – word opposites raw score				TOWK synonyms raw score			
	Sample	A	B	P value	Sample	A	B	p value	Sample	A	B	P value
Average	111.20	113.9	108.60	0.41	24.7	24.57	24.83	0.87	24.32	24.60	24.03	0.73
Range min	32	62	32		13	13	13		5	5	9	
Range max	153	152	153		36	36	33		35	35	33	

Raven's Coloured Progressive Matrices Test (CPM)

Raven's CPM are an estimate of non-verbal intelligence for children aged between 5 and 11 years. The assessment compromises 36 multiple choice questions divided into three sets of 12 colourful matrix designs. Within each set, the test items are listed in order of difficulty as the relationship between the figures in the matrix become increasingly complex. Each test item has a series of patterns with a part missing from the matrix. Respondents select the correct part from six options printed beneath the matrix to complete the design (see appendix C). Responses are either correct (1) or incorrect (0). This is a norm-referenced standardised test, and raw scores were converted to standard scores and percentiles. The first UK standardisation of the CPM showed good test-retest reliability (r = .80) (Raven et al., 1998). The internal consistency of the CPM averaged around 0.83 based on two samples (Cantwell, 1967), with inter-item consistency of .89 (Green & Kluever, 1991) and an average split-half reliability of .80 (Cotton et al., 2005).

British Picture Vocabulary Scales (BPVS)

The BPVS assesses receptive vocabulary breadth in children aged 3-16. It comprises 168 items in 14 sets, each with 12 vocabulary terms covering a range of topics and word classes. For each item, the assessor says a word and the child responds by selecting a picture from one of four options that best represents the word's meaning (see appendix D). No spoken response is required as children can point to their choice. The individual sets are allocated to age levels. A raw score is calculated from the number of correct items between the basal set and ceiling set. Sets correspond to age levels, and testing begins with the child's age-appropriate set, continuing until eight or more errors occur within a set. Scores are binary: correct (1) or incorrect (0). Although the BPVS is a norm-referenced

standardised test, raw scores were used due to the norms not being representative of bilingual children (Mahon & Crutchley, 2006). The BPVS shows good test-retest reliability with a median Cronbach's alpha of 0.93 (Glenn & Cunningham, 2005) and validity of 0.76 with the Wechsler Intelligence Scale for Children and 0.80 with the Schonell Reading test (Dunn & Dunn, 2009).

Test of Word Knowledge (TOWK)

The TOWK assesses semantic development and lexical knowledge. Two receptive subtests (word opposites and synonyms) were used to assess vocabulary depth (Wiig & Secord, 1992). The word opposite subscale measures relational word knowledge of antonyms and compromises 42 items of increasing difficulty. The synonym subscale measures children's knowledge of synonyms. For both sub-scales, a stimulus word is presented with four, word choices from which the child chooses the target word. Responses are either correct (1) or incorrect (0). As per the BPVS, raw scores were used. The manual for the TOWK reports concurrent validity of .64 (Wiig & Secord, 1992) with the Clinical Evaluation of Language Fundamentals (Semel et al., 1987) and .76 (Wiig & Secord, 1992) with the Wechsler Intelligence Scale for Children – 3rd Ed. (Wechsler, 1991). The internal consistency reliability coefficient of the word opposites subscale is .88 and .89 for the synonym subscale (Wiig & Secord, 1992). Test-retest reliability was found to be .93 (Wiig & Secord, 1992).

3.2.3 Assessment battery

Children underwent the same four tasks at each timepoint, with the baseline measures also given at time 1. The explaining words and word re-ordering tasks had varied stimuli at each timepoint, while the EMcQUE and Intercultural awareness tasks remained unchanged. At time 1, some children also tackled two additional linguistic tasks: an agreement error detection and a word analogy task. However, since most reached ceiling performance, these tasks were discontinued and not included in the analysis. Detailed descriptions of each task can be found in the respective chapters.

Empathy questionnaire

The Empathy Questionnaire for Children and Adolescents (EmQue-CA) (Overgaauw et al., 2017) evaluates affective and cognitive empathy and intention to comfort across 18 items. For each statement, children choose whether it is 'not true' for them, 'sometimes true' for them or 'often true' for them, scoring 0, 1 or 2 respectively. Full details are in chapter 4.

Intercultural competence

This task was designed by the researcher. Earley and Ang (2003) separate intercultural competence into four dimensions; metacognitive, cognitive, motivational, and behavioural. These four domains were captured in six questions posed to the child, using an imaginary scenario whereby a new student from a non-English speaking country would be starting at their school. Full details are in chapter 5.

Syntactic Awareness – Word Re-ordering Task

Syntactic awareness was assessed through a word re-ordering task based on work by Nation & Snowling (2000). Children rearranged words into correct sentences, scoring a possible 27 points. They also explained their reasoning for eight sentence types. Chapter 6 offers further insights.

Morphological awareness - Explaining words task

This task involved explaining 6 words (2 nouns, 2 adjective and 2 verbs) to the researcher. The words chosen were in line with the teaching of word-learning strategies through stories (TWLSS) delivered during the YI training. Full details are in chapter 6.

3.3 Procedure

3.3.1 Impact of the COVID pandemic

The trajectory of the project experienced significant disruptions due to the COVID-19 pandemic. Initially, face-to-face data collection in Hampshire primary schools, especially those supportive of the YIS scheme, was envisioned. Collaboration with Hampshire EMTAS had identified specific target schools for this purpose. However, government restrictions, which prohibited external visitors in schools, made participation from these identified institutions unfeasible. Consequently, there was a pivot towards online data collection, transforming the assessment tools for compatibility with video calling. This adaptation not only allowed a broader geographical reach but also necessitated an extensive period for digitising the assessment tasks.

With the engagement of five schools, challenges persisted. The pandemic's unpredictability was evident as schools faced intermittent closures due to government directives. This inconsistency hindered comprehensive pilot testing. Instead, an alternative pilot was executed with primary school-aged children acquainted with the researcher. Furthermore, the volatile nature of the pandemic necessitated repeated amendments to testing schedules. These shifts were influenced by the sporadic school openings and closures and had to accommodate the evolving in-school restrictions and the continual adaptations teachers were making considering new government guidelines.

The pandemic not only brought about broad challenges but also specific logistical problems such as the introduction of class bubbles, staff shortages, and increased absenteeism due to sickness or self-isolation. These issues directly impacted the operations of the YIS. In situations where schools remained open, a member of staff, typically the YIC, became essential to facilitate data collection. This individual was responsible for organising participating children, ensuring an appropriate environment for assessment, and guaranteeing the availability of necessary tech resources.

The planned testing schedule was delayed and amended three times. Data collection could be interrupted even once sessions were arranged due to absences, school breaks and lunchtimes,

commitments in school that the children cannot miss, or their class teacher needed them to be in class for an activity. The pandemic gave extra pressure to the already challenging feat of testing in schools. This meant testing sessions were cancelled by the school at extremely short notice due to the YIC being off sick, or self-isolating, or needing to teach classes, as well as children being off school or self-isolating. Data collection was very stop start due to these reasons. It also resulted in

3.3.2 Baseline measures procedure

The three baseline measures - Ravens Progressive Matrices (Raven et al., 1998), British Picture Vocabulary Scale – 3rd Edition (Dunn & Dunn, 2009) and Test of Word Knowledge (Wiig & Secord, 1992) - were administered to participants. To prevent potential order effects, these measures were presented in a random sequence. All assessments took place in a quiet room within the participants' school and were conducted using a Microsoft Teams video call.

3.3.3 Assessment battery procedure

The children undertook four distinct tasks: The Empathy Questionnaire (Rieffe et al., 2010), Intercultural Competence task, Word re-ordering task, and Explaining words task). To avoid any order effects, the sequence of these tasks was randomised for each participant.

3.3.4 Baseline measures

Raven's Coloured Progressive Matrices Test (CPM)

For the CPM, individual stimuli were digitised and embedded into a PowerPoint presentation, with each item shown on a distinct slide. During the assessment, the presentation was shared with the participant via a Microsoft Teams video call. Adhering to the test's instruction manual, participants were prompted with: "This is a pattern with a piece cut out of it. Each of the pieces below is the right shape to fill this space, but only one of them has the correct pattern. Which piece from the bottom do you think fits best to complete the pattern?". Participants then indicated their choice, specifying a number between 1 to 6. All responses were manually recorded by the researcher. If a child opted to change their initial response, only the final choice was noted. After navigating through all 36 test items, a concluding slide expressed gratitude for the participant's cooperation.

British Picture Vocabulary Scales (BPVS)

For the British Picture Vocabulary Scale (BPVS) assessment, stimuli were digitised and incorporated into a PowerPoint presentation, with each item displayed on an individual slide. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. The test was administered in accordance with the instruction manual, whereby the child's age in years and months was calculated first to begin testing at their corresponding age starting set. Each item was presented on a separate slide and showed four pictures. The child was asked "what number is 'stimulus word'?" The child responded with the corresponding number picture of their choice (1 to 4), and this

was recorded by the researcher onto the paper performance record form. The researcher then moved the slideshow to the next item. The basal set was established when the child made no more than one error in a set. If two or more errors were present in the first set, then the preceding set of 12 items was administered and this continued until the basal set was established. If the child changed their response, their final response was recorded. On completion of each set, the total number of wrong responses were recorded on the performance record form. Testing then resumed forward in sets of 12 items until the ceiling set was established. If the child changed their response, their final response was recorded. The ceiling is obtained when the child made eight or more errors in a set. Testing was discontinued after the ceiling set was found. For some children, the standard ceiling was not established, and they continued to the automatic ceiling of the final item. At the end of the stimuli presentation, the final slide stated that this was the end and thank you.

Test of Word Knowledge (TOWK)

The TOWK encompassed two receptive subtests: word opposites and synonyms. For the purpose of this assessment, stimuli were digitised and integrated into a PowerPoint presentation, ensuring each item was shown on an individual slide. Throughout the testing phase, this presentation was shown to participants via a video call on Microsoft Teams, in line with the protocols set out in the instruction manual. The child's age, delineated in years, ascertained the appropriate starting point for the test. For the word opposites subscale, participants were presented with a stimulus word accompanied by four potential word choices. They were required to select the word which best represented the antonym of the stimulus word. Notably, the initial items (1 to 7) provided just three word choices. The question posed to the participants was: "Which word is the opposite of 'stimulus word'?" Responses were manually noted by the researcher on the designated paper record form. The presentation then transitioned to the subsequent item. The synonym subscale mirrored the format of the opposites subscale. However, in this segment, the child had to identify words synonymous with the stimulus word from a set of choices. Participants were prompted with: "Which word means the same as 'stimulus word'?" Again, responses were recorded. A crucial component of the assessment process was the establishment of the basal set, which was defined by five consecutive correct responses from the participant. Should a participant fail to correctly answer the initial five items, preceding items were revisited in reverse order until a streak of five correct answers was obtained. The test proceeded until the participant either incorrectly responded to five items in succession or reached the culmination of the test at item 42. In scenarios where participants amended their responses, only their concluding choice was documented. The final slide thanked them for their participation.

3.3.5 Assessment battery

Empathy questionnaire

The Empathy Questionnaire comprised 18 test items, with each item presented on an individual slide within a PowerPoint presentation. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. Following the practice item, for each item, the sentence was presented orally and in written form to the child. The child was asked "is this statement 'not true,' 'sometimes true' or 'often true' for you?" The researcher then moved the slideshow to the next item. The researcher recorded the responses onto a paper copy of the EmQue-CA. At the end of the stimuli presentation, the final slide stated that this was the end and thank you.

Intercultural competence

This assessment encompassed a total of six questions, each allocated to a unique slide in a PowerPoint presentation. Just as in the previous assessment, the presentation was relayed to the participants via Microsoft Teams. In the first slide, the child was introduced to an imaginary scenario whereby a new student from a non-English speaking country would be starting at their school. Participants were encouraged to assign a name and origin country to this new student. In instances where participants found this challenging, the researcher offered both a name and country. Subsequent questions were formulated both audibly and in text, incorporating the fictional name and country to lend a personalised touch to each question. To ensure accuracy in capturing participants' responses, all answers were audio-recorded and subsequently transcribed. Following the completion of the six questions, participants were once again greeted by a concluding slide expressing appreciation for their participation.

Syntactic Awareness – Word Re-ordering Task

This task comprised twenty-seven grammatically structured sentences, each disassembled into individual words. These words were displayed as tiles on distinct PowerPoint slides, with each slide presenting a scrambled sentence. The sequence in which these items appeared was determined at every instance through a randomisation process facilitated by the online tool available at random.org/sequences/. The assessment procedure commenced with the researcher sharing the PowerPoint presentation to the child via Microsoft Teams. The child was presented with the jumbled words and prompted with the query: "Can you arrange these words to form a coherent sentence?" To enable the child to rearrange the tiles, mouse control was transferred to them. Their task was to manoeuvre the word tiles into a sequence that crafted a grammatically accurate sentence. The researcher documented the child's sentence constructions on a predefined record form, which had listed the correct sentence arrangements. Any deviations from the target sentences were annotated on this form. Each child's sentence was then assessed for grammatical correctness and scored accordingly: a correct arrangement earned a score of '1', while an incorrect arrangement was marked as '0'. This continued through all 27 items of the test. For eight items, one of each sentence type, the

child was asked "why did you put the words in that order?" All responses were audio-recorded and later transcribed and scored. At the end of the stimuli presentation, the final slide stated that this was the end and thank you.

Explaining words task

Each of the 6 target words were presented on a separate slide on PowerPoint. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. Animation was used on each slide to stagger the appearance of each stage. First, the target word appeared and was presented orally and in written form to the child, and the child was asked "this word is X. Can you tell me what X means?" Irrespective of whether the correct definition was provided at the first stage, the child was then shown and read a sentence with the target word in before being asked "what do you think X means now?" With the test item and example sentence displayed on screen, the child was asked "can you break the word down and find bits of meaning? What do each of those mean?" If the child explained a definition using the target word or morpheme, they were asked if they could explain it without using the target word. For example, if the child explained the morpheme 'treat' using the word 'treat.' The researcher then moved the slideshow to the next item. All responses were audio-recorded and later transcribed and scored. This continued through all 6 items of the test. At the end of the stimuli presentation, the final slide stated that this was the end and thank you.

3.4 Ethics

Established ethical guidelines were followed after gaining approval from the University of Reading ethics committee. With provisional verbal agreement from the YIC, the information sheet and consent form were sent to the headteachers of the identified schools. All four headteachers consented to their school taking part in the project. The researcher liaised with the YIC to identify between five and ten children who would be trained as Young Interpreters in years two to six. The parents/guardians of these children were sent a participant information sheet and consent form via the child and completed consent forms returned to the school reception. The consent covered all three phases of data collection. Before each testing session began, each child was asked for their oral assent before proceeding. A group of control children were recruited via similar methods. These children were children in the same school who were not going to be trained as Young Interpreters. The YIC aided the selection of control children for the screening test to match each YI child. Consent forms were returned from 44 YI pupils and 42 control pupils, and these children participated in the project at time 1. Due to the information sheet and consent forms being in English, the schools were offered information sessions for the parents of the EAL children to attend, in which bilingual language assistants would have been provided for translation purposes. In addition, the option to translate the documents was also offered, if required. However, no schools or parents requested these services.

3.5 References

Brysbaert, M., Buchmeier, M., Conrad, M., Jacobs, A., Bölte, J., & Böhl, A. (2011). The Word Frequency Effect: A Review of Recent Developments and Implications for the Choice of Frequency Estimates in German. *Experimental psychology*, *58*, 412-424. https://doi.org/10.1027/1618-3169/a000123

DfE. (2013). *National Curriculum in England: Primary Curriculum*. London: Department for Education Retrieved from https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum

Dunn, L. M., & Dunn, D. M. (2009). *The British picture vocabulary scale*. GL Assessment Limited.

Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press.

Glenn, S., & Cunningham, C. (2005). Performance of young people with Down syndrome on the Leiter-R and British picture vocabulary scales. *Journal of Intellectual Disability Research*, *49*(4), 239-244. https://doi.org/10.1111/j.1365-2788.2005.00643.x

Mahon, M., & Crutchley, A. (2006). Performance of typically-developing school-age children with English as an additional language on the British Picture Vocabulary Scales II. *Child Language Teaching and Therapy*, *22*(3), 333-351. https://doi.org/10.1191/0265659006ct311xx

Overgaauw, S., Rieffe, C., Broekhof, E., Crone, E. A., & Güroğlu, B. (2017). Assessing Empathy across Childhood and Adolescence: Validation of the Empathy Questionnaire for Children and Adolescents (EmQue-CA) [Original Research]. *Frontiers in psychology*, *8*(870). https://doi.org/10.3389/fpsyg.2017.00870

Parsons, S., & Branagan, A. (2014). *Word Aware: Teaching Vocabulary across the day, across the curriculum*. Routledge.

Raven, J., Raven, J. C., & Court, J. H. (1998). *Raven's Coloured Progressive Matrices (CPM)*. Oxford Psychologists Press.

Rieffe, C., Ketelaar, L., & Wiefferink, C. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*, 362-367. https://doi.org/10.1016/j.paid.2010.03.046

Semel, E. M., Wiig, E. H., & Secord, W. A. (1987). *Clinical Evaluation of Language Fundamentals-revised.* Psychological Corporation.

van Heuven, W. J., Mandera, P., Keuleers, E., & Brysbaert, M. (2014). SUBTLEX-UK: a new and improved word frequency database for British English. *Q J Exp Psychol (Hove)*, *67*(6), 1176-1190. https://doi.org/10.1080/17470218.2013.850521

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children,3rd edn*. Psychological Corporation.

Wiig, E. H., & Secord, W. (1992). *TOWK: Test of Word Knowledge*. The Psychological Cooperation.

Zipf, G. K. (1949). *Human behavior and the principle of least effort*. Addison-Wesley Press.

Chapter 4: <u>Empathy</u>

Introduction

Empathy is a fundamental component to the YI training and the support that the Young Interpreters offer. Each of the four training sessions to become a YI encompasses an element of understanding how new arrivals may feel on starting school, i.e., empathy. The chapter begins with a literature review of research into empathy, both from the adult and child literature. This review includes what empathy is, how empathy develops throughout childhood, how empathy can be developed, the role of peers in empathic development, gender, and age differences in empathy. The role of empathy in the YIS is described at the end of the literature review. The participants, materials and procedure follow the literature review. The results are then analysed, followed by the discussion section.

4.1 Literature review

4.1.1 **What is empathy*?***

Empathy is a fundamental human ability for both children and adults that is important in everyday social life. Empathy refers to understanding the feelings of someone else without necessarily feeling the same emotions, whereas sympathy involves sharing the feelings of another. Being a multifaceted concept (Stosic et al., 2021), definitions of empathy vary. Hall and Schwartz (2019) concluded from their review of the adult literature that empathy typically refers to three related concepts: cognitive processes of perceiving and understanding, affective processes involving feeling and sharing the emotional state of another individual; the explicit recognition of the emotional state of another; and the resulting prosocial behavioural processes (Decety & Jackson, 2004; Simon & Nader-Grosbois, 2021). Prosocial activities are frequently viewed as visible manifestations of empathy rather than as a discrete component of empathy (Simon & Nader-Grosbois, 2021). Prosocial behaviour may be intrinsically or extrinsically motivated (Spinrad & Gal, 2018) and it is characterised as cooperative conduct aimed at helping others, such as donating and sharing (Eisenberg et al., 2015). Empathic responses fall into two categories; a cognitive response (the capacity to actually comprehend the experience of the other person), and a more visceral, emotional reaction related to the other person's situation (Davis, 1983; Grühn et al., 2008).

Empathy is widely regarded as a necessary component for children's development in terms of moral growth (Sesso et al., 2021) and plays a crucial role in developing social competence (Jolliffe & Farrington, 2006b). Previous childhood research has shown positive relationships between empathy and prosocial behaviour (Strayer & Roberts, 2004). Furthermore, children with higher levels of empathy are generally better able to control their feelings and when facing issues with peers they show greater affective empathy (Meuwese et al., 2015). More precisely, when facing issues with

friends, greater affective empathy (i.e., sharing an emotional state) predicts constructive dispute resolution (de Wied et al., 2007). Cognitive empathy (i.e., knowing others' emotional states) predicts higher-quality friendships that include reciprocity and stability in the same way (Chakrabarti & Baron-Cohen, 2006). Empathy is therefore crucial for bonding with caregivers, friends, and for establishing other important connections.

Early childhood deficiencies in empathic competencies contribute to later-life psychopathology (Sesso et al., 2021) with a lack of empathy linked to the growth of problem behaviours (Overgaauw et al., 2017), antisocial behaviours such as bullying (Cappadocia et al., 2012), conduct problems (Georgiou et al., 2019), aggressive behaviour (de Kemp et al., 2007), and to some extent psychopathologies such as personality and conduct disorders (Schwenck et al., 2012). Cognitive empathy without the affective component, for example, is associated with greater levels of bullying (Jolliffe & Farrington, 2006b). In a similar manner, affective empathy can hinder relationships rather than strengthen them when the individual lacks the capacity to support the other person in distress (Pouw et al., 2013).

4.1.2 The development of empathy

Early in childhood, the ability to consider others' emotional states develops well before the child can report on those skills with empathic responses becoming ever more sophisticated throughout childhood and adolescence (Denham, 2019). Empathy is argued to be an evolutionary mechanism that drives prosocial and altruistic behaviour (Waal, 2008) with environmental factors influencing this evolutionary state. It is well established that genetic variables (Knafo et al., 2008), individual traits (such as age, gender, or personality), and familial environment factors all influence empathy (Simon & Nader-Grosbois, 2021). However, empathy development is also influenced by abilities in other areas, including attachment, language, and cognitive capacities (Davidov et al., 2020; Davidov et al., 2013; McDonald & Messinger, 2011; Stern & Cassidy, 2017). These dimensions interplay to shape one's empathic abilities, extending beyond mere emotional comprehension. Attachment theory posits that secure attachment in early life fosters the development of empathy, as it establishes a foundation for understanding and responding to the emotions of others. Language, as a crucial medium for communication, is integral to expressing and interpreting emotions, thereby facilitating empathic connections. Cognitive capacities, including executive function and theory of mind, enable individuals to discern and interpret the mental states of others, a key component of cognitive empathy. These interconnected facets highlight the complexity of empathy as a construct, shaped by a confluence of diverse developmental influences. Historically, the development of empathy was seen by theorists as a moral value reached during middle childhood, with younger children typically characterised as self-centred in perception and motivation and therefore unable to demonstrate caring sentiments towards

others (Zahn-Waxler et al., 1992). In recent decades, however, this perspective has been commonly discarded. This shift in perspective is primarily due to Hoffman's (1987) theory and studies of empathy development in young children. Hoffman viewed empathy in babies and toddlers as an innate capacity and an involuntary response to an affective prompt where concern and consideration for others began during the second year of life (Hoffman, 1987).

Four stages of empathy were outlined by Hoffman (1987). These are summarised in figure 4.1 and detailed below.

Figure 4.1 Stages of Empathy
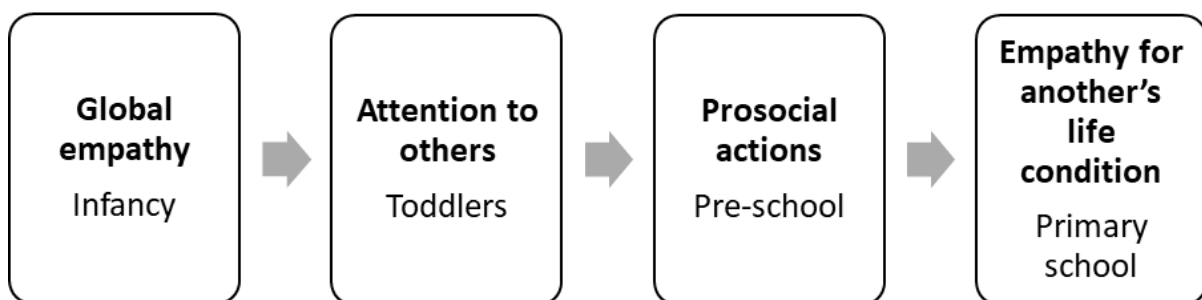
The first level is termed 'global empathy' and develops in the first year of life. Here, infants may notice the feelings of others, although instead of comforting others, they produce a similar reaction to the individual in distress. For instance, one infant's crying can cause equal responses in other babies (Rieffe et al., 2010).

The second level, 'attention to others,' begins around the age of one. Toddlers become more mindful of the feelings of other individuals, and they can focus their attention to others' affective displays (Hoffman, 1987). A study by Roth-Hanania et al. (2011) investigated children aged 8 to 16 months' responses to maternal and peer distress. The results indicated that both affective and cognitive empathy emerge before the second year of life, as evidenced by facial expressions, vocalisations, and actions reflecting concern and recognition of others' suffering.

The third level of 'prosocial actions' develops from the second year of life and involves children becoming more responsive to other people's displays of emotion and consequently reacting in a prosocial manner (Decety & Jackson, 2004). This is manifested in helping, sharing, and comforting behaviour. Zahn-Waxler et al. (1992) performed longitudinal research investigating the growth of empathy-related behaviour in the second and third years of life and assessed multiple forms of empathic response, including compassion and prosocial behaviour. Most infants participated in supporting actions by two years of age. Young children were capable of several empathy-related activities by the third year of childhood, including demonstrating vocal and facial compassion and interest in the distress of another, and continued to exhibit a range of helpful behaviours (Zahn-Waxler

& Radke-Yarrow, 1990; Zahn-Waxler et al., 1979; Zahn-Waxler et al., 1992). Children are usually able to take another's perspective in false belief tasks by 5 years of age, which is a widely used predictor of theory of mind development (Wellman et al., 2001), an important factor in developing empathy for others and being able to identify with another's experience. Theory of Mind (ToM) is a critical cognitive ability that involves understanding that others have beliefs, desires, and intentions different from one's own. Theory of Mind (ToM) encompasses the understanding that others possess distinct beliefs, desires, and intentions, which is foundational for empathic engagement (Wellman et al., 2001). This cognitive capacity is crucial for empathy, as it enables children to appreciate and resonate with the emotional states of others, a vital aspect of social interaction and emotional intelligence (Harris, 2008). Empathy and Theory of Mind, though related, are distinct constructs; empathy involves the emotional response to another's mental state, while ToM refers to the cognitive ability to identify and understand those states (Baron-Cohen et al., 1985). The development of ToM is a significant milestone in children's emotional development, as it enhances their ability to understand and empathize with others' perspectives and feelings, thereby facilitating healthier social interactions and relationships (Hoffman, 2000)Acknowledging the interplay between empathy and Theory of Mind provides a comprehensive understanding of the developmental processes that underpin children's ability to navigate and respond empathetically to the emotional and psychological experiences of others.

The final level emerges during late childhood and is termed 'empathy for another's life condition.' Children face new challenges when they enter nursery and primary school as their social interactions multiply, which involves experiencing various emotional situations with peers and adults that they must manage (Simon & Nader-Grosbois, 2021). Empathic responses are visible not only in the immediate situation, but also with the general level of distress or deprivation of others (Hoffman, 1987). For example, helping a peer with schoolwork or standing up to bullies. Between the ages of five and eight, children can comprehend that people can experience emotions in a variety of circumstances throughout life, not just in the scenario at hand (Simon & Nader-Grosbois, 2021). Children's growth in emotional comprehension is attributable to gains in their ability to make inferences about the mental states of others as well as their attentional, memory, and inhibitory control capacities. Surtees and Apperly (2012) discovered an increase in perspective taking during the middle childhood years. Additionally, increases in the capacity to identify with the experiences of others enables children aged 7 to 12 years to demonstrate a natural predisposition for empathy for others in pain (Decety et al., 2008) and to create more effective helping approaches (McDonald & Messinger, 2011). Overall, these findings have shown that helping people is a socially significant behaviour that is viewed as normative, at least in middle childhood. This move to empathy in middle childhood is pertinent to the current study due to the age range of participants.

4.1.3 Fostering empathy in young children: the role of adults

Fostering empathy in children is important for them to successfully navigate personal relationships (Waal, 2008), develop their prosocial behaviour (Segal et al., 2012) and promote caring and generous behaviour (Decety et al., 2016). Dispositional factors (i.e., temperament), socio-cognitive factors (e.g., self-recognition and understanding of emotions) as well as socialisation patterns and environmental experiences can predict interpersonal variations in prosocial behaviour and empathy (Spinrad & Gal, 2018). Fostering prosocial behaviour begins at home with parents playing a crucial role. At a basic level, children imitate their parents' behaviour, therefore parents who display kind and considerate behaviour towards others model empathic behaviour to their children, with parental warmth positively related to empathy and sympathy for others (Daniel et al., 2016; Miklikowska et al., 2011; Spinrad et al., 1999). Secure attachment between parent and child has been associated with high empathy and prosocial behaviour showing that closeness between parent and child can predict the compassion and empathy that children have for others (Futh et al., 2008). When parent and child behaviour is harmonious, the mother-infant synchrony during face-to-face play during the first year of life is directly associated with empathy levels in childhood and adolescence (Feldman, 2007). Discipline is another essential realm of parenting that affects empathy. It gives parents an opportunity to help children understand the connection between their motivations, attitudes, and the implications of their acts against others (Hoffman, 2000). To improve a child's empathic disposition, parents are encouraged to use inductive discipline, which involves emphasising the viewpoint of the victim, noting the response of the other, and making it clear that the actions of the child triggered that reaction (Hoffman, 2000; Krevans & Gibbs, 1996).

4.1.4 Fostering empathy in young children: education

In addition to the role that parents play in teaching children to be empathic, education settings can also play a critical role. Early classroom environments, where children frequently interact and cooperate with others, are ideal environments to promote empathy (Berliner & Masterson, 2015). As young children use imitation and behavioural modelling as a learning tool, teachers are well placed to act as empathic role models (Berliner & Masterson, 2015). Furthermore, empathy can be built by common classroom experiences such as play, which helps children to practise, feel, and communicate a broad variety of emotions with perspective-taking and role-playing (Brownell et al., 2002), and story time where books involving naming, discussing, and managing emotions also play an important role (Karniol, 2012). Other activities that support the development of empathy are discussing feelings, activities that involve sharing and turn-taking behaviour, and exploring other cultures through books (White, 2020).

Tailored school-based programs aimed at building social and emotional skills, by proxy, can influence empathy and prosocial behaviour. For example, Faver (2010) found that using animal related lessons fostered empathy by reducing aggression towards other living creatures. This can simply take the form of a class pet as learning how to show kindness, compassion, and respect to animals, can improve empathy for animals and in turn influence relationships with people (Faver, 2010). In addition, developing empathy and respect for nature, through outdoor activities and exploration, can also enhance empathic development (Faver, 2010). Intervention programs that concentrate on defining feelings, identifying one's own emotions and others' emotions, and perspective-taking activities can also result in more prosocial behaviour from children (Berliner & Masterson, 2015). For example, Aslan and Köksal-Akyol (2020) found that pre-school children aged 4 ½ years, who attended a holistic empathy training program over 10 weeks, significantly improved their perspective-taking performance compared to a control group, with the effect persisting one month after the intervention. The training involved activities to improve awareness about others' perspectives such as stories and role-play, before assessing the children on a perspective-taking test.

4.1.5 Fostering empathy in young children: interventions

A systematic review of prosocial interventions by Laguna et al. (2020) found that the characteristics of empathy interventions typically included behavioural (48 interventions), cognitive (41 interventions), and emotional strategies (32 interventions), often combining multiple strategies at once over numerous weeks. Specific activities involve perspective taking exercises, group, and cooperative games, and learning through stories. Example strategies employed by teachers include modelling of behaviour, positive reinforcement, expanding knowledge surrounding prosocial behaviour, improving problem-solving skills, and fostering emotional understanding through the recognition of emotions. The studies reviewed also confirmed the efficacy of interventions over a longer period of time such as after one month (Baumsteiger, 2019), six months (Dubow et al., 1987), four months (Ornaghi et al., 2015), and one year (Piek et al., 2015). Laguna et al. (2020) states caution must be exercised when interpreting the reported effectiveness of interventions due to the possibility of methodological issues, limitations in measuring prosocial behaviour through self-report and small sample sizes in addition to how effectiveness is conceived and measured. For example Baumsteiger's (2019) sample was derived of mainly female, Latino high school and college students and as such generalisation beyond this sample is limited; Dubow et al.,'s (1987) sample consisted only of boys; Ornaghi et al. (2015) focused on the emotions of happiness, anger, fear, and sadness as a proxy for empathy; and Piek et al. (2015) used teacher-rated prosocial behaviour and total difficulties rather than asking the children directly. Additionally, none of these studies provided information on the language status of their participants.

A meta-analysis evaluating studies delivering social and emotional learning found that program effects were stronger when the programs were implemented at younger ages and involve the teaching of emotional understanding and perspective taking (Malti et al., 2016). Similarly, in nursery and primary school students, school-based programs focusing on developing empathy, self-regulation, and mindfulness have improved prosocial activity (Flook et al., 2015) leading Wu et al. (2020) to encourage schools to integrate empathy-based games into the curriculum. One such game is 'Empathy World' whereby children aged two to five years, in thirty separate stories grouped into four themes, learned to interpret empathy-worthy signals, and engaged with a tablet game through questions to promote their viewpoint and equate feelings with social contexts. The results from this research indicated an improvement in the behaviour patterns of the perception of empathy-worthy stimuli in the game and increased the children's tendency to identify empathy worthy cues (Wu et al., 2020). This learning from the game could then potentially be applied to real-life scenarios to create continuous empathic learning.

Experiential learning (EXL) has grown in popularity in recent years due to its capacity to engage students in active learning and transfer classroom knowledge to real-world circumstances (Kruger et al., 2015). Kolb's Theory of Experiential Learning (2015), which views learning as a process of transforming experience into knowledge supports EXL. For learning to occur, the experience must first be understood and then transformed through reflection and application, two components that EXL learning includes that non-EXL does not. The learning process engages the entire being by linking the senses, intellect, and emotions, to improve information retention (Kolb & Kolb, 2005). Chan et al. (2021) conducted a meta-analysis of learning programmes for children to compare their effects on prosocial behaviour and empathy, finding that experiential learning programs were significantly more effective in improving empathy, (but not in significantly improving prosocial behaviour), than non-experiential learning programmes. These findings therefore suggest that including reflection, as EXL does, is essential in improving program outcomes. Further, interventions in small groups that included simulations and role-plays were more effective than didactic, whole class interventions (Chan et al., 2021).

Interventions designed to enhance empathic behaviour often combine behavioural, cognitive, and emotional strategies (Laguna et al., 2020), with program effects being stronger when begun at young ages (Malti et al., 2016). Yet even without specific intervention, the ethos of schools can help with developing prosocial behaviour and helping behaviour. Hofmann and Müller (2018) concluded from their longitudinal study of secondary school students that schools that promote prosocial and helping behaviour can influence individual students to display less aggression and anti-social behaviour

over time. Empathic adult role models, both in the home and in education, are fundamental in teaching children to be empathic.

Overall, fostering the empathy development of children is influenced by adults in a variety of settings. As expected, parents and caregivers have a key role through their disciplining of their child and of modelling empathic behaviour towards others. Once in educational settings, the environment and ethos of schools significantly influences the development of empathy and prosocial behaviour. In addition to school staff acting as role models, the peers that children encounter during school can also influence the development of empathy.

4.1.6 The role of peers in developing empathy and prosocial behaviour

In different facets of children's social and emotional development, friendship plays a crucial role, including the development of prosocial behaviour (Eisenberg et al., 2015). Empathy and prosocial responding are inter-related concepts (Segal, 2011). One may feel empathy for someone, and then decide whether to act on this empathic feeling by displaying prosocial helping behaviour. This is partially because interactions of friendship provide chances for children to interact, share, and display kindness to their peers (Bagwell et al., 1998) and these prosocial acts serve to sustain healthy relationships between children (Barry & Wentzel, 2006). Prosocial behaviour with peers can be used as a means for adolescents to preserve relationship positivity and as friendships are mutually beneficial relationships, the beneficiary can evoke positive social provisions (e.g., affection, support) from greater prosocial actions towards a friend, resulting in higher levels of friendship quality (Son & Padilla-Walker, 2020).

Children's sharing behaviour is influenced by social norms (Misch & Dunham, 2021) and individual differences in empathy (Guo & Wu, 2021). For example, Blake et al. (2015) observed that by reminding children of the norm of fairness, and by asking them what they think they should share, their sharing behaviour was observed to significantly increase in a subsequent game. The work of Misch and Dunham (2021) found that children were influenced by behaviour of adult models' in that after seeing prosocial models, they shared more of their stickers compared to their behaviour after watching antisocial models.

Friendships and peer relationships become more relevant and nuanced as children progress into adolescence due to the increase of disclosure, intimacy, and reliance on emotional support from friends over parents (Portt et al., 2020). If a child can consider another's experience and thoughts, it is assumed that they will have more positive views of out-groups (Batson & Ahmad, 2009) and will generally be less likely to engage in a negative way with social groups that they do not identify with (Lovett & Sheffield, 2007). Research demonstrating the influence of peers can have on behaviour has been conducted in a variety of domains, with the focus typically on problem behaviours later in

childhood such as smoking (Ragan, 2020), drinking (Vitória et al., 2020), adverse social media use (Marino et al., 2020) and aggressive and anti-social behaviour (Jung et al., 2019). By contrast, there is limited evidence on how the non-problem behaviour of peers influences an individual's prosocial behaviour. However one study did find a significant positive association between the prosocial behaviour of adolescents and their friends (Farrell et al., 2017). Further, a longitudinal study by Busching and Krahé (2020) found a positive influence of the level of prosocial behaviour in the classroom: teens in a classroom with peers who showed a high level of prosocial behaviour were more prosocial over time, consistent with the concepts of social learning theory (Bandura & Walters, 1977), indicating that the peer context is a resource for the observational learning of prosocial behaviour. The positive aspects of peer relationships such as peer attachment (Laible et al., 2004), positive conflict mediation strategies (de Kemp et al., 2007), and friendship quality are positively correlated with greater empathy (Smith & Rose, 2011). As friendships affect social and emotional well-being, Portt et al. (2020) advise schools to target and develop empathy development to enhance adolescent well-being.

4.1.7 Gender differences in empathy

Research into gender disparities in empathy has demonstrated that females have greater empathy than males (Overgaauw et al., 2017; Rieffe et al., 2020; Villadangos et al., 2016). These findings, primarily from Western cultures, are often attributed to increased adherence to gender stereotypical behavior and differences in the rearing habits of boys and girls(Garaigordobil, 2009). Girls are encouraged to display emotional and caring behaviour and are typically raised to be attuned to the emotions of others, whereas boys are encouraged to suppress these kinds of behaviour and are typically raised to be emotionally resilient and stoic (Van der Graaff et al., 2014). Girls are socially encouraged to convey feelings, including empathic feelings, whereas boys can be seen as vulnerable if they do so. According to the gender identification hypothesis (Hill et al., 1983) pressure from the social community (including parents, peers, and social media) can lead to compliance with cultural norms in the performance of specific gender roles. Given that girls are socially expected to be more interpersonally oriented and to demonstrate kindness and concern for others in need, higher levels of empathy are expected in girls (Burr, 1998). However, it is crucial to consider cultural variability in research on gender disparities in empathy. While there are limited studies in non-Western cultures that directly compare genders, the existing research suggests that cultural norms significantly influence the expression and perception of empathy, potentially leading to different gender patterns. For instance, in Eastern Asian cultures like China and Japan, collectivism may uniquely influence empathy (Chen et al., 1998). Middle Eastern societies, with defined gender roles, show potential variations in empathy between genders(Abu-Bader et al., 2011). In African and Latin American

cultures, community and family bonds could shape empathic expression and gender roles differently (Mfenyana et al., 2006). (Mfenyana et al., 2006)Understanding these cultural nuances is vital for a comprehensive view of empathy and gender globally.

For prosocial behaviour, an important part of empathy, studies have found gender differences with significantly higher scores in females, both from self-report and as assessed by parents and teachers (Rotenberg et al., 2005; Villadangos et al., 2016). Girls and boys may feel similar degrees of empathy but vary in the manner in which they express it, leading to different reports from observers. This disparity between boys and girls is also supported by a study by (Banerjee et al., 2006) that provided participants with imaginary scenarios and reported that girls suggested providing emotional help more often ('emotion-focused' comforting), but boys suggested attempting to fix the dilemma more often ('problem-focused' comforting). Further, this gender-related difference appears to confirm Crick and Dodge's (1994) assertion that girls are more interpersonally focused, while boys are more instrumentally oriented, and it may be argued that both are a real effort to ease the emotional pain of another person. Gender differences are also apparent in other types of empathy besides prosocial motivation. Studies have found that at an early age, girls have higher affective empathy whereas boys have better cognitive empathy (Jolliffe & Farrington, 2006b; Volbrecht et al., 2007). Simon and Nader-Grosbois (2021) used the parental version of the Empathy Questionnaire (Rieffe et al., 2010) and found that boys scored higher than girls on cognitive empathy. Further, girls were perceived by their fathers as more attentive to others' feelings than boys, indicating more affective empathy (Simon & Nader-Grosbois, 2021).

4.1.8 Age-related differences in empathy expression

In the studies of the associations between empathy and age, findings are mixed. Some papers have proposed that empathy increases with age (Litvack-Miller et al., 1997; Villadangos et al., 2016), with parents reporting increased prosocial behaviour as children age (Klein et al., 2015). However, Calvo et al's (2001) study of children aged 10 to 18 years only confirmed increased empathy with age in females, and a study of adolescents aged 13 to 18 years did not show major variations as a feature of age in either gender (Mestre Escrivá et al., 2004). In children aged 10 to 14 years, girls scored significantly higher on levels of consideration for others (Villadangos et al., 2016). Van der Graaff et al. (2014) found that girls displayed higher levels of compassionate involvement than boys did. In addition, during puberty, the empathic concern of girls remained steady, while boys displayed a decline from early to middle adolescence (Tobari, 2003).

The variations in the findings obtained in the studies may be due in part to the evaluation methods used, as well as to the heterogeneity in the age and culture of the samples. Not all empathy evaluation tools in these studies measure the same aspects of empathy, and it is also difficult to draw

firm conclusions since the participants come from different countries (Villadangos et al., 2016). Ideally, a developmental analysis of empathy is needed with a consistent measure at each data collection point, and within-culture comparisons. Further, children who experience changing social environments growing up could display age-related changes in empathy (Overgaauw et al., 2017). There is ample evidence for the development and characteristics of empathy in young children (aged 0 to 5 years), and for children over 10 years through to adolescence. However, with the exception of Misch and Dunham (2021) who found that children aged 8 and 9 years were more generous in their sharing behaviour than younger children aged 5 and 6, studies are scarce for children aged 5 to 10 years detailing empathy development and behaviours.

4.1.9 How to measure empathy

A systematic review by de Lima and Osório (2021) assessed fifty studies of empathy with adult participants and found 23 different assessment instruments for use in the general population, with the most typical format being self-report Likert scales. The most frequently used instruments were The Empathy Quotient (Baron-Cohen & Wheelwright, 2004), Interpersonal Reactivity Index (Davis, 1983), and Questionnaire of Cognitive and Affective Empathy (Reniers et al., 2011).

The measurement of empathy in children is difficult (Richaud et al., 2017). It is hampered by a shortage of appropriate measurement tools for children (Reid et al., 2013) and the challenges of children responding to questionnaires such a lack of attention and language development (Richaud et al., 2017). Further, empathy is a complex abstract concept to measure (Lietz et al., 2011; Sartori & Pasini, 2007). Assessment methods include the interpretation of feelings that are portrayed by stories and pictures, children's facial affect and gestural reactions to stories or others' emotions, and photographs, audio, or video designed to elicit empathic responses (Sesso et al., 2021). Simple emotion detection or identifying tests, however, do not offer an estimate of the possible cognitive understanding or response of a person to an empathy-inducing scenario (Reid et al., 2013). Picture-based or story-based scenarios that a child interprets through self-report or interview are confounded by their relative lack of complexity. While most social and interpersonal real-life situations are complicated, nuanced, and require multiple participants, most test scenarios rely merely on two-person interactions. Sesso et al. (2021) conducted a systematic review of questionnaires to measure empathy in children and adolescents. Forty-seven studies were selected for the final analysis and sixteen different measures of empathy were identified ((see (Sesso et al., 2021) and (Neary, 2022) for a comprehensive review)).

The most common strategy for measuring behavioural responses, or potential behavioural responses, of empathy in children remains self- or other-report questionnaires of behaviours and characteristics. Research into the empathy of primary school-aged children, between 5 and 11 years

old, has primarily used parental reports of whether their child exhibits behaviours from a series of statements. The expectation and prejudice of the observer, the absence of a normative basis for reference, and biases in the reporting of positive or negative emotionality are all cited as shortcomings by Hayden et al. (2005). Additionally, Dadds et al. (2008) argue that self-reports of empathy in children younger than 8 years old are problematic as young children lack the self-reflection abilities, both cognitive and/or verbal, to report on internal states. Furthermore, some empathy measures lack theoretical precision in matching the measure to theories of empathy (Stosic et al., 2021). Despite these limitations, self-report, either by self or parent, remains the default method for assessing empathy in individuals.

A commonly used questionnaire validated for use with adolescent populations is the Index of Empathy for Children and Adolescents (IECA) (Bryant, 1982). However, 40 years from its creation, the validity of the IECA has been challenged, and the fact that the items designed for children were adapted from an adult measure of empathy further undermines its current appropriateness (de Wied et al., 2007). Self-report measures for the age range of 6 to 11 years old are based on parent or teacher report, with some of the questionnaires using proxy measures of empathy such as prosocial behaviour (Prosocial Behaviour Questionnaire (Weir & Duveen, 1981)), and altruism (Child Altruism Inventory (Ma & Leung, 1991)). Empathy questionnaires typically rely specifically on analysing and recognising common emotions (Davis, 1983; Jolliffe & Farrington, 2006b; Lietz et al., 2011; Mehrabian & Epstein, 1972) and/or understanding these feelings (Baron-Cohen & Wheelwright, 2004; Greif & Hogan, 1973; Hogan, 1969; Rieffe et al., 2007). The subsequent propensity to act on these emotions in a compassionate manner has so far been underrepresented (Overgaauw et al., 2017). Consequently, there was a need for a more up-to-date instrument to measure empathy where the items were designed exclusively for children rather than being adapted from an adult empathy measure and with better validity. This resulted in the creation of the Empathy Questionnaire for Children (EmQue;(Rieffe et al., 2010)) and the Empathy Questionnaire for Children and Adolescents (EmQue-CA;(Overgaauw et al., 2017)).

The EmQue is the only available instrument that is validated for children of all ages, with Sesso et al. (2021) and Lazdauskas and Nasvytienė (2021) stating that both questionnaires have psychometric and theoretical advantages over other comparable scales. The EmQue uses Hoffman's (1987) theoretical levels of empathy to examine empathy through the behaviour of children aged 1 to 6 years. This questionnaire represents three facets of empathy: affective empathy (emotion contagion), attention to others' feelings, and prosocial actions. Parents were asked to rate the degree to which each statement applied to their child on a 3-point scale (0=never, 1=sometimes, 2=often). Based on Rieffe et al's (2010) questionnaire, Overgaauw et al. (2017) produced the Empathy Questionnaire for

Children and Adolescents (EmQue-CA) aged 10-15 years to assess affective empathy, cognitive empathy, prosocial behaviour. Most empathy measures for primary school-aged children are parent or teacher reports and ask whether their child exhibits certain behaviours. Therefore, in the current study, the EmQue-CA that was designed for children aged 10-15 years, will be trialled in children aged 6-11 years.

4.1.10 The role of empathy in the YIS

Empathy is at the core of the YIS; becoming a YI means being an empathic friend who can welcome new pupils who have limited English to their school community. Each session of the YI primary training involves activities that draw on different aspects of empathy and a discussion of feelings. The theoretical models of empathy and interventions outlined previously map onto several of the activities in the YI training.

Session 1 - Exploring pupils' feelings as they start school and introducing the idea of being a YI

In the first training session, pupils discuss how they felt when they started school, which is an experience that they share with new arrivals having done this themselves. This discussion taps into both cognitive and affective empathy as the YIs can understand others' emotions and can share in their emotional experience. The YIs also discuss how new arrivals may feel when they do not understand the language used in school, and how it feels when you cannot make yourself understood. This allows the children to imagine sharing the emotional state of another child, a key concept of empathy (Dadds et al., 2008) and enables a cognitive empathic response of understanding the experience of others (Davis, 1983; Grühn et al., 2008). Additionally, by learning how to use non-verbal communication techniques, they can increase their prosocial behaviour to help others (Eisenberg et al., 2015).

Session 2 - Considering how it might feel to be spoken to in an unknown language

The second training session is an empathy exercise where children listen to a story read in another language without any visual aids or other clues. This can be done by a bilingual member of staff, or a video on the YI Moodle of the story being read in French. This allows the children to be in a similar position to the new arrivals who have EAL. The YIs reflect on how they felt listening to the story, what they understood about the story and if they enjoyed the story. This activity develops the YIs cognitive empathy as they are able to understand the new arrivals' feelings. Reflection is an essential component of training programs to promote empathy (Chan et al., 2021). This session therefore develops their affective empathy of sharing the emotional state of another and cognitive empathy of recognition of the emotional state of another (Davis, 1983; Grühn et al., 2008). The techniques demonstrated to aid the understanding of the story should form the basis of the prosocial behaviour that they could demonstrate with their buddies. During this session, the children are explicitly told the emotions that their buddies may feel, such as nervous, scared, excited, and lonely. Discussing feelings

supports the development of empathy (White, 2020). By encouraging the awareness of emotions and being able to recognise the emotional state of another (Dadds et al., 2008), children should be more inclined to help those whose emotional state they recognise. Perspective taking exercises such as these are useful in improving prosocial behaviour (Laguna et al., 2020). Finally, the children discuss how children can help children and adults at their school, which gives them explicit examples of prosocial helping behaviour, a common component of interventions to promote prosocial behaviour (Laguna et al., 2020).

Session 3 – Having a go at being a Young Interpreter

The third session allows the pupils to practice being a Young Interpreter. Role-play cards depicting typical scenarios the YIs might find themselves in are utilised. The role-play scenarios are presented to the children who discuss how they would feel in each situation and what they could do to help. Intervention program effects are stronger when the program involves the teaching of emotional understanding and perspective taking (Malti et al., 2016) and include simulation and role-plays (Chan et al., 2021). Another important aspect of empathy training captured by Laguna's (2020) review is developing problem-solving skills and perspective taking. Perspective-taking and role-play facilitate the building of empathy (Brownell et al., 2002). These problem-solving skills and teaching of strategies to help new arrivals allow the cognitive and affective empathy of these individuals to translate into actual physical acts of helping behaviour.

Session 4 – Exploring how pupils may help as Young Interpreters

The fourth and final session involves three components; using their vocabulary knowledge to explain unknown words, role plays to allow trainees to practise being a YI and how to utilise the YI kit. Initially, the children recap on previous discussions on communicative strategies to use with their buddies such as repeating keywords and using visual aids. Actively retrieving previously studied material is an effective learning strategy (Stavnezer & Lom, 2019). A short story is read to the children to teach word learning strategies based on work by Parsons and Branagan (2014). The subsequent relationships with their buddies provide chances for children to interact, share, and display kindness to their peers (Bagwell et al., 1998).

After the YI training

The opportunities for empathy training do not conclude with the completion of training. YI coordinators continue to help the YIs develop their skills. In line with Chan et al. (2021), who state that the most significant outcomes on empathy training include reflection on experiences, the YIC meets regularly with the YIs to discuss and reflect on their work. When the children start operating as YIs, the opportunity to apply the learnt concepts outside of the training environment should yield better program outcomes (Chan et al., 2021).

Successful intervention programs that concentrate on defining and identifying one's own emotions and others' emotions and feelings and perspective-taking activities can result in increased prosocial behaviour from children (Berliner & Masterson, 2015). The YI training reflects aspects of successful intervention programs. Although the trainees do not explore other cultures through books, they do explore other cultures through discussions with other YIs and the buddies that they help once they are trained. From the outset, YIs hear words of other languages and meet children from other countries and cultures. By discussions with their buddies, they explore different cultures. This should build on their cognitive empathy, allowing the YIs to perceive and understand the emotional state of others.

Despite the central theme of empathy in the YI training, Dinneen (2017) reports inconclusive evidence of secondary school YIs empathy for new arrivals. Some students reported that they became more aware of how it might feel to be a new arrival, which relates to affective empathy. However, when asked about the personal qualities that they brought to the role, only one student reported empathy. This perhaps indicates that although the YIs knew how to empathise in theory (as demonstrated from the training exercises), empathising in practice was challenging as the YIs may not have wanted to seem patronising (Dinneen, 2017). To date, this is the only study focused on the effect of the YIS on YIs themselves. However, it focused on secondary school pupils and consequently empathy in primary YIs has not yet been investigated.

4.1.11 Research question and hypotheses

The research question to be addressed is 'Does being trained (time 2), and acting as a YI (time 3) change how empathic YIs are as measured by the EmQue-CA?' The hypotheses are:

- the YI children will not differ from the control children on their affective empathy score, cognitive empathy score, prosocial motivation score, and their overall empathy score at time 1,
- the YI children will score higher at time 2 on each empathy scale and this will be maintained at time 3.

4.2 Methodology

4.2.1 Participants

The final sample included for data analysis includes 30 YI children (group A) and 29 control children (group B). One of the B group children was not tested at time 3. The demographics of the sample are shown in table 4.1.

Table 4.1 Demographics of the final sample included in data analysis

Factor	Total sample	
	A	B
Gender		
N	30	29

Male	10	9
Female	20	20
Language status		
Monolingual	9	9
Bilingual	16	15
Multilingual	5	5
Age in years (time 1)		
7	6	1
8	5	8
9	5	8
10	14	12

Note. Children were matched based on age in months. A = YI *children. B = Control children.*

4.2.2 Empathy questionnaire

The Empathy Questionnaire for Children and Adolescents (EmQue-CA) (Overgaauw et al., 2017) was used. The test contains three subscales: affective empathy, cognitive empathy, and intention to comfort. For each of the 18 statements, children choose whether it is 'not true' for them, 'sometimes true' for them or 'often true' for them. For each item there was a score of 0, 1 or 2 respectively. Two items on the questionnaire were rephrased to make it more accessible to the children's age range and home circumstances. Item 1 "if my mother is happy, I also feel happy" was changed to 'if my parent/guardian is happy, I also feel happy' and item 4 "I feel awful when two people quarrel" was changed to 'I feel bad when two people argue' (see table 4.2). The authors of the questionnaire gave their permission for its use in this study.

The EmQue-CA reports internal consistencies of 0.70 for affective empathy, 0.70 for cognitive empathy and 0.74 for intention to comfort. Convergent validity with the Interpersonal Reactivity Index (IRI) (Davis, 1980) was demonstrated through significant positive correlations between the affective (0.52) and cognitive empathy (0.30) scales of the EmQue-CA and respective scales on the IRI. The three scales of the EmQue-CA show the expected relationships (Overgaauw et al., 2017) with related constructs of emotion awareness and differentiation as assessed by the Emotion Awareness Questionnaire (Rieffe et al., 2007) and social functioning as measured by the Olweus Bully/Victim Questionnaire (Olweus, 1986). As the EmQue was designed for children between 1 and 6, and the EmQue-CA for children aged 10 to 15, there is no relevant version to cover the children aged seven to ten years in the current study. However, Rieffe et al. (2010) states that using self-reports in children of other ages could be trialled. Lazdauskas and Nasvytienė (2021) adapted the wording of the EmQue-CA to be used as a parental report with children aged 7 to 10 years, with their work confirming a three-factor model of empathy, as well as internal consistency comparable to the original questionnaires and other measures of children's empathy (.37 to .54) and test-retest reliability (> .80 to > .90).

Table 4.2 Empathy items and scoring domain

Item number	Statement	Empathy domain
1	If my parent / guardian is happy, I also feel happy.	Affective Empathy (Contagion)
2	I understand that a friend is ashamed when he/she has done something wrong.	Cognitive Empathy (Understanding)
3	If a friend is sad, I like to comfort them.	Prosocial Motivation (Support)
4	I feel bad when two people argue.	Affective Empathy (Contagion)
5	When a friend is angry, I tend to know why.	Cognitive Empathy (Understanding)
6	I would like to help when a friend gets angry.	Prosocial Motivation (Support)
7	If a friend is sad, I also feel sad.	Affective Empathy (Contagion)
8	I understand that a friend is proud when he/she has done something good.	Cognitive Empathy (Understanding)
9	If a friend has an argument, I try to help.	Prosocial Motivation (Support)
10	If a friend is laughing, I also laugh.	Affective Empathy (Contagion)
11	If a friend is sad, I understand mostly why.	Cognitive Empathy (Understanding)
12	I want everyone to feel good.	Prosocial Motivation (Support)
13	When a friend cries, I cry myself.	Affective Empathy (Contagion)
14	If a friend cries, I often understand what has happened.	Cognitive Empathy (Understanding)
15	If a friend is sad, I want to do something to make it better.	Prosocial Motivation (Support)
16	If someone in my family is sad, I feel really bad.	Affective Empathy (Contagion)
17	I enjoy giving a friend a gift.	Prosocial Motivation (Support)
18	When a friend is upset, I feel upset too.	Affective Empathy (Contagion)

©Carolien Rieffe

4.2.3 Procedure

Each of the 18 test items were presented on a separate slide on PowerPoint. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. Following the practice item, for each item, the sentence was presented orally and in written form to the child. The child was asked "is this statement 'not true,' 'sometimes true' or 'often true' for you?" The researcher then moved the slideshow to the next item. The researcher recorded the responses onto a paper copy of the EmQue-CA. At the end of the stimuli presentation, the final slide stated that this was the end and thank you.

4.2.4 Scoring for empathy questionnaire

The scoring of the empathy questionnaire was in accordance with the syntax provided with the questionnaire and generated four scores: affective empathy (contagion) out of 14 (items, 1, 4, 7, 10, 13, 16, and 19), cognitive empathy (understanding) out of 10 (items 2, 5, 8, 11, 14), prosocial motivation (support) out of 12 (items 3, 6, 9, 12, 15 and 17). A total score out of 36 was also calculated from the sum of the three sub-scales.

4.2.5 Data analysis

Data was analysed user Linear Mixed Effects Regression (LMER) models to explore predictors of empathy scores (affective empathy, cognitive empathy and prosocial motivation and total score) at all three timepoints using the *lmer* function from the *lme4* package (Bates, 2015) in R (version 1.3.1073, (R Development Core Team, 2020; RStudio, 2019)). LMER has the benefit of allowing participants and objects to be considered as random factors simultaneously in a single analysis and is robust in handling missing data. Additionally, it uses each individual response made by a participant for each item as a data point rather than aggregating replies to mean responses per condition.

All models were fitted using a top-down strategy, as recommended by Diggle et al. (2002) and Zuur et al. (2009). This was chosen to include all variables of theoretical interest that could have affected the dependent variable. The first model, which included all baseline measures and interactions, was the "beyond optimal" model (Zuur et al., 2009, p. 121) fitted with the restricted maximum likelihood (REML) as true. The significance of the following fixed elements was investigated; Ravens percentile, BPVS raw score, TOWK Word Opposites raw score, and TOWK Synonyms raw score. Standard scores were not used for the vocabulary measures because assessments designed for, and normed on, monolingual speakers underestimate the linguistic knowledge of bilingual learners (McClain et al., 2021). Instead, raw scores were used. All continuous baseline factors (Ravens percentile, BPVS raw score, TOWK Word Opposites raw score, and TOWK Synonyms raw score) were centred around the mean for analysis so that they have a mean of zero (centering) and standard deviation of one (scaling). This ensures that the estimated coefficients are all on the same scale, making it easier to compare effect sizes. Gender and age (in years) were then added in turn as exploratory predictors. Time 1 Age in years was also centred before analysis. In each of the models, participant and item were treated as random factors. The interaction of group and timepoint was tested in all models. Non-significant effects were dropped one by one until the optimal model was reached. Confidence intervals (95% CI) were calculated using the Wald method. Significant fixed effects were explored in post-hoc analysis using the *emmeans* function in R (Lenth, 2020). Models were compared using a log-likelihood ratio test using ANOVA and The Akaike information criterion (AIC). A lower AIC value indicates better quality of fit; thus, the model that demonstrated the minimum AIC was selected. Random slopes estimates were attempted but the model failed to converge, possibly due to the small sample size and complexity of the model. The R script for the empathy analyses is in appendix R.

4.3 Results

4.3.1 Descriptive statistics

The descriptive data for the whole sample on each of the four empathy scores, at each timepoint and split by group A (YI children, N=30) and group B (control children, N=29) and gender are displayed in table 4.3. The mean score for each group at each timepoint for total empathy scores are displayed in figure 4.2. Mean affective empathy scores, cognitive empathy scores and prosocial motivation scores are displayed in figures 4.3, 4.4, and 4.5 respectively.

Table 4.3 Mean empathy scores for each group at each timepoint

	Empathy domain															
	Affective Empathy				Cognitive Empathy				Prosocial Motivation				Total empathy score			
	A		B		A		B		A		B		A		B	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Time 1 mean	1.10	0.99	1.25	0.95	1.22	1.42	1.26	1.40	1.58	1.76	1.71	1.72	23.30	24.60	25.37	24.00
(SD)	0.46	0.45	0.38	0.22	0.29	0.35	0.31	0.41	0.35	0.20	0.28	0.35	5.57	4.60	4.51	3.61
Time 2 mean	1.09	0.84	1.28	1.13	1.23	1.20	1.22	1.40	1.55	1.68	1.74	1.76	23.05	22.00	25.50	25.44
(SD)	0.41	0.17	0.23	0.28	0.42	0.25	0.23	0.24	0.44	0.36	0.17	0.27	6.07	3.86	2.87	1.74
Time 3 mean	1.38	1.27	1.09	1.04	1.27	1.38	1.36	1.31	1.66	1.63	1.72	1.67	24.55	24.30	23.63	22.78
(SD)	0.42	0.33	0.34	0.49	0.35	0.24	0.30	0.57	0.35	0.31	0.38	0.36	5.34	3.13	4.56	7.29

Note. A = Young Interpreters, B = non- Young Interpreters.
F = female, M = male.

Figure 4.2 Mean total empathy score for each group at each time point
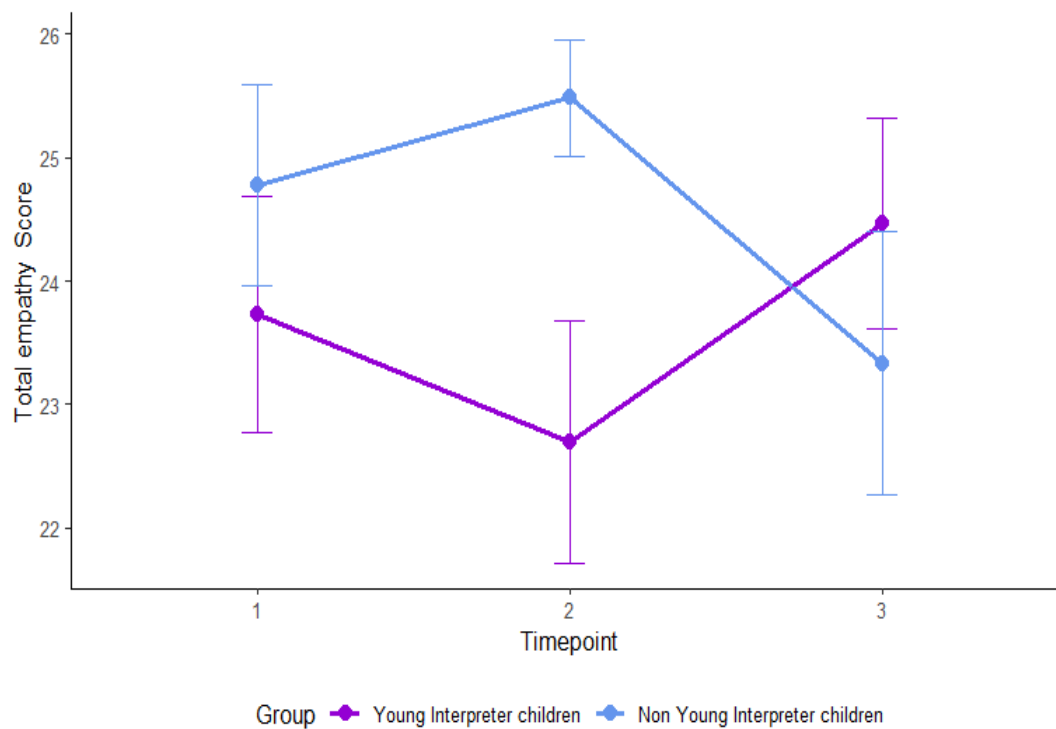
Figure 4.3 Mean affective empathy score for each group at each time point
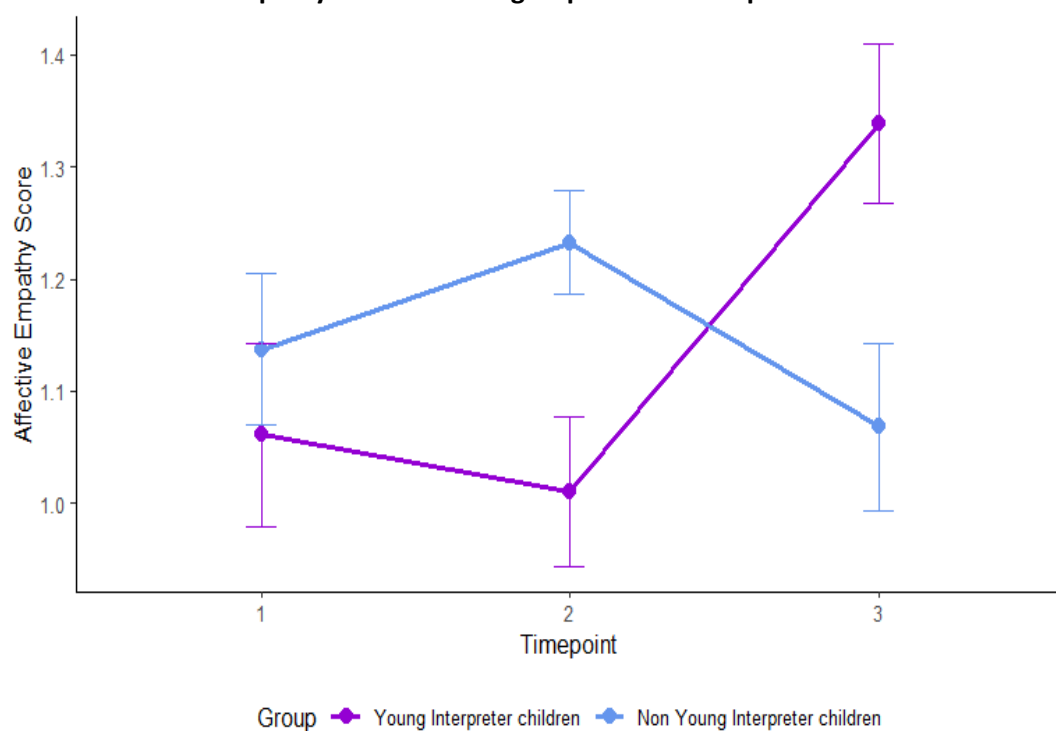
Figure 4.4 Mean cognitive empathy score for each group at each time point
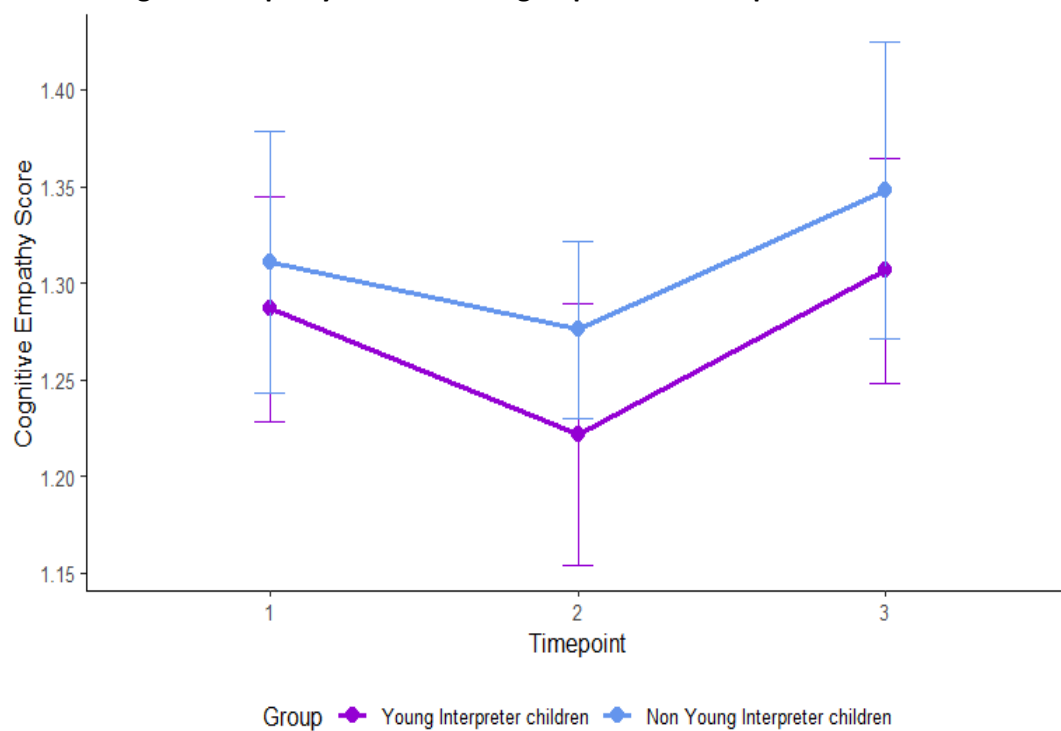
Figure 4.5 Mean prosocial motivation score for each group at each time point
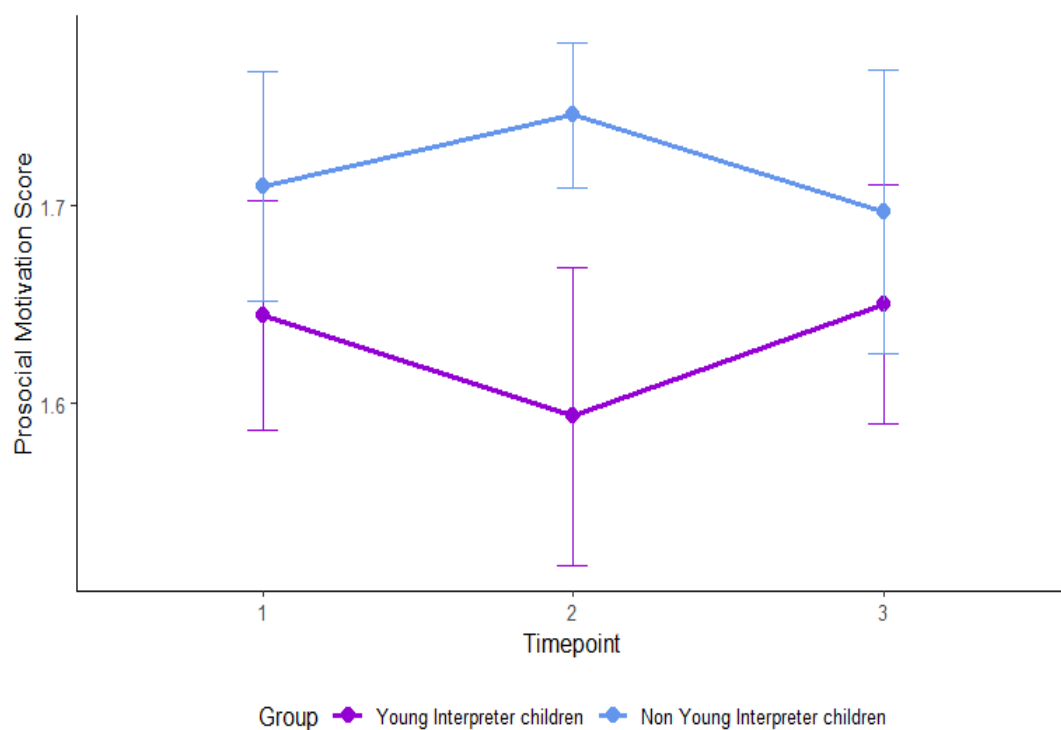
4.3.2 Inferential statistics - total empathy scores

After the base model was fitted (that contained the Group*Timepoint interaction, random effects of item and participant, and the four baseline measures as fixed effects) three subsequent models were produced. These tested whether either of the exploratory predictors (gender and age) added predictive power to the base model, before producing a final model. No significant fixed effects were found in any model, as shown in table 4.4.

Table 4.4 Model building for total empathy scores

Sampling units	N total obs = 175				
	N subjects = 59				
Random effects	Participants				
	Intercepts				
Fixed effects	Estimate	Std Error	df	t value	P value
Group B	1.28	1.28	116.38	1.00	0.32
Timepoint2	-1.03	0.95	112.40	-1.09	0.28
Timepoint3	0.73	0.95	112.40	0.78	0.44
Ravens	0.33	0.52	53.07	0.63	0.53
BPVS	0.05	1.05	53.21	0.05	0.96
Word opposites	-0.31	0.92	53.27	-0.34	0.73
Synonyms	0.37	0.86	52.74	0.42	0.67
Age	0.11	0.63	51.67	0.18	0.86
Gender males	-0.52	1.13	51.74	-0.46	0.65
GroupB:Timepoint 2	1.65	1.36	113.10	1.21	0.23
GroupB:Timepoint3	-2.30	1.36	112.39	-1.69	0.09

4.3.3 Inferential statistics - affective empathy scores

The final preferred model was the minimal model containing the base model and the significant fixed effects of Group, Timepoint, and gender (table 4.5). The model fit as computed by conditional R^2 was 44% (Table 4.6). Post-hoc analyses (tables 4.7 and 4.8) showed the significant differences in affective empathy total scores were from group A significantly increasing their score at each subsequent time point. A significant interaction between the groups was present between times 2 and 3, with the YI's scoring higher than the B group at time 3.

Table 4.5 Model comparisons and model building / selection for affective empathy scores

Sampling	Units	N total obs = 175 N Subjects =59								
Model name	Simpler model	Random effects	Fixed effects added		Model fit				Anova against simpler model	
					AIC	BIC	LogLik		df	x2
AEmodelbase		Participants intercepts	Group x Timepoint* Interaction*	Fixed effect Ravens + BPVS + Word opposites + Synonyms+	145.57	183.55	-60.78			
AEmodel_gender	AEmodelbase	"	Group x Timepoint* Interaction*	Ravens + BPVS + Word opposites + Synonyms+ Gender**	143.17	184.31	-58.59		1	0.04*
AEmodel_age	"	"	Group x Timepoint* Interaction*	Ravens + BPVS + Word opposites + Synonyms+ Age at time 1	147.50	188.64	-60.75		1	0.79
AEmodelfinal	"	"	Group x Timepoint* Interaction*	Gender*	135.71	164.19	-58.85		3	1

N.B **AIC** – Aikake Information Criterion, **BIC** – Bayesian Information Criterion, **LogLik** – LogLikelihood, **df** – degrees of freedom, **X2** – Chi-square.

*= p<0.05

Table 4.6 Final model (AEmodel_gender) for affective empathy scores

Fixed Effects

	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	1.11	0.07	0.97 – 1.25	119.33	15.53	<.001
Group B	0.09	0.10	-0.09 – 0.28	133.73	0.94	0.33
Timepoint 2	-0.05	0.76	-0.20 – 0.10	112.60	-0.67	0.51
Timepoint 3	0.28	0.76	0.13 – 0.42	112.60	3.69	**<.001**
Gender M	-0.16	0.78	-0.31 - -0.01	55.95	-2.09	**0.04**
Group B X Timepoint 2	0.3	0.11	-0.09 – 0.33	113.33	1.15	0.25
Group B X Timepoint 3	-0.36	0.11	-0.58 - -0.15	112.59	-3.35	**<.001**

Random Effects

	Variance	S.D.
Participant (Intercept)	0.05	0.22
Residual	0.09	0.30

Model fit	Marginal	Conditional
R^2	0.12	0.44

*R model equation: AffectiveEmp ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + Gender + (1 |ID) , data = empathy)
* p-values for fixed effects calculated using Satterthwaites approximations.
* Confidence intervals calculated with confint.merMod() function in lme4

Table 4.7 Follow up comparisons for mean affective empathy scores by gender

Timepoint	Gender	lsmean	SE	df	lower.CL	upper.CL
1	F	1.16	0.05	112.70	1.05	1.27
2	M	1.00	0.07	83.10	0.86	1.14
3	F	1.17	0.05	111.40	1.07	1.28
1	M	1.01	0.07	82.80	0.87	1.15
2	F	1.26	0.05	112.70	1.15	1.36
3	M	1.10	0.07	83.10	0.95	1.24

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 4.8 Follow up comparisons for affective empathy scores - contrasts

contrast	estimate	SE	df	t.ratio	p.value
1 F – 1 M	0.16	0.08	55.50	2.09	0.31
2 F – 2 M	0.16	0.08	55.50	2.09	0.31
3 F – 3M	0.16	0.08	55.50	2.09	0.31
1 A- 1 B	-0.09	0.10	113	-0.97	0.93
2 A - 2 B	-0.22	0.10	132	-2.29	0.21
3 A - 3 B	0.27	0.10	133	2.82	0.06

* P value adjustment: tukey method for comparing a family of 6 estimate

4.3.4 Inferential statistics -cognitive empathy scores

The final preferred model was the minimal model containing the base model and the significant fixed effects of Group, Timepoint, and age at time 1. The model fit as computed by conditional R^2 was 19% (see table 4.9). Post-hoc analyses (see tables 4.10 to 4.12) of the fixed effect of age showed significant differences in mean cognitive scores between the youngest children (age 7 years) and the oldest children (10 years) across both sample and all timepoints.

Table 4.9 Model comparisons and model building / selection for cognitive empathy scores

Sampling	Units	N total obs = 175 N Subjects =59	Fixed effects added	Model fit			Anova against simpler model	
Model name	Simpler model	Random effects		AIC	BIC	LogLik	df	x2
CEmodelbase		Participants intercepts	Fixed effect Ravens + BPVS + Word opposites + Synonyms+ / Group x Timepoint Interaction	123.41	161.39	-49.70		
CEmodel_gender	CEmodelbase	"	Ravens + BPVS + Word opposites + Synonyms + Gender / Group x Timepoint Interaction	123.63	164.78	-48.82	1	0.18
CEmodel_age	"	"	Ravens + BPVS + Word opposites + Synonyms + Age at time 1* / Group x Timepoint Interaction	113.97	142.45	-47.98	3	0.06
CEmodel_final	CEmodel_age	"	Age at time 1* / Group x Timepoint Interaction	121.85	162.99	-47.92	1	<.001
CEmodel_agesplit	CEmodel_age	"	Age at time 1 8* / Age at time 1 9* / Age at time 1 10* / Group x Timepoint Interaction	109.39	144.20	-43.69	3	0.42

N.B **AIC** – Aikake Information Criterion, **BIC** – Bayesian Information Criterion, **LogLik** – LogLikelihood, **df** – degrees of freedom, **X2** – Chi-square.   * = p<0.05

Table 4.10 Final model (CEmodel_agesplit) for cognitive empathy scores

Fixed Effects

	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	1.29	0.06	1.18 – 1.40	161.40	21.58	<0.001
Group B	0.01	0.09	-0.16 – 0.18	161.53	0.11	0.91
Timepoint 2	-0.07	0.08	-0.22 – 0.09	112.27	-0.83	0.41
Timepoint 3	0.02	0.08	-0.13 – 0.17	112.27	0.25	0.80
Time 1 Age in Years	0.07	0.04	-0.003 – 0.13	55.50	2.57	**0.01**
Time 1 Age in Years 8	0.31	0.10	-0.12 – 0.50	53.16	3.16	**<.001**
Time 1 Age in Years 9	0.19	0.10	0.002 – 0.38	53.16	1.92	**0.05**
Time 1 Age in Years 10	0.322	0.87	0.15 – 0.50	53.21	3.67	**<.001**
Group B X Timepoint 2	0.03	0.11	-0.19 – 0.25	113.02	0.29	0.77
Group B X Timepoint 3	0.02	0.11	-0.20 – 0.24	112.27	0.14	0.89

Random Effects

	Variance	S.D.
Participant (Intercept)	0.01	0.10
Residual	0.09	0.30

Model fit

	Marginal	Conditional
R^2	0.11	0.19

*R model equation: CEmodel_final <- lmer(CognitiveEmp ~ Group * Timepoint + Time1AgeYearsCEN + (1 |ID) , data = empathy)

* p-values for fixed effects calculated using Satterthwaites approximations.   * Confidence intervals calculated with confint.merMod() function in lme4

Table 4.11 Follow up comparisons for mean cognitive empathy scores by age

Age	lsmean	SE	df	lower.CL	upper.CL
7	1.04	0.08	53.20	0.88	1.20
8	1.35	0.06	53.20	1.24	1.46
9	1.23	0.06	53.20	1.11	1.34
10	1.36	0.04	54.30	1.28	1.44

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 4.12 Follow up comparisons for mean cognitive empathy scores by age

contrast	estimate	SE	df	t.ratio	p.value
7 – 8	-0.31	0.10	53.20	-3.16	**0.01**
7 – 9	-0.19	0.10	53.20	-1.92	0.23
7 – 10	-0.32	0.09	53.30	-3.67	**<.001**
8 – 9	0.12	0.08	53.20	1.54	0.42
8 – 10	-0.01	0.07	53.60	-0.16	1.00
9 – 10	-0.13	0.07	53.60	-1.92	0.23

* P value adjustment: tukey method for comparing a family of 6 estimate

4.3.5 Inferential statistics prosocial motivation scores

No significant fixed effects were found in any model, as shown in table 4.13. However, there was an almost significant effect of the younger children (aged 8 years) having higher prosocial motivation scores than the older children, although this did not hold in post-hoc tests.

Table 4.13 Model comparisons and model building for prosocial motivation scores

Sampling units	N total obs = 175				
	N subjects = 59				
Random effects	Participants				
	Intercepts				
Fixed effects	Estimate	Std Error	df	t value	P value
Group B	0.05	0.09	128.78	0.56	0.58
Timepoint2	-0.05	0.07	112.67	-0.70	0.49
Timepoint3	0.01	0.07	112.67	0.08	0.94
Ravens	0.04	0.03	48.99	1.09	0.28
BPVS	0.00	0.07	49.06	0.05	0.96
Word opposites	-0.02	0.06	49.07	-0.38	0.70
Synonyms	0.03	0.06	48.79	0.54	0.59
Gender males	0.09	0.07	48.97	1.25	0.22
Age 8	0.21	0.11	48.78	1.84	0.07
Age 9	0.07	0.12	48.89	0.55	0.58
Age 10	0.01	0.12	48.71	0.05	0.96
GroupB:Timepoint 2	0.09	0.11	113.43	0.84	0.40
GroupB:Timepoint3	-0.02	0.11	112.67	-0.18	0.86

4.4 Discussion

Introduction

The research question addressed was 'does being trained (time 2), and engaging in activities as a YI (time 3) change how empathic Young Interpreters are as measured by the EmQue-CA?' The hypotheses were that the YI children would not differ from the control children on their affective empathy score, cognitive empathy score, prosocial motivation score, and their overall empathy score at time 1, but would score higher at time 2, after the training for the YIs, and this would be maintained at time 3. The results from this study partially support the hypotheses. Each area of empathy will be discussed in turn, followed by gender and age differences, then the strengths and limitations of this research before concluding with directions for future research.

4.4.1 Total empathy

Although the YI children increased their total empathy score between time 2 and time 3, there were no significant differences between the groups at any time point, nor were there any significant changes over time for either group as measured by the questionnaire. No significant fixed effects of group were found. These results did not support the hypothesis that the YI children would score higher than the control children at time 2 and that this would be maintained at time 3. As the individual components of empathy did not consistently reveal differences between the two groups, this null result for total empathy scores was expected. Echoing Dinneen (2017), this study similarly reports ambiguous results about pupils' empathy for new arrivals with EAL. The questionnaire used in this study assessed the theoretical understanding of empathy among YI children. However, it did not delve into their practical empathy application, especially in delicate situations where there is a risk of the new arrivals feeling patronised or offended, a concern Dinneen noted in her research.

One reason for the null results, besides issues with self-report of prosocial behaviour (Laguna et al., 2020) or the measurement instrument used, could be a lack of opportunities to operate as YIs due to the COVID-19 pandemic. Government restrictions during the academic year 2020/2021 were still in place for the first three months after their YI training meaning that free movement around school, to help other children, was restricted. Each class at school was placed in a 'Covid bubble' requiring that children were not allowed to mix with children outside of their bubble. This restricted the help YIs could offer as they were not allowed to interact with new arrivals not in their class bubble. As effect sizes between intervention and outcomes for empathy programs are modified by the amount of post training practice and repetition of learned skills (MacLean et al., 2020), the government restrictions limiting YIs practice, may have led to null results. During the autumn term of the academic year 2021/2022 and before the children were assessed at time 3, all restrictions had eased. However, schools were still advised to implement social distancing where practical; this meant minimising how

much children socialised outside of their classes, further impacting how many activities the YIs could complete. This was confirmed by interviews with the YICs at each school who reported that the children had limited opportunity to engage in Young Interpreter activites between time 2 and time 3 due to government restrictions. Beyond the amount of work that YIs could accomplish, the pandemic had a negative impact on their social interactions and overall social development (Cameron & Tenenbaum, 2021), which in and of itself will have had an impact on the development of empathy. Children's face-to-face interactions with others in social situations were immediately reduced by the pandemic's closure of schools and home confinement, which prevented children from having frequent peer interactions (Hagihara et al., 2022).

The YI diaries the children were provided with were designed to consider the frequency of their interactions with EAL peers. However, these were not consistently completed so they could not be used as a mediating factor in the analysis. The YICs at each school reported that recording their YI work in their diary was haphazard, with differing degrees of detail between children. If the frequency and variety of work had been accurately recorded in the diaries, and thus included as a predictor variable, differences in empathy scores over time may have become visible for those regularly engaged in YI activities.

4.4.2 Affective empathy

Affective empathy involves feeling and sharing the emotional state of another individual (Simon & Nader-Grosbois, 2021). The mixed effects model showed that scores for affective empathy at time 3 could be explained by a group and time point interaction, with a fixed effect of gender. The YI children (group A) did not significantly differ from the control children (group B) at time 1, indicating that any effect of YI training was not due to differences between the groups at baseline. At time 2, despite the YIs recently completing their training, there was no significant difference between the two groups on their affective empathy score. However, at time 3 the YI children did score significantly higher. It may be that the short time gap of four weeks between time 1 and 2 was not sufficient for the YI children to process their learning and change their behaviour as a result.

Some of the affective empathy statements in the EmQue-CA referred to feeling and expressing the same (negative) emotions of friends, such as 'if a friend is sad, I also feel sad', 'when a friend cries, I cry myself' and 'when a friend is upset, I feel upset too'. These items were consistently rated more frequently as 'not true' and 'sometimes true' (compared to 'often true') by all children at all timepoints. This contrasts with the two statements about empathy for family members ('if my mother is happy, I also feel happy' and 'if someone in my family is sad, I feel really bad'), which yielded more 'sometimes true' and 'often true' responses. This suggests that children aged eight to eleven years old may have developed affective empathy and sharing of emotions for their family, but it is not as developed for

their friends. This could be particularly in any outward expression of their friend's more negative emotions as most children responded 'sometimes true' or 'often true' for the more positive emotion of laughing ('if a friend is laughing, I also laugh'). Fowler et al. (2021) state that empathy is frequently felt more intensely for close and similar others, with a preference for expressing empathy towards those socially close, compared to socially distant others.

At time 3 the YI children did score significantly higher than the control children. This partially supports the hypothesis that increases in empathy scores would be maintained at time 3 as no change was found at time 2. It was only when the children had chance to practice post-intervention (Trivedi-Bateman & Crook, 2021) and to complete tasks as a YI that the effects of the YI training program could be outwardly measured. This result is confounded however because scores for the group B children decreased by 0.19 points and 0.09 points for females and males respectively. This decrease in scores for group B may have produced the significant difference between A and B groups, rather than the A group increasing their scores over time purely because of completing the YI training. It should be noted that the scale to measure affective empathy ranged from 0 to 2 so any changes in scores were small. Although the female YI children increased their score from 1.10 to 1.38, and the male YI children increased their score from 0.99 to 1.27, neither gender was at ceiling on the EmQue-CA. Consequently, the lack of scores at ceiling suggests that there is scope within the YI training to further enhance the development of affective empathy. Given that YIS already incorporates empathy exercises, there is potential to intensify these sessions. For instance, they could introduce immersive activities like role-playing EAL experiences or sharing personal stories of cultural adaptation, aiming to deepen participants' emotional understanding and connection with EAL learners.

4.4.3 Cognitive empathy

Cognitive empathy is the process of perceiving and understanding the emotional state of another (Simon & Nader-Grosbois, 2021). Although the YI children increased their cognitive empathy score between time 2 and time 3, the mixed effects model did not find significant differences between the two groups at any of the three time points. There was a fixed effect of age showing that as children increase in age, their cognitive empathy scores also increased. The fixed effect of age is discussed in the 'age differences' section of this discussion. Villadangos et al. (2016) suggested a direction for future research that used a developmental analysis of empathy with a consistent measure at each data collection point to study age differences in empathy. The current study met their suggestion, finding age differences only in the cognitive empathy domain.

The cognitive empathy scores remained approximately the same for all groups and genders over the three timepoints. The null results for group and timepoint could be because all children had already developed the ability to understand that others can experience emotions in a variety of

encounters, as this develops between the ages of five and eight years (Simon & Nader-Grosbois, 2021). Children aged 6–10 begin to comprehend the existence of informal social group norms governing when, and how emotions should be expressed (Siegler, 2006). They develop an appreciation for the social situations in which particular emotional manifestations are most appropriate (Harris, 1983). Children who are self-regulated should be able to experience others' emotions vicariously without becoming overwhelmed by the emotion (Eisenberg, 2000). As the current sample were aged eight to eleven years, cognitive regulation becomes more efficient over this period (Choudhury et al., 2006) rather than developing per se. Once children hit their teenage years, cognitive empathy begins to develop further (Van der Graaff et al., 2014).

The EmQue-CA consisted of only five items to measure cognitive empathy, less than the number of items for the other two domains of empathy. These items may not have been sufficient and broad enough to capture the complexity of cognitive empathy for children of this age range. The children were most likely to report 'often true' for understanding the emotions of 'shame' and 'pride' being experienced by their friends. However, the children were more likely to report 'sometimes true' or 'not true' for understanding why their friend might be angry or sad, and their reason for crying when sad. As only four emotions were assessed, the complexity of cognitive empathy and the wide range of emotions to comprehend, may not have been fully captured by the EmQue-CA. Therefore, to achieve a more comprehensive insight into the cognitive empathy capacities of children in this age range, future assessments should consider a more expansive and nuanced set of questions that encompass a broader spectrum of emotions. This would ensure the reliability and depth of understanding, especially when evaluating interventions such as the YIS.

4.4.4 Prosocial motivation

Prosocial behaviour is the ability to respond effectively to other people's feelings and to respond adaptively to the needs of another, such as consoling and helping the other person (Decety & Jackson, 2004). Empathy and prosocial responding are inter-related concepts (Segal, 2011). One may feel empathy for another, and then decide whether to act on this empathic feeling by displaying prosocial helping behaviour. Although the YI children increased their prosocial motivation score between time 2 and time 3, there were no significant differences between the two groups at any of the three time points, nor were there any significant changes over time. The YI children may understand more about how their buddies might feel as an outcome of their training, but this does not always lead to a resulting prosocial action. The lack of significant differences between the groups could be attributed to the notion that although the children in the sample may understand others' emotional state and issues, as indicated by the current study's cognitive empathy scores increasing with age, they do not act on this understanding hence their prosocial motivation scores did not change

over time. The null results could be attributed to wide ranging individual differences in levels of empathy as these can moderate the influence of external emotional stimuli on sharing behaviour (Guo & Wu, 2021). Another explanation could be that overall, most children from both groups responded 'often true' to five of the six statements in the EmQue-CA that included comforting a sad friend, trying to make them feel better, wanting everyone to feel good, enjoying giving a friend a gift and helping if a friend gets angry. However, answers to the statement 'if a friend has an argument, I try to help' were equally answered as 'often true' and 'sometimes true,' suggesting a conflict between helping a friend to calm down if they are angry and actively getting involved in the argument. Naturally one can assume that if someone is in an argument, they would feel some level of anger. The children may want to help in theory (cognitive empathy) but are less likely to get involved in practice (prosocial behaviour), perhaps because of imagined repercussions from teachers of getting involved. Children may be less likely to answer often true to this statement if they perceive the argument as a result of the child's own voluntary decision to get involved in the argument, as Richaud et al. (2017) found that children were more likely to engage in prosocial helping behaviour if they attributed the misfortune of the other to causes beyond their control. As the reason for the argument was not provided, this could have influenced how the children responded, with responses possibly changing depending on the children's causal attribution to the situation. The six prosocial items in the questionnaire related to helping a friend, with no reference to family members. The motivations for helping friends differs from that of helping family members (Niezink, 2008). The willingness to help friends was found to be predicted by empathy compared to that of families, which was predicted by perceived reciprocal support (Niezink, 2008). It would be interesting to compare the children's views on helping friends compared to family members.

There is limited evidence of how the prosocial activity of peers influences the growth of individual prosocial behaviour, though one study did find a significant positive association between the prosocial behaviour of adolescents and their friends (Farrell et al., 2017). However, this study cannot contribute to this line of research as the influence of peers on prosocial behaviour was not directly assessed. This would be an interesting enquiry for future research as teens in a classroom with peers who showed a high level of prosocial behaviour were more prosocial over time (Busching & Krahé, 2020).

The YI training and scheme is a type of intervention program for developing empathy and the resulting prosocial actions. Interventions that include the identification of one's own and others' emotions, in addition to perspective taking tasks, are likely to result in increased prosocial behaviour in children (Berliner & Masterson, 2015). However, no significant increases in prosocial motivation scores were found for the YI children.

Gender differences

Girls and boys may have equal levels of empathy but display it differently, resulting in conflicting reports of empathy levels from witnesses. A strength of this study was that children were directly questioned about their empathy and prosocial behaviour, which increased the study's reliability as the children themselves were questioned rather than another rater assessing their empathy.

For affective empathy, the girls scored significantly higher than the boys at all timepoints and in both groups. This difference between boys and girls in their levels of empathy is supported by Volbrecht et al. (2007) who found that girls had higher affective empathy. The girls in this sample, across both groups, consistently rated the affective empathy items on the EmQue-CA more frequently as 'often true,' compared to the boys. This discrepancy mirrors the findings of Banerjee et al. (2006), where participants faced hypothetical situations. Girls often provided 'emotion-focused' comforting, while boys predominantly offered 'problem-focused' solutions to dilemmas. Additionally, this disparity was found in other studies (Davis, 1983; Jolliffe & Farrington, 2006b; Lennon & Eisenberg, 1987). The only item that both genders rated equally as 'often true' was 'if my mother is happy, I also feel happy,' possibly reflecting the universal bond children share with primary caregivers, regardless of gender.

Regarding cognitive empathy the boys consistently scored higher than girls on all of the five cognitive empathy items in the EmQue-CA, apart from an inconsequential difference for the A group at time 2, where the girls scored a fraction higher than the boys. Although males' average scores were higher, there was no statistically significant difference between the genders at any time point. This contrasts with Volbrecht et al. (2007), who discovered that boys exhibit more cognitive empathy from an early age. Simon and Nader-Grosbois (2021) also reported that boys scored higher on cognitive empathy than girls using the parental version of the Empathy Questionnaire (Rieffe et al., 2010). This was an unexpected finding given the literature on gender differences in cognitive empathy. As stated earlier, the EmQue-CA consisted of only five items to measure cognitive empathy, and this may not have been sufficient and broad enough to capture the complexity of cognitive empathy for children of this age range.

For prosocial motivation, research has consistently indicated gender disparities, with females typically scoring higher based on both self-reports and assessments by parents and teachers (Rotenberg et al., 2005; Villadangos et al., 2016). However, in this sample, boys marginally outscored girls, averaging scores across all time points and groups (1.70 compared to 1.66) but this difference was not significant. While girls and boys may possess similar levels of empathetic understanding, their manifestations in helping behaviours might differ. This could lead to varying scores between genders when empathy measures focus specifically on prosocial actions.

Regarding overall empathy scores, girls generally scored marginally higher than boys (24.26 compared to 23.85), spanning all timepoints and groups. Nevertheless, no significant differences emerged between the genders for their total empathy scores. This result was unexpected given that numerous studies suggest females often exhibit greater empathy than males (Overgaauw et al., 2017; Rieffe et al., 2020; Villadangos et al., 2016). One potential explanation, grounded in the theory of Crick & Dodge's (1994) is that while girls tend to process empathy through interpersonal channels, boys might approach it more instrumentally. This suggests that both genders engage in their unique methods of empathetic expression, even if the overt manifestation and measurement of such empathy varies.

4.4.5 Age differences

The current study aligns with the findings of Litvack-Miller et al. (1997) and Villadangos et al.'s. (2016) corroborating that levels of empathy increase with age. Notably, there were significant disparities in cognitive empathy scores, with older children (10 years) consistently outscoring their younger peers (7 years) across both samples and all timepoints. Additionally, parents have noted that their children's prosocial behaviour increases as they age (Klein et al., 2015). A study by Calvo et al. (2001) of children and adolescents aged 10 to 18 years confirmed an increase in empathy with age only in females, and a study of adolescents aged 13 to 18 years found no significant differences in empathy as a feature of age in either gender (Mestre Escrivá et al., 2004). This increase in cognitive empathy as children age was in line with Rieffe et al. (2010) and Lucas-Molina et al. (2018) who found evidence that cognitive empathy and prosocial actions increased with age. In the current sample however, the younger children (aged 8 years) displayed higher prosocial motivation scores than the older children (aged 9 and 10 years). Howeverthese differences were not significant.

4.4.6 Strengths

The different results for different aspects of empathy from this study reflect earlier research in that empathy relates to three connected but distinct concepts: affective processes, cognitive processes, and prosocial behaviour (Davis, 1983; Hall & Schwartz, 2019; Hoffman, 1984; Simon & Nader-Grosbois, 2021).

There is substantial evidence showing the development and features of empathy in very young children (ages 0 to 5 years), as well as in children beyond the age of ten years and into adolescence. However, research on the development and behaviour of empathy in children aged 5 to 10 years is scarce. Therefore, this current study adds to the literature in this area, finding gender differences in affective empathy and age differences in cognitive empathy.

The EmQue-CA was used to assess empathy and has not previously been used with the age group of the participants in this study. Previous research into the empathy of primary school-aged

children, between 5 and 11 years old, mostly relied on parental reports of whether their child exhibited behaviours. However, according to Hayden et al. (2005) parental reports of their children's behaviour can be skewed, undermining the reliability of the measures used as parents may not want to report that their child lacks empathy as this is not a desirable characteristic. In a systematic review, Neary (2022) categorised the EmQue-CA as a questionnaire that was one of only six that was strongly informed by recent theory and research findings, and was able to distinguish between the related constructs of empathy. The EmQue-CA was administered directly to children aged seven to eleven years old in this study, rather than through parental or teacher reports. This is the first study to date to examine self-report of empathy in this age group, and the current findings support the use of the EmQue-CA in children younger than 10 years old, as the children were able to comprehend and respond to the questions, as evidenced by the different results for each of the three dimensions of empathy. Children as young as seven were able to respond to the EmQue-CA statements; this contrasts with Dadds et al.'s claim (2008) that self-reports of empathy in children younger than eight are problematic because young children lack the cognitive and/or verbal self-reflection abilities necessary to report on internal states. However, it could be argued that although the children answered all of the questions on the EmQue-CA, it does not necessarily mean that they fully understood what they were answering.

Training programs aimed to foster empathy in children are available, yet there are methodological issues with the majority of these as outlined previously. Training programs for empathy involving children, a mix of culture and nationalities, self-report from the children, and a direct, rather than proxy, measure of empathy are scarce, if not absent in the literature. The current study therefore contributes to this area of research.

Building on Dinneen's (2017) proposition for an extended study of YIs in schools rich with new English learners, this research sought to delve deeper into the role of peer-to-peer interventions in fostering empathy. The positive influence of prosocial behaviour in classrooms underscores the significance of peers in nurturing empathetic behaviour (Busching & Krahé, 2020), a sentiment echoed by other studies linking positive peer relationships to enhanced empathy (Laible et al., 2004; Smith & Rose, 2011). However, due to external factors like the pandemic and limited operational opportunities for the YIs, and the complexity of measuring empathy (Lietz et al., 2011; Richaud et al., 2017) extracting definitive evidence regarding enhanced empathy remains elusive.

4.4.7 Limitations

The lack of significant difference between groups post-training may be due to several reasons. Perhaps an immediate effect was not found because although the YI children were trained in being more empathic, they had not had time to translate the theory into practice and practice is needed

before any effects of training can be seen (MacLean et al., 2020). Subsequently, it was only when they had opportunities to practise being empathic that their scores on the EmQue-CA increased, as shown by the significant difference between the groups at time 3 on their affective empathy scores. However, this significant difference at time 3 between the groups is confounded by the fact that the control group reduced their scores over time in addition to the YI children increasing theirs, thus exaggerating the difference between the groups. Dinneen (2017) also reported that while YIs had a broad ability to empathy in theory, empathising in practise proved more difficult.

Due to the pandemic and self-isolation rules, some of the children may not have consistently attended school. Brownell et al. (2002) highlight that empathy can be developed through everyday classroom experiences as children communicate a broad variety of emotions with perspective-taking and role-playing, with teachers also acting as empathic role models (Berliner & Masterson, 2015). Therefore, with school attendance being inconsistent, the impact of the school environment on developing and maintaining empathy was hindered, meaning that children did not always have consistent access to situations where helping and sharing behaviour is expected, which in turn would enhance their empathy and prosocial behaviour. Further, the class 'Covid bubbles' that children were placed in prohibited them from socialising with children from other bubbles, vastly reducing their opportunities to interact with their EAL buddies. Peer interactions provide chances for children to share, and display kindness to each other (Bagwell et al., 1998) and these prosocial acts serve to sustain healthy relationships between children (Barry & Wentzel, 2006), yet the opportunities for such interactions, and for the YIs to practise their skills, were greatly reduced due to government restrictions on socialising. This likely resulted in some of the current study's null results for changes as a result of training, and over time. That being said, this study highlights how the YIS can continue operating and surpass even the most unexpected barriers to success.

The final sample of children for analysis in this study came from four different schools, meaning naturally there was variation in how many tasks the YI children were involved in, and the opportunities for YIs to operate between time 2 and time 3. YI children were given a diary to record their tasks, but the use of diaries was inconsistent across children and schools, therefore how much work the YIs actually did is unknown.

The design of this study recruited the YI children and control children from the same schools, thus controlling for environmental differences between the two groups and enhancing validity. However, this could also be a limitation in that schools that employ the YIS may already foster an environment that is conducive to increasing children's empathy levels towards new arrivals, especially in terms of prosocial behaviour. Additionally, the ethos of the school is likely to be one that is strongly aligned with the values of the YIS such as being a friendly and helpful pupil. If the control group had

come from schools where the YI scheme was not run (albeit with more confounding variables to control), more differences in levels of empathy may have emerged between the two groups.

The EmQue-CA questionnaire was brief with a limited range of statements to assess the complexity of empathy. The response scale range was also small, and these two issues combined may not be able to detect small differences in empathy levels between individuals. Directly asking children to respond to the empathy statements may have resulted in demand characteristics, with the children knowing that they should be seen as empathic and therefore answer in a socially desirable way. However, if this was the case, the expected results would have been at ceiling because the children would have answered 'often true' to most statements, but this did not happen. Children varied their response depending on the statement, so demand characteristics likely did not occur. Further, as the researcher did not actually witness any empathic behaviour in reality and was relying on the children's' self-report of their behaviour, collecting teacher and / or parent ratings of each child's behaviour would be advantageous to triangulate the results and to compare scores from different raters.

Neary (2022) also argues that while the EmQue assesses the first three levels of empathy in children, it does not assess the fourth degree of empathy, empathy for another's life condition (Hoffman, 1987). This develops in late childhood and is the point at which children realise that 1) others' feelings may not be a result of the immediate scenario but rather arise from their longer-term life circumstances and 2) that empathy can also exist in relation to entire groups of people (the destitute, the oppressed, etc,), surpassing immediate experience. This advanced stage of empathic distress would be interesting to assess in children as it typically only develops in adults, and not all adults reach this stage.

4.4.8 Future research

Further research into the YIS would be beneficial in assessing any long-term changes in empathy levels for the YIs, especially without the restrictions of the pandemic lessening their opportunities to operate. Although the children in this study were provided with a YI diary to record their tasks and feelings about their tasks, entries into the diary were not consistent across schools, with one school rarely using the diary. Having a concrete measure of the frequency and type of tasks YIs engage in would allow for this to be a controlled factor in the data analysis. The frequency and type of tasks YIs do could well be a mediating factor in how their empathy develops over time. It would be interesting to learn whether the role of YIs could be expanded to include assisting more advanced learners of EAL in developing their academic language proficiency, as well as more linguistically and culturally isolated groups such as asylum seekers, refugees, and travellers.

4.4.9 Conclusion

This study found mixed evidence for an increase in empathy as a result of being trained as a YI. Even without consistent significant differences, as the YIs begin their tasks, other members of the school community will observe their prosocial behaviour. This may have beneficial implications for the school's ethos and peers who will witness their prosocial helping behaviour, which could influence them into being more prosocial.

4.5 References

Abu-Bader, S. H., Tirmazi, M. T., & Ross-Sheriff, F. (2011). The impact of acculturation on depression among older Muslim immigrants in the United States. *J Gerontol Soc Work*, *54*(4), 425-448. https://doi.org/10.1080/01634372.2011.560928

Adams, M. J. (1994). *Beginning to read: Thinking and learning about print*. The MIT Press.

Aslan, D., & Köksal-Akyol, A. (2020). Impact of an Empathy Training Program on Children's Perspective-Taking Abilities. *Psychological Reports*, *123*(6), 2394-2409. https://doi.org/10.1177/0033294119868785

Bagwell, C. L., Newcomb, A. F., & Bukowski, W. M. (1998). Preadolescent Friendship and Peer Rejection as Predictors of Adult Adjustment. *Child Development*, *69*(1), 140-153. https://doi.org/10.1111/j.1467-8624.1998.tb06139.x

Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood cliffs Prentice Hall.

Banerjee, R., Rieffe, C., Terwogt, M. M., Gerlein, A. M., & Voutsina, M. (2006). Popular and Rejected Children's Reasoning Regarding Negative Emotions in Social Situations: The Role of Gender. *Social Development*, *15*(3), 418-433. https://doi.org/https://doi.org/10.1111/j.1467-9507.2006.00349.x

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition*, *21*(1), 37-46. https://doi.org/10.1016/0010-0277(85)90022-8

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, *34*(2), 163-175. https://doi.org/https://doi.org/10.1023/b:jadd.0000022607.19833.00

Barry, C. M., & Wentzel, K. R. (2006). Friend Influence on Prosocial Behavior: The Role of Motivational Factors and Friendship Characteristics. *Developmental psychology*, *42*(1), 153-163. https://doi.org/10.1037/0012-1649.42.1.153

Bates, D. M., M. Bolker, B. Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software.*, *67(1).* 1-48. https://doi.org/10.18637/jss.v067.i01

Batson, C. D., & Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social issues and policy review*, *3*(1), 141-177. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1751-2409.2009.01013.x

Baumsteiger, R. (2019). What the world needs now: An intervention for promoting prosocial behavior. *Basic and Applied Social Psychology*, *41*(4), 215-229. https://doi.org/10.1080/01973533.2019.1639507

Berliner, R., & Masterson, T. L. (2015). Review of Research: Promoting Empathy Development in the Early Childhood and Elementary Classroom: April Bedford and Renée Casbergue, Editors. *Childhood education*, *91*(1), 57-64. https://doi.org/10.1080/00094056.2015.1001675

Blake, P. R., Piovesan, M., Montinari, N., Warneken, F., & Gino, F. (2015). Prosocial norms in the classroom: The role of self-regulation in following norms of giving. *Journal of economic behavior & organization*, *115*, 18-29. https://doi.org/10.1016/j.jebo.2014.10.004

Brownell, C. A., Zerwas, S., & Balaram, G. (2002). Peers, cooperative play, and the development of empathy in children. *The Behavioral and brain sciences*, *25*(1), 28-29. https://doi.org/10.1017/S0140525X02300013

Bryant, B. K. (1982). An Index of Empathy for Children and Adolescents. *Child Development*, *53*(2), 413-425. https://doi.org/10.2307/1128984

Burr, V. (1998). *Gender and social psychology (1st ed.)*. Routledge.

Busching, R., & Krahé, B. (2020). With a little help from their peers: The impact of classmates on adolescents' development of prosocial behavior. *Journal of youth and adolescence*, *49*(9), 1849-1863. https://doi.org/10.1007/s10964-020-01260-8

Calvo, A. J., González, R., & Martorell, M. C. (2001). Variables related to prosocial behaviour in childhood and adolescence: Personality, self-concept and gender. *Journal for the Study of Education and Development*, *24*(1), 95-111. https://doi.org/10.1174/021037001316899947

Cameron, L., & Tenenbaum, H. R. (2021). Lessons from developmental science to mitigate the effects of the COVID-19 restrictions on social development. *Group Processes & Intergroup Relations*, *24*(2), 231-236. https://doi.org/10.1177/1368430220984236

Cappadocia, M. C., Pepler, D., Cummings, J. G., & Craig, W. (2012). Individual Motivations and Characteristics Associated With Bystander Intervention During Bullying Episodes Among Children and Youth. *Canadian Journal of School Psychology*, *27*(3), 201-216. https://doi.org/10.1177/0829573512450567

Chakrabarti, B., & Baron-Cohen, S. (2006). Empathizing: neurocognitive developmental mechanisms and individual differences. *Prog Brain Res*, *156*, 403-417. https://doi.org/10.1016/s0079-6123(06)56022-4

Chan, H. H., Kwong, H. Y. C., Shu, G. L. F., Ting, C. Y., & Lai, F. H. (2021). Effects of Experiential Learning Programmes on Adolescent Prosocial Behaviour, Empathy, and Subjective Well-being: A Systematic Review and Meta-Analysis. *Front Psychol*, *12*, 709699. https://doi.org/10.3389/fpsyg.2021.709699

Chen, X., Hastings, P. D., Rubin, K. H., Chen, H., Cen, G., & Stewart, S. L. (1998). Child-rearing attitudes and behavioral inhibition in Chinese and Canadian toddlers: a cross-cultural study. *Dev Psychol*, *34*(4), 677-686. https://doi.org/10.1037//0012-1649.34.4.677

Choudhury, S., Blakemore, S. J., & Charman, T. (2006). Social cognitive development during adolescence. *Soc Cogn Affect Neurosci*, *1*(3), 165-174. https://doi.org/10.1093/scan/nsl024

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychol Bull*, *115*(1), 74-101. https://doi.org/10.1037/0033-2909.115.1.74

Dadds, M. R., Dadds, M. R., Hunter, K., Hunter, K., Hawes, D. J., Hawes, D. J., Frost, A. D. J., Frost, A. D. J., Vassallo, S., Vassallo, S., Bunn, P., Bunn, P., Merz, S., Merz, S., Masry, Y. E., & Masry, Y. E. (2008). A Measure of Cognitive and Affective Empathy in Children Using Parent Ratings. *Child psychiatry and human development*, *39*(2), 111-122. https://doi.org/10.1007/s10578-007-0075-4

Daniel, E., Madigan, S., & Jenkins, J. (2016). Paternal and Maternal Warmth and the Development of Prosociality Among Preschoolers. *Journal of Family Psychology*, *30*(1), 114-124. https://doi.org/10.1037/fam0000120

Davidov, M., Paz, Y., Roth-Hanania, R., Uzefovsky, F., Orlitsky, T., Mankuta, D., & Zahn-Waxler, C. (2020). Caring babies: Concern for others in distress during infancy. *Developmental science*, e13016. https://doi.org/https://doi.org/10.1111/desc.13016

Davidov, M., Zahn-Waxler, C., Roth-Hanania, R., & Knafo, A. (2013). Concern for Others in the First Year of Life: Theory, Evidence, and Avenues for Research. *Child Development Perspectives*, *7*(2), 126-131. https://doi.org/https://doi.org/10.1111/cdep.12028

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113-126. https://doi.org/10.1037/0022-3514.44.1.113

de Kemp, R. A., Overbeek, G., de Wied, M., Engels, R. C., & Scholte, R. H. (2007). Early adolescent empathy, parental support, and antisocial behavior. *J Genet Psychol*, *168*(1), 5-18. https://doi.org/10.3200/gntp.168.1.5-18

de Lima, F. F., & Osório, F. L. (2021). Empathy: Assessment Instruments and Psychometric Quality - A Systematic Literature Review With a Meta-Analysis of the Past Ten Years. *Front Psychol*, *12*, 781346. https://doi.org/10.3389/fpsyg.2021.781346

de Wied, M., Branje, S. J. T., & Meeus, W. H. J. (2007). Empathy and conflict resolution in friendship relations among adolescents. *Aggressive Behavior*, *33*(1), 48-55. https://doi.org/https://doi.org/10.1002/ab.20166

Decety, & Jackson, P. L. (2004). The functional architecture of human empathy. *Behav Cogn Neurosci Rev*, *3*(2), 71-100. https://doi.org/10.1177/1534582304267187

Decety, J., Bartal, I. B.-A., Uzefovsky, F., & Knafo-Noam, A. (2016). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical transactions. Biological sciences*, *371*(1686), 20150077-20150077. https://doi.org/10.1098/rstb.2015.0077

Decety, J., Michalska, K. J., & Akitsuki, Y. (2008). Who caused the pain? An fMRI investigation of empathy and intentionality in children. *Neuropsychologia*, *46*(11), 2607-2614. https://doi.org/10.1016/j.neuropsychologia.2008.05.026

Denham, S. A. (2019). Emotional Competence During Childhood and Adolescence. In V. LoBue, K. Pérez-Edgar, & K. A. Buss (Eds.), *Handbook of Emotional Development* (pp. 493-541). Springer International Publishing. https://doi.org/10.1007/978-3-030-17332-6_20

Diggle, P., Diggle, P. J., Heagerty, P., Liang, K.-Y., & Zeger, S. (2002). *Analysis of longitudinal data*. Oxford university press.

Dinneen, A. (2017). The Hampshire Young Interpreter Scheme: A coming of age. *National Association for Language Development in the Curriculum - EAL Matters*. https://doi.org/https://naldic.org.uk/wp-content/uploads/2017/06/EAL-Matters-2.pdf

Dubow, E. F., Huesmann, L. R., & Eron, L. D. (1987). Mitigating aggression and promoting prosocial behavior in aggressive elementary schoolboys. *Behaviour Research and Therapy*, *25*(6), 527-531. https://doi.org/10.1016/0005-7967(87)90061-1

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annu Rev Psychol*, *51*, 665-697. https://doi.org/10.1146/annurev.psych.51.1.665

Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial Development. In R. M. Lerner (Ed.), *Handbook of Child Psychology and Developmental Science* (pp. 1-47). John Wiley & Sons. https://doi.org/https://doi.org/10.1002/9781118963418.childpsy315

Farrell, A. D., Thompson, E. L., & Mehari, K. R. (2017). Dimensions of Peer Influences and Their Relationship to Adolescents' Aggression, Other Problem Behaviors and Prosocial Behavior. *Journal of youth and adolescence*, *46*(6), 1351-1369. https://doi.org/10.1007/s10964-016-0601-4

Faver, C. A. (2010). School-based humane education as a strategy to prevent violence: Review and recommendations. *Children and youth services review*, *32*(3), 365-370. https://doi.org/10.1016/j.childyouth.2009.10.006

Feldman, R. (2007). Mother-infant synchrony and the development of moral orientation in childhood and adolescence: Direct and indirect mechanisms of developmental continuity. *American Journal of Orthopsychiatry*, *77*(4), 582-597. https://doi.org/10.1037/0002-9432.77.4.582

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting Prosocial Behavior and Self-Regulatory Skills in Preschool Children Through a Mindfulness-Based Kindness Curriculum. *Developmental psychology*, *51*(1), 44-51. https://doi.org/10.1037/a0038256

Fowler, Z., Law, K. F., & Gaesser, B. (2021). Against Empathy Bias: The Moral Value of Equitable Empathy. *Psychological Science*, *32*(5), 766-779. https://doi.org/10.1177/0956797620979965

Futh, A. M. A., O'Connor, T. G. P. D., Matias, C. P. D., Green, J. F. R. C. P., & Scott, S. F. R. C. P. (2008). Attachment Narratives and Behavioral and Emotional Symptoms in an Ethnically Diverse, At-Risk Sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*(6), 709-718. https://doi.org/10.1097/CHI.0b013e31816bff65

Garaigordobil, M. (2009). A comparative analysis of empathy in childhood and adolescence: Gender differences and associated socio-emotional variables. *International Journal of Psychology & Psychological Therapy*, *9*(2), 217-235. https://doi.org/https://dialnet.unirioja.es/servlet/articulo?codigo=2992452

Georgiou, G., Kimonis, E. R., & Fanti, K. A. (2019). What do others feel? Cognitive empathy deficits explain the association between callous-unemotional traits and conduct problems among

preschool children. *European journal of developmental psychology*, *16*(6), 633-653. https://doi.org/10.1080/17405629.2018.1478810

Greif, E. B., & Hogan, R. (1973). The theory and measurement of empathy. *Journal of counseling psychology*, *20*(3), 280-284. https://doi.org/10.1037/h0034488

Grühn, D., Rebucal, K., Diehl, M., Lumley, M., & Labouvie-Vief, G. (2008). Empathy across the adult lifespan: Longitudinal and experience-sampling findings. *Emotion (Washington, D.C.)*, *8*(6), 753-765. https://doi.org/10.1037/a0014123

Guo, R., & Wu, Z. (2021). Empathy as a buffer: How empathy moderates the emotional effects on Preschoolers' sharing. *British Journal of Psychology*, *112*(2), 412-432. https://doi.org/https://doi.org/10.1111/bjop.12466

Hagihara, H., Yamamoto, N., Meng, X., Sakata, C., Wang, J., Watanabe, R., & Moriguchi, Y. (2022). COVID-19 school and kindergarten closure relates to children's social relationships: a longitudinal study in Japan. *Scientific Reports*, *12*(1). https://doi.org/10.1038/s41598-022-04944-2

Hall, J. A., & Schwartz, R. (2019). Empathy present and future. *The Journal of Social Psychology*, *159*(3), 225-243. https://doi.org/10.1080/00224545.2018.1477442

Harris, P. L. (1983). Children's understanding of the link between situation and emotion. *Journal of Experimantal Child Psychology*, *36*(3), 490-509. https://doi.org/https://doi.org/10.1016/0022-0965(83)90048-6

Harris, P. L. (2008). Children's understanding of emotion. In *Handbook of emotions, 3rd ed.* (pp. 320-331). The Guilford Press.

Hayden, E. P., Klein, D. N., & Durbin, C. E. (2005). Parent Reports and Laboratory Assessments of Child Temperament: A Comparison of Their Associations With Risk for Depression and Externalizing Disorders. *Journal of psychopathology and behavioral assessment*, *27*(2), 89-100. https://doi.org/10.1007/s10862-005-5383-z

Hill, J. P., Lynch, M. E., & Brooks-Gunn, J. (1983). The intensification of gender-related role expectations during early adolescence. In J. Brooks-Gunn & A. Petersen (Eds.), *Girls at puberty: Biological and psychosocial perspectives* (pp. 201-228). Plenum.

Hoffman, M. L. (1984). Interaction of affect and cognition in empathy. In C. E. Izard, Kagan, J. and Zajonc, R. B. (Ed.), *Emotions, cognition, and behavior* (pp. 103-131). Cambridge University Press.

Hoffman, M. L. (1987). The contribution of empathy to justice and moral judgment. In N. E. J. Strayer (Ed.), *Empathy and its development.* (pp. 47-80). Cambridge University Press.

Hoffman, M. L. (2000). *Empathy and Moral Development: Implications for Caring and Justice*. Cambridge University Press. https://doi.org/DOI: 10.1017/CBO9780511805851

Hofmann, V., & Müller, C. M. (2018). Avoiding antisocial behavior among adolescents: The positive influence of classmates' prosocial behavior. *Journal of Adolescence*, *68*, 136-145. https://doi.org/https://doi.org/10.1016/j.adolescence.2018.07.013

Hogan, R. (1969). Development of an empathy scale. *Journal of consulting and clinical psychology*, *33*(3), 307-316. https://doi.org/10.1037/h0027580

Jolliffe, D., & Farrington, D. P. (2006b). Examining the relationship between low empathy and bullying. *Aggressive Behavior*, *32*(6), 540-550. https://doi.org/https://doi.org/10.1002/ab.20154

Jung, J., Busching, R., & Krahé, B. (2019). Catching aggression from one's peers: A longitudinal and multilevel analysis. *Social and Personality Psychology Compass*, *13*(2), e12433. https://doi.org/https://doi.org/10.1111/spc3.12433

Karniol, R. (2012). Storybook-Induced Arousal and Preschoolers' Empathic Understanding of Negative Affect in Self, Others, and Animals in Stories. *Journal of research in childhood education*, *26*(3), 346-358. https://doi.org/10.1080/02568543.2012.684423

Klein, A. M., Otto, Y., Fuchs, S., Reibiger, I., & von Klitzing, K. (2015). A prospective study of behavioral and emotional symptoms in preschoolers. *Eur Child Adolesc Psychiatry*, *24*(3), 291-299. https://doi.org/10.1007/s00787-014-0575-2

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion (Washington, D.C.)*, *8*(6), 737-752. https://doi.org/10.1037/a0014179

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, *4*(2), 193-212. https://doi.org/https://doi.org/10.5465/amle.2005.17268566

Kolb, D. A. (2015). *Experiential Learning: Experience as the source of Learning and Development Second Edition*. FT press.

Krevans, J., & Gibbs, J. C. (1996). Parents' Use of Inductive Discipline: Relations to Children's Empathy and Prosocial Behavior. *Child Development*, *67*(6), 3263-3277. https://doi.org/10.1111/j.1467-8624.1996.tb01913.x

Kruger, J. S., Kruger, D. J., & Suzuki, R. (2015). Assessing the Effectiveness of Experiential Learning in a Student-Run Free Clinic. *Pedagogy in Health Promotion*, *1*(2), 91-94. https://doi.org/10.1177/2373379915575530

Laguna, M., Mazur, Z., Kędra, M., & Ostrowski, K. (2020). Interventions stimulating prosocial helping behavior: A systematic review. *Journal of applied social psychology*, *50*(11), 676-696. https://doi.org/10.1111/jasp.12704

Laible, D. J., Carlo, G., & Roesch, S. C. (2004). Pathways to self-esteem in late adolescence: the role of parent and peer attachment, empathy, and social behaviours. *J Adolesc*, *27*(6), 703-716. https://doi.org/10.1016/j.adolescence.2004.05.005

Lazdauskas, T., & Nasvytienė, D. (2021). Psychometric properties of Lithuanian versions of empathy questionnaires for children. *European journal of developmental psychology*, *18*(1), 144-159. https://doi.org/10.1080/17405629.2020.1772048

Lennon, R., & Eisenberg, N. (1987). Gender and age differences in empathy and sympathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 95–218). Cambridge University Press.

Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.5.0.* In https://CRAN.R-project.org/package=emmeans

Lietz, C. A., Gerdes, K. E., Sun, F., Geiger, J. M., Wagaman, M. A., & Segal, E. A. (2011). The Empathy Assessment Index (EAI): A confirmatory factor analysis of a multidimensional model of empathy. *Journal of the Society for Social Work and Research*, *2*(2), 104-124. https://doi.org/https://psycnet.apa.org/doi/10.5243/jsswr.2011.6

Litvack-Miller, W., McDougall, D., & Romney, D. M. (1997). The structure of empathy during middle childhood and its relationship to prosocial behavior. *Genetic, social, and general psychology monographs 123*(3), 303-324. https://doi.org/https://link.gale.com/apps/doc/A20632713/HRCA?u=anon~4d563dc0&sid=googleScholar&xid=8d7c7435

Lovett, B. J., & Sheffield, R. A. (2007). Affective empathy deficits in aggressive children and adolescents: A critical review. *Clinical Psychology Review*, *27*(1), 1-13. https://doi.org/https://doi.org/10.1016/j.cpr.2006.03.003

Lucas-Molina, B., Sarmento, R., Quintanilla, L., & Giménez-Dasí, M. (2018). The Spanish Version of the Empathy Questionnaire (EmQue): Evidence for Longitudinal Measurement Invariance and Relationship With Emotional Regulation. *Early Education and Development*, *29*(4), 467-476. https://doi.org/10.1080/10409289.2018.1427929

Ma, H. K., & Leung, M. C. (1991). Altruistic Orientation in Children: Construction and Validation of the Child Altruism Inventory. *International Journal of Psychology*, *26*(6), 745-759. https://doi.org/https://doi.org/10.1080/00207599108247163

MacLean, H., Braschi, E., Archibald, D., Sanchez-Campos, M., Jebanesan, D., Koszycki, D., & Gonsalves, C. (2020). A pilot study of a longitudinal mindfulness curriculum in undergraduate medical education. *Canadian medical education journal*, *11*(4), e5-e18. https://doi.org/10.36834/cmej.56726

Malti, T., Chaparro, M. P., Zuffianò, A., & Colasante, T. (2016). School-Based Interventions to Promote Empathy-Related Responding in Children and Adolescents: A Developmental Analysis. *Journal of clinical child and adolescent psychology*, *45*(6), 718-731. https://doi.org/10.1080/15374416.2015.1121822

Marino, C., Gini, G., Angelini, F., Vieno, A., & Spada, M. M. (2020). Social norms and e-motions in problematic social media use among adolescents. *Addictive Behaviors Reports*, *11*, 100250. https://doi.org/https://doi.org/10.1016/j.abrep.2020.100250

McClain, J. B., Mancilla-Martinez, J., Flores, I., & Buckley, L. (2021). Translanguaging to support emergent bilingual students in English dominant preschools: An explanatory sequential mixed-method study. *Bilingual Research Journal*, *44*(2), 158-173. https://doi.org/https://doi.org/10.1080/15235882.2021.1963014

McDonald, N., & Messinger, D. (2011). The Development of Empathy: How, When, and Why. *Moral behavior and free will: A neurobiological and philosophical approach*, 333-359. https://doi.org/https://www.overcominghateportal.org/uploads/5/4/1/5/5415260/empathy _development.pdf

Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of personality*. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1467-6494.1972.tb00078.x

Mestre Escrivá, V., Frías Navarro, M. D., & Samper García, P. (2004). La medida de la empatía: análisis del Interpersonal Reactivity Index. *Psicothema*, *16*(Número 2), 255-260. https://reunido.uniovi.es/index.php/PST/article/view/8243

Meuwese, R., Crone, E. A., de Rooij, M., & Güroğlu, B. (2015). Development of Equity Preferences in Boys and Girls Across Adolescence. *Child Development*, *86*(1), 145-158. https://doi.org/https://doi.org/10.1111/cdev.12290

Mfenyana, K., Griffin, M., Yogeswaran, P., Modell, B., Modell, M., Chandia, J., & Nazareth, I. (2006). Socio-economic inequalities as a predictor of health in South Africa--the Yenza cross-sectional study. *S Afr Med J*, *96*(4), 323-330.

Miklikowska, M., Duriez, B., & Soenens, B. (2011). Family Roots of Empathy-Related Characteristics: The Role of Perceived Maternal and Paternal Need Support in Adolescence. *Developmental psychology*, *47*(5), 1342-1352. https://doi.org/10.1037/a0024726

Misch, A., & Dunham, Y. (2021). (Peer) Group influence on children's prosocial and antisocial behavior. *J Exp Child Psychol*, *201*, 104994. https://doi.org/10.1016/j.jecp.2020.104994

Neary, P. (2022). Questionnaire Measures of Empathy in Children: A Scoping Review. *Assessment*, 10731911211069677. https://doi.org/10.1177/10731911211069677

Niezink, L. W. (2008). *Considering others in Need: On altruism, empathy and perspective taking. [Unpublished doctoral thesis].* University of Groningen.

Olweus, D. (1986). The Olweus Bully/Victim Questionnaire . In. Mimeo. Bergen, Norway.: Research Centre for Health Promotion, University of Bergen.

Ornaghi, V., Grazzani, I., Cherubin, E., Conte, E., & Piralli, F. (2015). 'Let's talk about emotions!'. The effect of conversational training on preschoolers' emotion comprehension and prosocial orientation. *Social Development*, *24*(1), 166-183. https://doi.org/10.1111/sode.12091

Overgaauw, S., Rieffe, C., Broekhof, E., Crone, E. A., & Güroğlu, B. (2017). Assessing Empathy across Childhood and Adolescence: Validation of the Empathy Questionnaire for Children and Adolescents (EmQue-CA) [Original Research]. *Frontiers in psychology*, *8*(870). https://doi.org/10.3389/fpsyg.2017.00870

Pagnamenta, E. (2013). Game, set and match. *Bulletin / Royal College of Speech and Language Therapists*, 24-25.

Paradis, J. (2016). An agenda for knowledge-oriented research on bilingualism in children with developmental disorders. *Journal of Communication Disorders*. https://doi.org/10.1016/j.jcomdis.2016.08.002

Parsons, S., & Branagan, A. (2014). *Word Aware: Teaching Vocabulary across the day, across the curriculum*. Routledge.

Piek, J. P., Kane, R., Rigoli, D., McLaren, S., Roberts, C. M., Rooney, R., Jensen, L., Dender, A., Packer, T., & Straker, L. (2015). Does the Animal Fun program improve social-emotional and behavioural outcomes in children aged 4-6 years? *Human movement science*, *43*, 155-163. https://doi.org/10.1016/j.humov.2015.08.004

Portt, E., Person, S., Person, B., Rawana, E., & Brownlee, K. (2020). Empathy and Positive Aspects of Adolescent Peer Relationships: a Scoping Review. *Journal of Child and Family Studies*, *29*(9), 2416-2433. https://doi.org/10.1007/s10826-020-01753-x

Pouw, L. B., Rieffe, C., Oosterveld, P., Huskens, B., & Stockmann, L. (2013). Reactive/proactive aggression and affective/cognitive empathy in children with ASD. *Res Dev Disabil*, *34*(4), 1256-1266. https://doi.org/10.1016/j.ridd.2012.12.022

R Development Core Team. (2020). *R: A language and environment for statistical computing.* In R Foundation for Statistical Computing. https://www.R-project.org/.

Ragan, D. T. (2020). Similarity between deviant peers: Developmental trends in influence and selection. *Criminology*, *58*(2), 336-369. https://doi.org/https://doi.org/10.1111/1745-9125.12238

Reid, C., Davis, H., Horlin, C., Anderson, M., Baughman, N., & Campbell, C. (2013). The Kids' Empathic Development Scale (KEDS): A multi-dimensional measure of empathy in primary school-aged children. *British Journal of Developmental Psychology*, *31*(2), 231-256. https://doi.org/10.1111/bjdp.12002

Reniers, R. L., Corcoran, R., Drake, R., Shryane, N. M., & Völlm, B. A. (2011). The QCAE: a Questionnaire of Cognitive and Affective Empathy. *J Pers Assess*, *93*(1), 84-95. https://doi.org/10.1080/00223891.2010.528484

Richaud, M. C., Lemos, V. N., Mesurado, B., & Oros, L. (2017). Construct Validity and Reliability of a New Spanish Empathy Questionnaire for Children and Early Adolescents. *Frontiers in psychology*, *8*, 979-979. https://doi.org/10.3389/fpsyg.2017.00979

Rieffe, C., Ketelaar, L., & Wiefferink, C. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*, 362-367. https://doi.org/10.1016/j.paid.2010.03.046

Rieffe, C., O'Connor, R., Bülow, A., Willems, D., Hull, L., Sedgewick, F., Stockmann, L., & Blijd-Hoogewys, E. (2020). Quantity and quality of empathic responding by autistic and non-autistic adolescent girls and boys. *Autism : the international journal of research and practice*, 1362361320956422-1362361320956422. https://doi.org/10.1177/1362361320956422

Rieffe, C., Terwogt, M. M., Petrides, K. V., Cowan, R., Miers, A. C., & Tolland, A. (2007). Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, *43*(1), 95-105. https://doi.org/https://doi.org/10.1016/j.paid.2006.11.015

Rotenberg, K. J., Fox, C., Green, S., Ruderman, L., Slater, K., Stevens, K., & Carlo, G. (2005). Construction and validation of a children's interpersonal trust belief scale. *British Journal of Developmental Psychology*, *23*(2), 271-292. https://doi.org/10.1348/026151005X26192

Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C. (2011). Empathy development from 8 to 16 months: early signs of concern for others. *Infant Behav Dev*, *34*(3), 447-458. https://doi.org/10.1016/j.infbeh.2011.04.007

RStudio, I. (2019). *RStudio: Integrated Development for R.* In http://www.rstudio.com/

Sartori, R., & Pasini, M. (2007). Quality and Quantity in Test Validity: How can we be Sure that Psychological Tests Measure what they have to? *Quality & Quantity*, *41*(3), 359-374. https://doi.org/10.1007/s11135-006-9006-x

Schwenck, C., Mergenthaler, J., Keller, K., Zech, J., Salehi, S., Taurines, R., Romanos, M., Schecklmann, M., Schneider, W., Warnke, A., & Freitag, C. M. (2012). Empathy in children with autism and conduct disorder: group-specific profiles and developmental aspects. *Journal of Child Psychology and Psychiatry*, *53*(6), 651-659. https://doi.org/10.1111/j.1469-7610.2011.02499.x

Segal, E., Wagaman, M., & Gerdes, K. (2012). Developing the Social Empathy Index: An Exploratory Factor Analysis. *Advances in Social Work*, *13*, 541-560. https://doi.org/10.18060/2042

Segal, E. A. (2011). Social Empathy: A Model Built on Empathy, Contextual Understanding, and Social Responsibility That Promotes Social Justice. *Journal of Social Service Research*, *37*(3), 266-277. https://doi.org/10.1080/01488376.2011.564040

Sesso, G., Brancati, G. E., Fantozzi, P., Inguaggiato, E., Milone, A., & Masi, G. (2021). Measures of empathy in children and adolescents: A systematic review of questionnaires. *World journal of psychiatry*, *11*(10), 876-896. https://doi.org/10.5498/wjp.v11.i10.876

Siegler, R. (2006). *How Children Develop, Exploring Child Develop Student Media Tool Kit & Scientific American Reader to Accompany How Children Develop.* Worth Publishers.

Simon, P., & Nader-Grosbois, N. (2021). Preschoolers' Empathy Profiles and Their Social Adjustment. *Front Psychol*, *12*, 782500. https://doi.org/10.3389/fpsyg.2021.782500

Smith, R. L., & Rose, A. J. (2011). The "cost of caring" in youths' friendships: considering associations among social perspective taking, co-rumination, and empathetic distress. *Dev Psychol*, *47*(6), 1792-1803. https://doi.org/10.1037/a0025309

Son, D., & Padilla-Walker, L. M. (2020). Happy Helpers: A Multidimensional and Mixed-Method Approach to Prosocial Behavior and Its Effects on Friendship Quality, Mental Health, and Well-Being During Adolescence. *Journal of Happiness Studies*, *21*(5), 1705-1723. https://doi.org/10.1007/s10902-019-00154-2

Spinrad, T. L., & Gal, D. E. (2018). Fostering prosocial behavior and empathy in young children. *Current opinion in psychology*, *20*, 40-44. https://doi.org/10.1016/j.copsyc.2017.08.004

Spinrad, T. L., Losoya, S. H., Eisenberg, N., Fabes, R. A., Shepard, S. A., Cumberland, A., Guthrie, I. K., & Murphy, B. C. (1999). The Relations of Parental Affect and Encouragement to Children's Moral Emotions and Behaviour. *Journal of moral education*, *28*(3), 323-337. https://doi.org/10.1080/030572499103115

Stavnezer, A. J., & Lom, B. (2019). Student-led Recaps and Retrieval Practice: A Simple Classroom Activity Emphasizing Effective Learning Strategies. *Journal of Undergraduate Neuroscience 18*(1), A1-a14. https://doi.org/https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6973304/

Stern, J., & Cassidy, J. (2017). Empathy from infancy to adolescence: An attachment perspective on the development of individual differences. *Developmental Review*, *47*. https://doi.org/10.1016/j.dr.2017.09.002

Stosic, M. D., Fultz, A. A., Brown, J. A., & Bernieri, F. J. (2021). What is your empathy scale not measuring? The convergent, discriminant, and predictive validity of five empathy scales. *The Journal of Social Psychology*, 1-19. https://doi.org/10.1080/00224545.2021.1985417

Strayer, J., & Roberts, W. (2004). Empathy and Observed Anger and Aggression in Five-Year-Olds. *Social Development*, *13*(1), 1-13. https://doi.org/https://doi.org/10.1111/j.1467-9507.2004.00254.x

Surtees, A. D., & Apperly, I. A. (2012). Egocentrism and automatic perspective taking in children and adults. *Child Dev*, *83*(2), 452-460. https://doi.org/10.1111/j.1467-8624.2011.01730.x

Tobari, M. (2003). The development of empathy in adolescence: A multidimensional view. *Japanese Journal of Developmental Psychology*, *14*, 136-148. https://doi.org/https://doi.org/10.11201/jjdp.14.136

Trivedi-Bateman, N., & Crook, E. L. (2021). The optimal application of empathy interventions to reduce antisocial behaviour and crime: a review of the literature. *Psychology, Crime & Law*, 1-24. https://doi.org/10.1080/1068316X.2021.1962870

Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Dev Psychol*, *50*(3), 881-888. https://doi.org/10.1037/a0034325

Villadangos, M., Errasti, J., Amigo, I., Jolliffe, D., & García-Cueto, E. (2016). Characteristics of Empathy in young people measured by the Spanish validation of the Basic Empathy Scale. *Psicothema*, *28*(3), 323-329. https://doi.org/10.7334/psicothema2016.6

Vitória, P., Pereira, S. E., Muinos, G., Vries, H. D., & Lima, M. L. (2020). Parents modelling, peer influence and peer selection impact on adolescent smoking behavior: A longitudinal study in two age cohorts. *Addictive Behaviors*, *100*, 106131. https://doi.org/https://doi.org/10.1016/j.addbeh.2019.106131

Volbrecht, M. M., Lemery-Chalfant, K., Aksan, N., Zahn-Waxler, C., & Goldsmith, H. H. (2007). Examining the familial link between positive affect and empathy development in the second year. *The Journal of genetic psychology*, *168*(2), 105-129. https://doi.org/10.3200/GNTP.168.2.105-130

Waal, F. B. M. d. (2008). Putting the Altruism Back into Altruism: The Evolution of Empathy. *Annual Review of Psychology*, *59*(1), 279-300. https://doi.org/10.1146/annurev.psych.59.103006.093625

Weir, K., & Duveen, G. (1981). Further development and validation of the prosocial behaviour questionnaire for use by teachers. *Journal of Child Psychology and Psychiatry*, *22*(4), 357-374. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1469-7610.1981.tb00561.x

Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: the truth about false belief. *Child Dev*, *72*(3), 655-684. https://doi.org/10.1111/1467-8624.00304

White, H. (2020). Building empathy. *Early Years Educator*, *22*(2), 18-20. https://doi.org/10.12968/eyed.2020.22.2.18

Wu, L., Kim, M., & Markauskaite, L. (2020). Developing young children's empathic perception through digitally mediated interpersonal experience: Principles for a hybrid design of empathy games. *British journal of educational technology*, *51*(4), 1168-1187. https://doi.org/10.1111/bjet.12918

Zahn-Waxler, C., & Radke-Yarrow, M. (1990). The origins of empathic concern. *Motivation and Emotion*, *14*(2), 107-130. https://doi.org/10.1007/BF00991639

Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child rearing and children's prosocial initiations toward victims of distress. *Child Development*, *50*(2), 319-330. https://doi.org/10.2307/1129406

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental psychology*, *28*(1), 126. https://doi.org/https://psycnet.apa.org/doi/10.1037/0012-1649.28.1.126

Zuur, A. F., Ieno, E. N., Walker, N. J., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology with R* (Vol. 574). Springer.

Chapter 5: <u>Intercultural competence</u>

Introduction

This chapter is organised into five sections: 1) Literature Review, 2) Participants, 3) Materials, 4) Procedure, and 5) Findings and Discussion. The literature review will explore various aspects of intercultural competence, including its definitions and theories, developmental factors, and methods of measurement. The review will also discuss how to foster intercultural competence in children, paying attention to the role of peers and considering gender and age differences. The section will conclude by examining the role of intercultural competence in the YIS Literature review..

5.1 Literature review

5.1.1 What is intercultural competence?

Multicultural societies exist all over the world as a result of the global rise in immigration and migration of populations. Being part of a multicultural society naturally involves navigating different cultures and potentially adopting several cultural identities. Intercultural competence is the capacity to manage different cultures effectively in terms of thinking and behaviour, and to interact sensitively with people from different backgrounds. There are multiple nuanced terms to refer to intercultural competence, and while they are often used interchangeably, each alternative often suggests subtle differences and complexities (Sinicrope et al., 2007). Table 5.1 displays the alternative terms used for intercultural competence, compiled by Sinicrope et al. (2007).

Table 5.1 Alternative terms for intercultural competence

Transcultural communication	International communication	Ethnorelativity
Cross-cultural communication	Intercultural interaction	Biculturalism
Cross-cultural awareness	Intercultural sensitivity	Multiculturalism
Global competitive intelligence	Intercultural cooperation	Plurilingualism
Global competence	Intercultural awareness	Effective inter-group communication.
Cross-cultural adaption	Cultural competence	Cultural sensitivity
International competence	Communicative competence	

Both intercultural awareness and intercultural sensitivity refer to the capacity to discriminate and experience relative cultural variations. Intercultural competence, on the other hand, is about being able to display this sensitivity in one's overt actions by displaying acceptable attitudes and activities while interacting with culturally different others (Hammer et al., 2003). This chapter will use the term intercultural competence. The definition of culture is the cornerstone of intercultural competence. Culture consists of several features. The Iceberg Model (Hall, 1976) distinguishes between the elements of culture that are automatically perceivable (surface culture) and those that are not perceivable (deep culture). For example, language is a surface element of culture suggesting that

language is not only something that is evident, but rather something that embodies, communicates, and refers to the different diverse forms of culture. Language is intertwined with how people communicate and the specific ways in which communication occurs within a particular culture, as seen in figure 5.1. In addition, it may reflect attitudes, concepts, activities, and concepts that are characteristic of that culture.

Figure 5.1 The Iceberg Model of Culture (Hall, 1976)
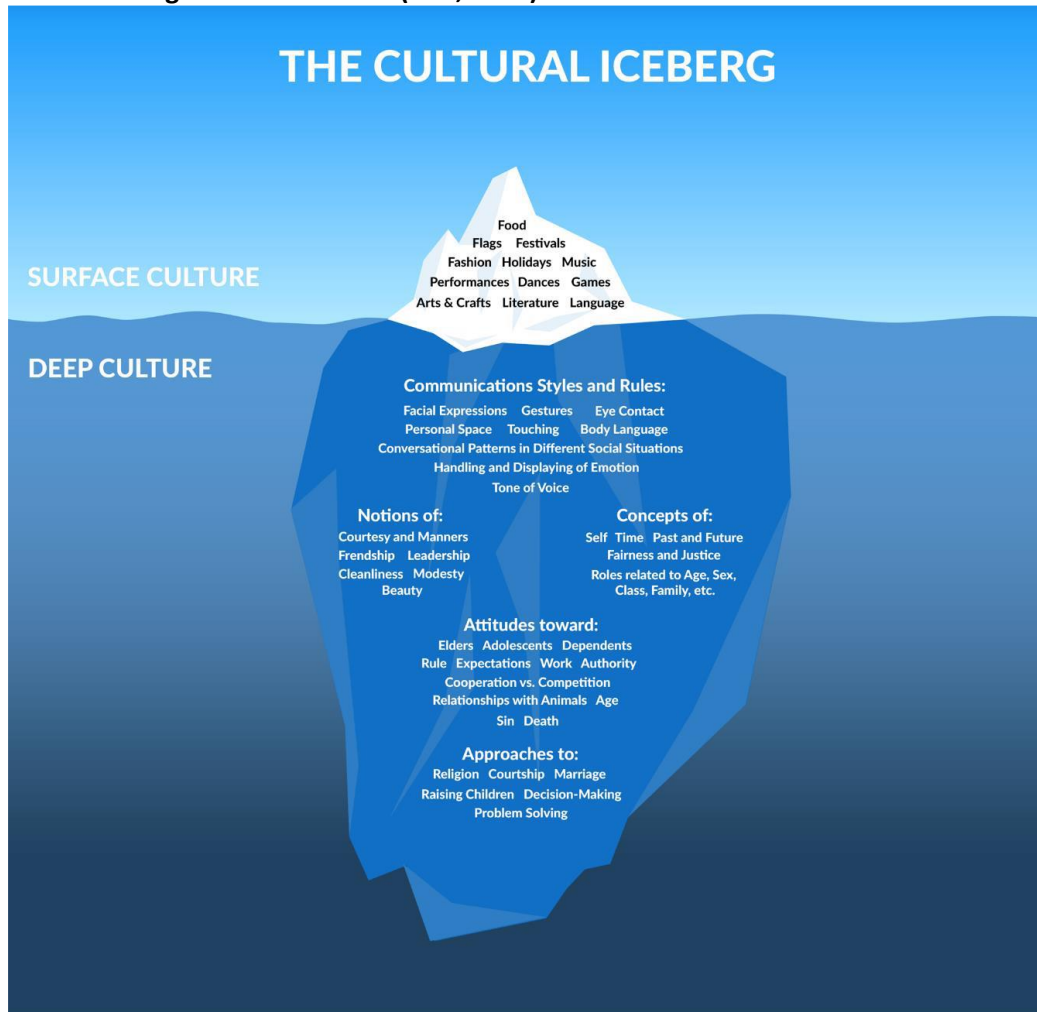
Note. From Cultural Iceberg Model, by (Orioni, 2021) https://www.europans.com/wiki/cultural-iceberg-model-r16/).

Several of the definitions of culture encompass its multi-layered construction. For example, (Spencer-Oatey, 2012) defines culture as follows:

"Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member's behaviour and his/her interpretation of the 'meaning' of other people's behaviour (Spencer-Oatey, 2012, p. 2)."

A significant proportion of the existing intercultural competence theories, models, evaluation methods, and teaching recommendations are designed for adults, and do not necessarily

straightforwardly apply to children. Cultural awareness and its development have been studied thoroughly in business and higher education environments. However, little attention has focused on intercultural competence in pre-adolescent children outside of a foreign language learning domain. Furthermore, research involving adolescent children is not always suitable to apply to pre-adolescent children due to their different stages of cognitive development.

5.1.2 Intercultural competence history

The conception of globalisation and internationalisation has grown in the last 50 years, but a greater awareness of intercultural relations has existed for hundreds of years. After World War II, increased globalisation and international interactions led to more Western individuals working overseas. However, they encountered difficulties due to cultural differences, language barriers, adjusting to new work environments, prejudice and stereotypes, and cross-cultural communication challenges. These challenges prompted a recognition of the importance of intercultural competence. As a result, since the 1950's, there has been a greater emphasis on developing skills and knowledge to navigate and thrive in multicultural environments through intercultural training and education (Ruben, 1989). To a large extent, early studies focused on self-report surveys and interviews to help to discover and address perceptions and priorities, and to prepare for the challenges of sending workers abroad (Ruben, 1989). Today, intercultural competence covers a broader range of subjects (e.g., foreign language classrooms, medical training, research programmes) and aims (e.g., cross-cultural mediation and assessment).

5.1.3 Models of intercultural competence

Theoretical frameworks of intercultural competence differ, but they also share many similarities. Spitzberg and Changnon (2009) divide models of intercultural competence into five types: compositional, co-orientational, developmental, adaptational and causal process. Compositional models, such as that by Deardorff (2006), classify different competencies and abilities by providing lists of traits and skills, without clarifying how they are related to one another. Co-orientational models, for example by Byram (1997), use an interactionist theory of intercultural understanding, focusing on how intercultural understanding is achieved through interactions. Developmental models focus on how intercultural competence evolves over time such as the Developmental Model of Intercultural Sensitivity (DMIS) by Bennett (1986). An adaptive model focuses on interactions and the individuals' responses, for example Kim and Gudykunst (1988). Finally, causal path models propose that intercultural competence progresses along a linear sequence where variables influence and affect subsequent variables. Deardorff's (2006) compositional model is considered a causal path model because it illustrates the cause-and-effect relationship between different factors and the outcomes that signify the achievement of intercultural competence. Four models of intercultural competence

will be discussed; one compositional and causal path, (Deardorff, 2006), one co-orientational (Byram, 1997), one developmental (Bennett, 1986) and The Model of Cultural Intelligence (CQ) (Earley & Ang, 2003) as their work on cultural intelligence dimensions was the foundation for deriving the intercultural task used in the current research. The models are summarised in Table 5.2.

Table 5.2 Selected models of intercultural competence

Model Name	Author(s)	Date	Domains	Main components
Model of Intercultural Communicative Competence	Byram	1997	5 inter-related knowledges	Attitude Knowledge Skills of interpreting and relating Skills of discovery and interaction Critical cultural awareness
Pyramid Model of Intercultural Competence	Deardorff	2006	5 elements Intercultural competence is a lifelong process	Attitudes Knowledge Skills Internal outcomes External outcomes
*Developmental Model of Intercultural Sensitivity (DMIS)	Bennett	1986	Six stages	Ethnocentrism and ethnorelativism
*Model of Cultural Intelligence (CQ)	Earley and Ang	2003	4 cultural intelligence dimensions	Metacognitive Cognitive Motivational Behavioural

*Theoretical models for the current study.

Byram's (1997) model of Intercultural Communicative Competence (ICC) is viewed as having three basic components (knowledge, attitudes and skills), that are summarised in figure 5.2.

Figure 5.2 Byram's (1997) framework for intercultural communicative competence
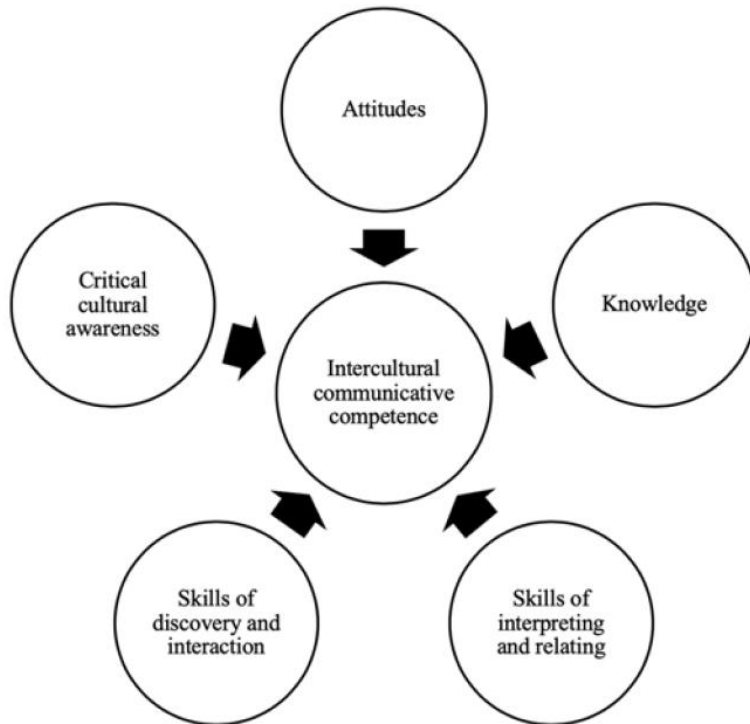
Firstly, attitudes play a crucial role and is the starting point in the cycle. Individuals are encouraged to embrace an open and curious mindset, demonstrating respect and appreciation for cultural differences. This involves suspending judgement, cultivating empathy, and engaging in self-reflection. Secondly, knowledge is essential. ICC necessitates acquiring in-depth understanding of different cultures, including their values, beliefs, customs, and practices. This knowledge enables individuals to interpret cultural behaviours and communication patterns accurately. Thirdly, intercultural communication skills are vital for ICC. These skills include interpreting and relating cultural information to one's own context, discovering and interacting with individuals from diverse cultures, and critically analysing cultural practices and perspectives. Moreover, critical cultural awareness is integral to Byram's model. It involves critically examining one's own cultural assumptions and biases, while recognising power dynamics and inequalities in intercultural interactions. This component promotes questioning cultural norms, challenging stereotypes, and fostering a deeper understanding of cultural diversity and social justice issues. Lastly, applying ICC in real-life situations is essential. This component focuses on the practical application of the acquired knowledge, skills, attitudes, and critical cultural awareness in intercultural contexts. It involves employing effective communication strategies, adapting behaviour and communication style to accommodate cultural differences, and successfully

navigating intercultural encounters. Byram's model of ICC emphasises the ongoing learning and adaptation required for intercultural communication. It underscores the role of education in developing intercultural competence and fostering intercultural understanding and collaboration in diverse societies.

Deardorff's (2006) compositional and causal path model was developed based on the results of 23 intercultural competency specialists and is a cyclical model that depicts the progression of interactions from the personal to the interpersonal level, illustrated in figure 5.3.

Figure 5.3 Process visualisation of Deardorff's model of intercultural competence
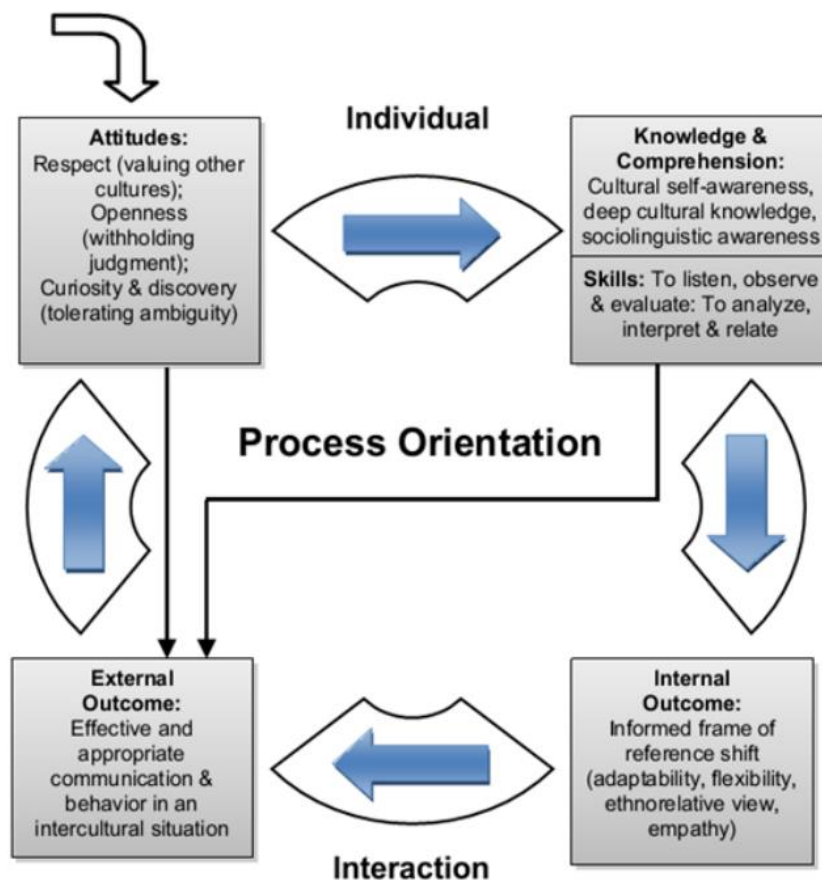
Note. From "On valuing peers: Theories of learning and intercultural competence" by A. Cajander et al. (2012), *Computer Science Education*, p.6. https://www.tandfonline.com/doi/full/10.1080/08993408.2012.727710

Deardorff's (2006) model implies that it is possible for individuals to achieve external behavioural outcomes without fully achieving the internal outcomes. It underlines the significance of attitudes and comprehension, as well as knowledge and comprehension. In the model, one's attitudes are one of the most important components since they serve as the beginning point for the cycle. Intercultural competence is specifically seen as requiring attitudes of openness, respect (valuing all cultures), curiosity, and discovery (tolerating ambiguity). It is also thought to require skills for learning

about one's own culture as well as that of others, such as the ability to listen, observe, and evaluate; analyse, interpret, and relate.

One early, co-orientational model is Bennett's Developmental Model of Intercultural Sensitivity (DMIS) (Bennett, 1986). This is a dynamic model that explores how people respond to cultural differences and how their responses evolve over time. It not only considers overt behaviour, but also describes individuals' subjective experiences of cultural difference. The main concept revolves around ethnocentrism and ethnorelativism. The more ethnocentric one is, the more their view of the world is seen as the standard, whereas more ethnorelative individuals recognise that there are several valid cultural perspectives. A cognitive shift from ethnocentric to ethnorelative categories happens as individuals focus more on cultural distinctions and their emotional responses to these differences. When people grow more conscious of cultural differences, their reactions to them become more culturally adaptive and sensitive to differences. They are thus more accepting of cultural differences and more receptive to new experiences and behaviours. As individuals become more sensitive to other cultures, they are more likely to behave in interculturally competent ways. The DMIS model consists of six stages grouped into three ethnocentric stages (the individual's culture is the central worldview) and three ethnorelative stages (the individual's culture is one of many equally valid worldviews). Together, these six stages comprise a continuum from least culturally competent to most culturally competent. The stages are outlined in figure 5.4 and described below.

Figure 5.4 Visualisation of Bennett's model of intercultural competence
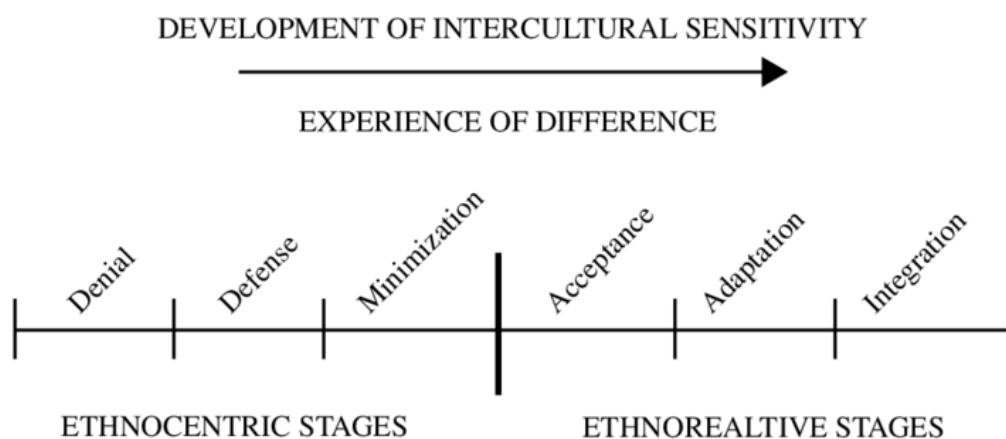
Note. From "Developing Intercultural Sensitivity: An Intercultural Approach to Global and Domestic Diversity", by M. Bennett & J. Bennett 2020, p. 153, https://doi.org/10.4135/9781452231129.N6.

Denial – denial refers to a stage where individuals do not acknowledge or recognise cultural differences. They exhibit ethnocentrism and perceive their own cultural perspective as the only valid one, leading to a lack of curiosity or interest in understanding other cultures. Overcoming denial

requires accepting and embracing cultural differences, being open-minded, and actively seeking intercultural learning opportunities.

Defence - the defence stage involves efforts to counter the perceived threat to one's own ideology or cultural centrality when confronted with cultural distinctions. This can include negative stereotyping and disrespect towards individuals from different cultures based on factors such as ethnicity, religion, or gender. Overcoming the defence stage requires recognising and challenging biases, fostering empathy, and embracing cultural diversity for positive intercultural interactions.

Minimisation - minimisation is a stage where individuals downplay or overlook cultural differences, emphasising similarities instead. This can lead to a superficial understanding of other cultures and hinder effective intercultural communication. Overcoming minimisation requires developing cultural sensitivity, acknowledging, and respecting differences, and valuing diversity.

Acceptance - a shift from ethnocentrism to ethnorelativism reflects the recognition of cultural distinction, where individuals embrace and value cultural differences. It involves recognising the value and importance of diverse perspectives, beliefs, and practices. During the acceptance stage, individuals develop an open-minded and non-judgmental attitude towards other cultures. They are willing to learn from and engage with people from different backgrounds. They demonstrate empathy, respect for diverse viewpoints, and actively seek to understand cultural nuances.

Adaptation - is a stage where individuals adjust their behaviours and communication styles to align with the norms, customs, and expectations of the specific cultural setting. This involves being flexible, open-minded, and willing to modify one's approach to accommodate diverse perspectives. Adapting promotes meaningful connections and enhances intercultural communication.

Integration - is the final stage where individuals combine cultural perspectives and identities, bridging cultural gaps and promoting inclusivity. It involves fluidly adapting behaviour, embracing diverse viewpoints, and fostering mutual respect. Integration signifies a high level of intercultural competence and the ability to thrive in multicultural environments.

Earley and Ang (2003) created the construct of four cultural intelligence (CQ) domains based on contemporary intelligence theories (Wagner, 2011). It is broadly understood as referring to an individual's ability to function in, and effectively manage, diverse environments that include situations involving people of different ethnicities, race, and national backgrounds. In terms of the theories of Wagner (2011) (empirical, emotional, motivational, and psychological intelligences), Earley and Ang (2003) conceptualised CQ as an aggregate multidimensional construct of four different capabilities that together form overall CQ. Cultural intelligence involves metacognitive CQ, cognitive CQ, motivational CQ and behavioural CQ in varied cultural contexts.

Metacognitive CQ represents mental mechanisms individuals use for acquisition and understanding of cultural information, including control over thought processes (Flavell, 1979). When it comes to societal values, learning, organising, tracking, and revising mental models are all essential skills. Those who score highly on metacognitive cultural intelligence are individuals that are mindful of others' cultural preferences during interactions. After interactions with others, individuals can challenge cultural beliefs and change their conceptual models (Ang et al., 2007). Cognitive CQ reflects the awareness derived from one's own personal experiences that enable an individual to form an opinion about norms, traditions, customs, and conventions in different cultures. This covers economics, the legal and social structures of various cultures, as well as ones place in that culture (Triandis, 1994) and an understanding of fundamental cultural values (Hofstede, 2001). Those with high cognitive CQ understand similarities and differences across cultures (Brislin et al., 2006). Motivational CQ represents the capacity to turn focus and resources toward learning about circumstances where cultures vary. Behavioural CQ demonstrates the capacity to exhibit acceptable verbal and non-verbal behaviours when communicating with individuals from other backgrounds. According to Hall (1959) mental skills for cultural comprehension and inspiration must be complemented with the capacity to demonstrate effective behaviour depending on the cultural principles of environments, with individuals encouraged to include a comprehensive and well-developed range of behaviours and styles in their repertoire (Hall, 1959). Those with high behavioural CQ display culturally acceptable behaviours derived from both verbal and non-verbal resources, such as appropriate expressive vocabulary and tone, coupled with appropriate facial expressions (Gudykunst et al., 1988)

5.1.4 The development of intercultural awareness

As primary schools become increasingly multilingual (DfE, 2023), children are being exposed to a wide range of cultural stimuli and gaining valuable experience in interacting with children of a different race, ethnicity and nationality who may speak a different language to them. The exposure to diverse cultures and experiences that children gain through their curiosity and explorations can contribute to the development of intercultural competence. By learning about and interacting with people from different backgrounds, children can develop skills and attitudes that enable them to communicate effectively and respectfully with individuals from diverse cultural contexts. This includes developing an appreciation for cultural differences, adapting to new cultural environments, and building empathy and understanding for others (Gerlich et al., 2010). While some children develop an awareness of cultural and ethnic differences by the age of 3 or 4, (Goodman, 1952; Porter, 1971) more recent work by Robinson et al. (2001) argues that "a large number of preschool and school-age children in a variety of nations" show no "ethnic bias in beliefs, peer preferences, interaction, and relationships,

and display explicit acceptance of racial and ethnic differences" (p.79). Therefore, the formation of ethnic attitudes in children follows a sequence of developmental phases. Initially, during the undifferentiated phase around the age of two to three years old, children do not recognise traditional racial cues such as skin colour or accent as meaningful. However, around the age of three, in response to witnessing an older person's verbal labelling of an ethnic out-group member, children start to identify and accurately distinguish between skin colour hues. This emergence of ethnic awareness can serve as a starting point for intercultural awareness in children as it provides a foundation for recognising and appreciating cultural differences.

5.1.5 Intercultural competence in children

As mentioned above, the majority of the existing models and theories related to intercultural competence have been developed with adults in mind, with the majority of subsequent research focusing on adults. However, Gerlich et al. (2010) conducted a longitudinal study to describe how intercultural competence develops in children aged 3-6 years. The research was conducted in nine pre-schools in Belgium, Germany, and Sweden where, with native speaker teachers from different English-speaking countries, at least 50 percent of the teaching takes place in English. Over the course of two years, observational data was gathered on a weekly basis by participating observers. Each observed instance of an interaction between a child and an individual from a different cultural context, or an interaction with an emphasis on intercultural issues, was documented. An individual with a cultural background was described as a "person who/whose families come from a different country and/or speak a different language at home" (p. 147). Overall, more than 70 children and 30 adults were studied in 131 observations. The categories that emerged in the dataset were divided into attitudes, skills and information that drew on Byram's (1997) model. The results demonstrated how the intercultural competence concepts in adults were also relevant to young children. Additionally, children actively engaged in intercultural encounters and were able to recognise them as such. Factors such as different languages, places of origin, or skin colour attracted children's attention and motivated them to explore and negotiate the situations that arose from these differences. In many cases, children exhibited positive attitudes, possessed knowledge about their own and other cultures, and developed skills that allowed them to solve problems that arose in intercultural communication. The researchers also found that children generally displayed an open and positive attitude towards cultural differences when interacting with peers from migrant backgrounds. Although some children initially exhibited reservations shown by fear, or signs of rejection during early encounters with members of other cultural groups, these negative behaviours tended to disappear as the children became more involved in intercultural situations. However, the study did not explore intercultural competence in non-bilingual preschools, nor did the observed categories describe any deep culture, such as underlying

values, beliefs, and assumptions, as only surface cultural behaviours could be measured such as communication strategies and behavioural reactions. In addition, this exploratory analysis did not provide specific information about how intercultural competence evolves in each age group.

Szuba (2016) studied intercultural competence in a bilingual education setting (Dutch - English) for children aged 4-6 years. The details about the intercultural competence for children were gathered by using an evaluation form consisting of the intercultural competence groups, expertise and skills defined by Gerlich et al. (2010). In their daily classroom events, twenty children were studied over four school days, with an emphasis on their communication with people of varied cultural backgrounds. A total of 106 observations of intercultural competence behaviour were recorded. Many of the attitudes were positive, but hesitation, whereby children seemed reluctant to engage in intercultural communication, was not unusual. Children demonstrated considerable understanding of English and some facets of meta-linguistic knowledge, such as their own linguistic capabilities and those of others. In addition, they demonstrated numerous verbal communication approaches, such as code switching, and body language to aid understanding, as well as new knowledge and translation skills.

In comparison to Gerlich et al. (2010), Szuba (2016) found that some of the categories were not observed in their sample, namely the attitude categories of regret, judgmental statement and no interest; and the skills categories of guidance, negative strategy of exclusion and deduction/transfer. Three new categories of skills also emerged in this dataset: inappropriate language choice, bilingual interaction, and linguistic resourcefulness. One of the most widely seen behaviours of children were tolerance and acceptance. Attitudes that were negative, such as fear and rejection, judgement, regret, and no interest, were detected only occasionally or not at all. On several occasions, the children lacked information about different countries. However, considering the participants' age and that experience is acquired over one's life, this is to be anticipated. Children showed a wide variety of skills in intercultural contact, many of which were sophisticated and cognitively challenging. Despite children sometimes having gaps in their knowledge of English, the children continued to attempt communication by using alternative strategies such as non-verbal communication, mime and generic words (such as 'this' when referring to something) (Szuba, 2016).

Overall, the research findings of Szuba (2016) were very similar to those observed in Gerlich et al. (2010). Tolerance and recognition became the norm in both studies rather than an anomaly. Across both studies, the children often initiated intercultural encounters with their peers. In order to learn linguistic or cultural information, they often posed questions and could translate the words into multiple languages.

5.1.6 Fostering intercultural awareness in young children

Growing diversity in our cultures is contributing to a stronger need for educational services that foster socio-cultural inclusion. The aim of the various initiatives in this area is to raise awareness of cultural diversity, change perceptions, and stimulate intercultural interactions and sensitivity. Studies have found that these activities generally have good outcomes (Gajda et al., 2015). However, intervention programs usually target adults through occupational programs. It is important that current and future generations be prepared to live in a culturally diverse society (Ameli, 2020), which necessitates the development of specialised educational programmes that foster intercultural competence at a young age (Derman-Sparks & Ramsey, 2011). Educational activities are often expected to help children learn about complex challenges relating to cultural identity, multiculturalism and anti-discrimination (Derman-Sparks & Ramsey, 2011). In order to instil in children an attitude of respect and sensitivity for other cultures and improve their awareness of cultural diversity, it is therefore important to strengthen the expertise of teachers and educators in these fields (Ponciano & Shabazian, 2012) as these interventions can reach young children and influence the stereotypes that are typically shaped during childhood and reinforced during puberty (Powlishta et al., 1994).

It is crucial to empower children with appropriate knowledge and skills through intercultural education, as early experiences with others provide a strong base for learning in all aspects of life (Kim et al., 2006). Encouraging the development of intercultural skills during childhood can foster cultural understanding and allow children to learn from their own intercultural experiences with people from different cultures (Kim et al., 2006). Adopting an active approach to intercultural diversity issues allows children to be more attuned to variations in society (DoBroka, 2012). Approaches such as using literature, history, or books on intercultural topics (Subramaniam et al., 2009) and the organising of school classes concentrating on intercultural issues is a widely practiced approach in this field (Michael & Rajuan, 2009). Diversity exists both within and outside of the classroom, therefore it is important to promote intercultural interaction not only in the classroom, but also in the wider societal context to help students explore the extent of diversity (Beacco, 2011). Education is an important instrument for maintaining and respecting ethnic, linguistic, and cultural diversity, as well as for increasing social harmony, fairness, and intercultural understanding (Santos et al., 2014). The development of intercultural competence in childhood is focused on growing understanding of the plurality of cultures (Szuba, 2016) and witnessing interculturalism in daily contexts (Kim et al., 2006). Particularly, talks about cross cultural discrepancies improve children's capacity to recognise circumstances where they can act with greater attention to other cultures (DoBroka, 2012).

Various methods can be employed to promote the development of intercultural competence in children. One effective approach involves imparting factual knowledge regarding different cultures, including specific customs and habits. This knowledge can be acquired through various means, such as

experiential learning, reading, and instruction by others. Another factor involved in developing intercultural competence is the emotional factor. Emotional competence in intercultural communication is necessary as it enables individuals to connect to the emotions that are present in intercultural experiences. To communicate effectively across cultural boundaries, it is important to be able to recognise, understand, and regulate one's own emotions, as well as to interpret and respond appropriately to the emotions of others. This is closely related to empathy as in an intercultural context, empathy can help individuals to better understand and appreciate the experiences and perspectives of people from different cultural backgrounds. Educational programs that address attitudinal changes, cultural sensitivity, and respect for diversity can help to develop emotional competence and empathy, which in turn can promote greater understanding and appreciation of cultural differences. For example, role-play exercises can allow children to develop strategies to interact and welcome people from diverse cultures (Fischer, 2011). By developing emotional intelligence and empathy, individuals can become more effective intercultural communicators and contribute to greater intercultural understanding and cooperation (Hammer et al., 2003).

When planning and executing projects improving multicultural competences, there are three essential aspects. Firstly, such programs should foster attitudes and behaviours that are common for multiculturalism and national identity such as a sense of belonging, respect for diversity, and a willingness to learn about and appreciate different cultures. For example, individuals who have a strong sense of belonging to a particular nation may also recognise and value the contributions of people from diverse cultural backgrounds to that nation's history, culture, and society. Similarly, individuals who are committed to multiculturalism may also value a sense of national identity and feel a sense of connection to their country of origin or residence. These programs can encourage individuals to reflect on their own cultural identities and the ways in which these identities intersect with broader national and global contexts. Secondly, programs should develop children's interpersonal skills that are necessary for the relationship with the members of every culture, such as active listening and navigating disagreements and misunderstandings. Finally, such initiatives should be particularly geared toward creation of transparency on experience, whereby children feel comfortable sharing their experiences and perspectives, and in which there is an open and honest dialogue about cultural differences and similarities. This is argued to be the most critical aspect of both intercultural competences and innovation (Dziedziewicz et al., 2014). Additionally, Stephan and Stephan (2013) describe a six-stage model of action when implementing training programmes for intercultural education. This involves assessing the current state of intercultural competence, setting clear goals, designing, and developing the training program, implementing the program, evaluating its effectiveness, and continuously improving the program. By following this model, effective and

evidence-based training programs that promote intercultural competence and understanding can be developed. This model can be adapted to promote intercultural understanding in educational settings. For example, in the assessment and analysis stage, educators can assess the cultural diversity within their classrooms and analyse the intercultural needs of their students. Based on this information, educators can set clear goals for promoting intercultural competence and develop age-appropriate activities and materials that promote intercultural understanding. Implementation of the program can involve in-person or online activities such as cross-cultural dialogues, cultural immersion experiences, or storytelling workshops. Evaluation of the program can involve assessing students' intercultural knowledge, attitudes, and behaviours before and after the program. Continuous improvement can involve revising and updating the program based on feedback and evaluation results to ensure that it remains effective in promoting intercultural competence and understanding in children.

5.1.7 Studies aimed to increase intercultural competence in young children

Studies on intercultural competence of children are limited because of the assumption that children have yet to develop the intellectual capacities and morality necessary for successful intercultural competence (Kramsch, 1993). However, there are a few that warrant discussion.

One project that aimed to increase intercultural competence in children aged 6 to 10 years is the work of Santos et al. (2014) in Portugal. They designed and implemented ten different class-based lessons delivered by teachers aimed at: (1) raising knowledge of languages through intercultural primary school education, (2) fostering intercultural interaction and (3) improving the acquisition of intercultural skills of all participants. The activities involved a musical orchestra composed of instruments made from daily life materials, an Arabic session, an intercultural Christmas party, intercultural stories, a Ukrainian session, and an imaginary people session that involved "inventing an imaginary person with its own language, writing system, values, clothing, games and traditional dances" (p.145). Following the completion of the project, the researchers conducted semi-structured interviews with the schoolteachers to help identify (1) the prospects for intercultural exchange that were facilitated by the project activities; (2) the project's effect on the growth of intercultural competence; (3) the project's effects on the development of intercultural competence. The teachers reported that the children were able to strengthen their understanding of different countries and cultures, expand their critical thought, and develop characteristics such as enhanced curiosity and awareness of linguistic and cultural diversity, empathy for others, and relationship work. Santos et al. (2014) argued that engaging in the intercultural education initiative and providing communication and dialogue with various people from different schools, organisations, and nations, contributed significantly to the growth of the intercultural skills of all participants, both children and teachers.

Dziedziewicz et al. (2014) conducted an intervention to examine the effectiveness of the Creativity Compass program over nine months in primary schools in Poland. Creativity Compass (Gajda et al., 2015; Stephan & Stephan, 2013) was created to stimulate and improve the cultural abilities and creativity of children. Creativity Compass is intended for teachers and educators working with children aged 6-12 years, particularly teachers interested in creativity growth and searching for realistic tools to facilitate the discussion of multicultural-related topics. The goal of the curriculum is to: (1) facilitate the development of innovative skills and creative attitudes that improve the ability to deal with new circumstances in which there is no single solution and (2) encourage students' understanding of the cultural diversity of the world and their desire to explore other cultures. Each class was approximately 45 minutes long with travelling to other countries the primary theme of each of the thirty classes. The sessions were arranged around nine major themes: national history, myth and folklore, culture, rituals and customs, national symbols, monuments and tourist attractions, prominent people, regional food, climate and the environment, and national sports of the countries selected: Poland, France, the United Kingdom, India, China, Tanzania, and Australia. Sessions were conducted to aid several artistic activities, such as music, fine arts, and physical exercise. There was a three-stage structure to each scenario in the program: (1) interest, (2) research and (3) exploration. The aim of the first stage was to concentrate the attention of children on the subject and enable them to create their own views and judgments and to use their imagination. The research stage involved a series of exercises to develop basic operations associated with creative thought: abstraction, deduction, analogy, transformations, imagination, and elements of creative attitude. Each session concluded with an exploration phase: a retrospective review of the information learned during the session. The study included 122 children, split into an experimental group and a control group. The measure of intercultural sensitivity was designed by the researchers for this study. The stimulus was a rather stereotypical drawing of two 'foreign' children: a girl with Asian features and a dark-skinned boy. The children were told to "imagine that from now on your class will have two new pupils, a boy and a girl, who recently moved to Poland" and asked two questions (1) "What do you think may be difficult for them?" (2) "What would you say about your country to them?" (Dziedziewicz et al., 2014, p. 36). Responses were rated using a 5-point Likert scale from 1 = very low intercultural competence / knowledge of own country to 5 = very high intercultural sensitivity / knowledge of own country. The level of intercultural sensitivity at base line was similar for both the control and experimental groups, but for the experimental group, the level of intercultural sensitivity of the children improved significantly by the end of the intervention. The above findings showed that the Creativity Compass program had a positive influence on the children's intercultural sensitivity across the whole age range. This supports the idea that intercultural and inclusive curriculum programs should be adopted for young children as well (Kim et al., 2006). Early

learning of these abilities not only increases children's identity and comprehension of other culture, but also promotes the development of tolerance and sensitivity to others (Dziedziewicz et al., 2014).

Acevedo (2019) conducted research into how children's intercultural awareness evolved when they took part in an inquiry-based global programme. To evaluate young children's intercultural understanding, the appraisal categories were knowledge, perspective, and action. Intercultural understanding as knowledge focused on the information that children learn about themselves and of others around them. The children integrated new vocabulary into their play after listening to a related story. Intercultural understanding as perspective for young children means exploring and understanding that each child has a personal perspective that might be different to their peers, but also that connections between themselves and others exist. It is about becoming mindful that there are many ways to live. After listening to a story about a child from India that makes chapatti, the children opted to make chapatti when later playing with playdough. Intercultural understanding as action explores how children's experiences and experiences shift, showing that they are open to different viewpoints and perceptions. Whilst making the chapatti, children shared their experiences of what they like to eat at home, thus comparing perspectives. Whilst written and spoken language are favoured by the older students, younger children engaged in play to better understand their experiences while creating new ones (Short & Acevedo, 2016) consequently creating a fun and safe space for children to explore unfamiliar worlds (Wohlwend, 2013). Acevedo (2019) argues that play has the potential to provide learners an understanding of cultural diversity with its live action texts that can be extended into real life experiences and that exploring unfamiliar cultural practices and languages through play allows children to create personal links to previously unknown cultural traditions.

The study to be outlined is that of Hernández-Bravo et al. (2017) conducted in Spain. They looked at how a teacher-led intercultural tutoring action programme (TAP) affected children aged 8 to 12 years old knowledge, skills, and attitudes as interconnected factors affecting intercultural competence. The children in the experimental condition received one hour per week for five months of a program designed to increase intercultural awareness by learning about different cultures and researching the history and customs of the groups represented in class. Children were tested on the ICSES (Intercultural Competence Scale for Elementary Students) (Hernández Bravo & Cardona, 2007) before and after the program and compared to a control group who received regular school instruction. At baseline, all children scored low on intercultural knowledge of other cultures, intercultural skills, and attitudes. However, post-intervention assessment showed that the children assigned to the experimental group had improved intercultural knowledge, intercultural skills, and intercultural attitudes. Overall, the results demonstrated that the teacher-led intercultural tutoring

action programme was an effective tool, and that intentional intercultural education can improve children's level of intercultural competence.

In summary, various studies aimed at increasing intercultural awareness in children show positive outcomes.Santos et al. (2014) in Portugal and Dziedziewicz et al. (2014) in Poland implemented programs focusing on intercultural education and creativity, respectively, showing enhanced understanding and sensitivity among children. Acevedo (2019) highlighted the role of play in fostering intercultural understanding, and Hernández-Bravo et al. (2017) in Spain demonstrated the effectiveness of a teacher-led program in improving children's intercultural knowledge, skills, and attitudes. Each study underscores the potential of targeted educational interventions in cultivating intercultural competence in young learners.

5.1.8 The role of peers

Peers play a crucial role in the development of intercultural awareness in children. Social Learning Theory (Bandura & Walters, 1977) provides a framework for understanding how children acquire intercultural competence. This idea holds that children learn through imitation, modelling, and observation, with peers playing a significant part in this process. Interactions can impact children's intercultural attitudes and behaviours as they are an important source of influence and socialisation (Killen et al., 2002) and create spaces for children to learn about other cultures and develop cultural sensitivity, empathy, and respect for differences (Scarino, 2009). One way in which peers can promote intercultural awareness is through exposure to diverse perspectives, beliefs, and customs (Díaz-Lefebvre, 2004), with this exposure challenging children's assumptions and stereotypes about other cultures (Tadmor & Tetlock, 2006). Peers also contribute to children's intercultural competence through the process of perspective-taking, which involves understanding and empathising with others' feelings, thoughts, and experiences (Galinsky & Ku, 2004).

Attending a school with a diverse cultural population has the potential to cultivate intercultural competence among children (Perry & Southwell, 2011), with Hayden and Wong (1997) suggesting that cultural diversity may serve as the primary mechanism for schools to develop students' intercultural competence. By collobarating with peers from different cultural backgrounds, a better understanding of the norms and values of other cultures can be developed, fostering greater intercultural competence (Gudykunst, 2005). A systematic review by Slavin (2011) of interventions aimed to reduce ethnic prejudice and discrimination in children aged 8 years and under, concluded that children who participated in cooperative learning activities demonstrated a greater appreciation for cultural diversity and were more likely to reject stereotypes. A longitudinal study by Feddes et al. (2009) among German and Turkish children aged 7 to 11 years investigated the effects of direct and extended cross-ethnic friendships on children's inter-ethnic attitudes. The results showed that having friends from

different ethnic backgrounds positively influenced children's attitudes towards other ethnic groups, promoting intercultural awareness and understanding. Killen et al. (2002) found that children who had more positive experiences with peers from different cultures were more likely to have positive attitudes towards cultural diversity. Similarly, a study by Nesdale and Todd (2000) found that peer interactions promoted intercultural understanding and reduced prejudice towards other cultures. The study found that children who had more positive experiences with peers from different cultures were more likely to have greater knowledge and understanding of different cultural traditions. Moreover, peers can also facilitate the development of intercultural skills such as communication, cooperation, and problem-solving (Hayden & Thompson, 1998). Interacting with peers from different cultural backgrounds can help children learn how to communicate effectively and respectfully, navigate cultural differences, and work collaboratively to achieve common goals. Another important role that peers play in promoting intercultural awareness is in combating stereotypes and prejudice. Children are often exposed to negative stereotypes and biases towards people from different cultures, which can lead to prejudice and discrimination. However, peers can challenge these stereotypes by sharing their personal experiences and perspectives (Nesdale et al., 2005).

These findings show that peers play a crucial role in the development of intercultural awareness in children, as they promote exposure to diverse perspectives, facilitate the development of intercultural skills, and can combat stereotypes and prejudice. By interacting with peers from various cultural contexts, children are exposed to a variety of perspectives, experiences, and values, which contribute to the development of their intercultural competence. Nevertheless, despite these beliefs, there has been no empirical investigation into the relationship between school diversity and intercultural competence. It is plausible to suggest that although school cultural diversity may have the potential to develop students' intercultural capabilities, it is not a guarantee that it will. Studies have revealed that students tend to limit their interactions to peers from the same cultural background (Volet & Ang, 1998) or from a singular cultural group (Halualani et al., 2004), indicating that merely providing opportunities for intercultural interaction may not suffice.

5.1.9 Gender differences

It is also important to consider potential gender differences in the children's intercultural awareness. Gender disparities refer to the ways in which boys and girls may differ in their attitudes and behaviours towards people of various cultures, however research in this area is limited. One study is that of Killen et al. (2002) who conducted a study that examined gender differences in children's intercultural awareness aged 10, 13 and 16 years. Girls were more likely than boys to exhibit positive attitudes towards cultural diversity and to engage in behaviours that promoted intercultural understanding. Girls were more likely to exhibit an interest in learning about other cultures, to seek

out cross-cultural friendships, and to demonstrate empathy and concern for individuals from diverse cultural backgrounds. The study also revealed that boys were more likely than girls to manifest negative attitudes towards people of other cultures, engage in exclusionary behaviour, and endorse cultural stereotypes. For instance, males were more likely to exhibit a desire to make friends with peers from their own cultural background and to hold negative attitudes towards individuals from other cultures. A variety of factors, such as disparities in socialisation experiences, cognitive development, and affective regulation, have been attributed to these gender differences in intercultural attitudes and behaviours. For instance, females may be socialised to be more empathetic and emotionally expressive, which may contribute to their heightened concern for people of diverse cultural backgrounds.

Drawing on research into empathy and prosocial behaviour, it could be argued the girls are more likely to demonstrate higher intercultural competence than boys. Research has consistently shown that girls tend to exhibit higher levels of empathy compared to boys (Eisenberg & Miller, 1987). Empathy is a crucial aspect of intercultural competence because it enables individuals to comprehend and value the emotions and perspectives of others (Deardorff, 2006). Higher levels of empathy in girls may improve their ability to interact with people from different cultural backgrounds, thereby enhancing their intercultural awareness and competence. Girls exhibit more prosocial behaviours than boys, including assisting, sharing, and cooperation (Eisenberg et al., 2006). Effective intercultural interactions require prosocial behaviours because they foster positive relationships and mutual understanding (Deardorff, 2006). Girls' greater propensity for prosocial behaviour may contribute to their increased intercultural sensitivity and competence. Given the paucity of research on gender differences in children's intercultural awareness and competence, it would be advantageous for future research to investigate this topic in greater depth.

5.1.10 Age differences

As children grow and develop, their ability to understand, communicate, and interact with people from different cultural backgrounds may change. Collier and Thomas (2004) found that children who are exposed to other cultures at a young age are more likely to develop intercultural sensitivity than those who are not. The cognitive development of children is essential to their intercultural awareness and competence (Piaget, 1952). As children's cognitive abilities develop, so does their capacity to comprehend and absorb information about diverse cultures. For example, younger children aged between 3 and 5 years are egocentric and have difficulty comprehending abstract concepts such as cultural values and beliefs, whereas older children are better equipped to do so (Aboud, 2008). As children enter middle childhood, aged 6 to 11 years, they gain a deeper comprehension of cultural differences and a heightened awareness of their own cultural identity (Phinney, 1990). Their growing

cognitive abilities enable them to recognise and appreciate cultural differences (Bennett, 1993b). This change may be influenced by factors such as increased exposure to diverse peers and educational content that emphasises cultural diversity (Brown & Lee, 2015). Eisenberg and Mussen's (1989) research on intercultural competence in middle childhood suggests that children at this age can effectively engage in perspective-taking and demonstrate empathy towards others from diverse cultural backgrounds. However, their intercultural competence may still be limited, as they are likely in the process of transitioning from the Defence stage to the Minimisation stage of The Developmental Model of Intercultural Sensitivity proposed by (Bennett, 1986).

Bennett's (1993a) developmental model of intercultural sensitivity posits that as individuals develop intercultural competence, they progress through a series of stages. Younger children are more likely to exhibit ethnocentric attitudes, whereas older children and adolescents demonstrate greater ethnorelative attitudes, indicating a higher level of intercultural competence. This was found in a meta-analysis by Raabe and Beelmann (2011) who reported that children's attitudes towards different cultural groups typically improved with age. Additionally, Feddes' (2009) study demonstrated that older children aged 11 years were more likely to form interethnic friendships than younger children aged 7 years, which in turn positively influenced their intercultural awareness and competence.

Through friendships, school, and extracurricular activities, children are more likely to encounter individuals from diverse cultural backgrounds as they age (Erikson, 1963). These experiences can cultivate intercultural understanding and positive attitudes towards diverse cultures, according to Allport (1954). In conclusion, intercultural awareness increases with age. Younger children typically find abstract cultural concepts challenging, whereas older children are likely to develop a more nuanced understanding and empathy towards different cultures. This progression is seemingly influenced by cognitive growth and diverse cultural exposures, contributing to more ethnorelative attitudes and interethnic friendships among older children, thereby enhancing their intercultural competence.

5.1.11 How to measure intercultural awareness

Measurement methods most used to measure intercultural competence include self-report questionnaires evaluating participant attitudes and traits relevant to multiple dimensions of intercultural competence. Although assignments, observations, journaling, and self-reflection are widely used with adults, their applicability is exceedingly limited in children. There are no self-reflection strategies or situational awareness strategies that can be used with children, at least before the age of six years (Gerlich et al., 2010). This is due to the developmental stage of young children but also includes limitations in attention span, working memory and literary abilities compared to adults (Unsworth & Blom, 2010). Some of the most established instruments that are used with adults are

outlined in table 5.3. For a comprehensive review of adult assessment tools, see Fantini and Tirmizi (2006).

Table 5.3 Common assessment tools for measuring intercultural competence in adults

Assessment tool	Format	Constructs measured	Age range
Cultural Intelligence Scale (CQS) (Ang et al., 2007)	20 items 7-point scale	Metacognitive cultural intelligence (CQ) Cognitive CQ Motivational CQ Behavioural CQ	Adults
Multicultural Personality Questionnaire (MPQ) (van der Zee & Oudenhoven, 2000)	91 items 5-point scale	Emotional Stability Social Initiative Open mindedness Cultural Empathy Flexibility	Adults

In a review of available cultural competence tests by Matsumoto et al. (2001), they concluded that the Cultural Intelligence Scale (CQS) (Ang et al., 2007), Multicultural Personality Questionnaire (MPQ) (van der Zee & Oudenhoven, 2000) and the Intercultural Adjustment Potential Scale (ICAPS) (Matsumoto et al., 2001) are the most effective at assessing intercultural competence. However, this review was based on measures for adults.

Assessing children's intercultural awareness and competence is essential for determining the efficacy of interventions and educational strategies designed to promote these skills. Studies of young children's intercultural competence typically employ ethnographic measures such as field notes, video and audio recording, artefacts created by the children and observations. None of these techniques involve directly asking children their views. Assessing intercultural competence in children remains a challenging area of research as there are no well-established measures specifically designed for children.

5.1.12 Intercultural competence in the YIS

Being aware of and having respect for other cultures, is a central part of the YI training and goes hand in hand with the theme of empathy that is at the core of the YI training. Becoming a YI means being an empathic friend who can welcome new pupils who have limited English to their school community. The YI training sessions are designed to promote intercultural awareness and encourage pupils to develop empathy, sensitivity, and communication skills that are essential for building inclusive and respectful learning environments. Through a series of activities, pupils are given the opportunity to reflect on their own language backgrounds and experiences of starting school, and to practice being YIs by role-playing different scenarios and developing communication strategies that can help their buddies understand them. An important aspect of growing into the role of YI involves embracing the other children's cultures and languages.

Session 1 - Exploring pupils' feelings as they start school and introducing the idea of being a YI

The first YI training session encourages pupils to share their language backgrounds and experiences of starting school, including learners with English as an additional language. The icebreaker activity aims to create a safe and inclusive environment for pupils to share their linguistic and cultural backgrounds. This aligns with the social identity theory (Tajfel & Turner, 2001), which proposes that individuals identify with particular social groups based on shared characteristics such as language, ethnicity, and culture. By acknowledging and valuing the diversity of pupils' linguistic and cultural backgrounds, the icebreaker activity can promote positive intergroup relations and reduce intergroup bias. This also helps to create a sense of community and highlights the importance of respecting and valuing diversity in the classroom. This session follows the metacognitive and motivational cultural intelligence dimensions identified by Earley and Ang (2003), which emphasise the mental mechanisms people use to learn and understand cultural knowledge and the capability to direct attention and energy toward learning about and functioning in situations characterised by cultural differences.

Session 2 - Considering how it might feel to be spoken to in an unknown language

The second training session involves an empathy exercise where pupils have the opportunity to experience how it might feel to be spoken to in an unknown language. They discuss communication strategies that can help in such situations, including the use of pictures, actions, and facial expressions. This exercise reinforces the importance of understanding and accommodating different communication needs and styles. Two cultural intelligence dimensions - behavioural and cognitive - were identified by Earley and Ang (2003) as essential components of cultural intelligence. By engaging in the empathy exercise and discussing communication strategies that can help in situations where pupils are spoken to in an unknown language, pupils are developing their behavioural cultural intelligence by practicing effective verbal and nonverbal communication skills that are appropriate to different cultural contexts. Additionally, pupils are developing their cognitive cultural intelligence by gaining knowledge about different communication needs and styles and learning how to adapt their communication strategies to accommodate these differences. The story exercise in this session also relates to the metacognitive dimension of cultural intelligence by promoting awareness of individual thought processes relating to culture. By experiencing how it might feel to be spoken to in an unknown language, pupils may reflect on their own biases and assumptions about communication and gain a deeper understanding of the challenges faced by individuals from different linguistic and cultural backgrounds.

Session 3 – Having a go at being a Young Interpreter

In the third YI training session, pupils engage in role-playing different scenarios and discuss ways to support effective communication among those who speak different languages or have different communication needs. This follows the social learning theory (Bandura & Walters, 1977) that proposes that individuals learn new behaviours through observation, modelling, and reinforcement. By providing opportunities for pupils to observe and model effective communication strategies in a safe and supportive environment, the training can help them develop new communication skills. The session aims to reinforce the idea that being a YI is not just about speaking the same language but also finding creative ways to help others understand each other. This session aligns with two cultural intelligence dimensions - motivational and behavioural - identified by Earley and Ang (2003). Motivational cultural intelligence emphasises the capability to direct attention and energy toward learning about and functioning in situations characterised by cultural differences, while behavioural cultural intelligence focuses on the ability to exhibit suitable verbal and nonverbal behaviour when communicating with people from different cultural backgrounds. By emphasising these dimensions, the third training session helps pupils develop their communication skills and become more effective YIs.

Session 4 – *Exploring how pupils may help as Young Interpreters*

The fourth and final YI training session involves learning about 'Word Detective' strategies through the delivery of the added training story and exploring the contents of the YIs kit. This session reinforces the importance of being a YI and the valuable role they play in supporting others who may speak different languages or have different communication needs. Pupils discuss ways to use the kit's contents, including the prompt card, to develop their communication skills and become more effective YIs. To achieve this goal, the session emphasises all four cultural intelligence dimensions identified by Earley and Ang (2003) as it encourages pupils to reflect on their personal experiences and cultural backgrounds, gain knowledge about other cultures, learning about effective functioning in situations characterised by cultural differences, and to exhibit suitable verbal and nonverbal behaviour when communicating with people from different cultural backgrounds.

In conclusion, the YI training sessions are designed to promote intercultural awareness and build pupils' cultural intelligence by developing their ability to communicate effectively in diverse settings. By aligning with the four cultural intelligence dimensions identified by Earley and Ang (2003), the YI training sessions provide pupils with the tools and skills necessary to become effective YIs and promote a more inclusive and respectful learning environment.

5.1.13 Research question

The research question to be addressed is 'Does being trained (time 2) and acting as a YI (time 3) change the intercultural competence of YI's as measured by the quantity and depth of their answers to the intercultural questions when compared to a group of controls?

5.2 Methodology

5.3 Participants

The full details of the recruitment methods and sample are in chapter 3. After excluding missing data at any timepoint, the final sample included for data analysis included 54 children in total, 27 YI children (group A) and 27 control children (group B). For the participants in this study, the term bilingual (BL) is used to refer to both bilingual and multilingual children. The demographics of the sample included for analysis in the intercultural task are shown in table 5.4.

Table 5.4 Demographics of final sample included in data analysis for intercultural task

Factor	Group	
	A	B
Gender		
N	27	27
Male	9	8
Female	18	19
Language status		
Monolingual	9	8
Bi/multilingual	18	19
Age in years (time 1)		
7	4	1
8	5	9
9	5	7
10	13	10

5.3.1 Materials

The intercultural awareness task used in this study was designed by the researcher as there was no available existing measure of intercultural competence that was suitable for children. The design of the materials was initially inspired by the Dziedziewicz et al. (2014) study, serving as a starting point for adaptation and modification. Children were introduced to an imaginary scenario whereby a new student from a non-English speaking country would be starting at their school. The child was asked to give the new student a name and decide from which non-English speaking country they were coming, allowing for personalisation of the scenario. The work of Earley and Ang (2003) and Ang et al. (2007) on cultural intelligence dimensions was the foundation for deriving this task. To recap, Earley and Ang (2003) posit that cultural intelligence can be separated into four dimensions; metacognitive, cognitive, motivational, and behavioural. These four domains were captured in six questions posed to the child, which are summarised in Table 5.5 (and further explained below), using the pseudonym of Lin and country of China, and which domain they tap into.

Table 5.5 Questions used in the intercultural task and the domain tapped in to

Domain	Question
Cognitive	What do you think may be different for Lin living here compared to her previous country China?
Cognitive	What do you think might be the same and feel familiar for Lin?
Metacognitive	How do you think Lin might feel about starting school in this country?
Behavioural	What could you do to show Lin you know things are different? And to help her?
Motivational	What would you like to know from Lin about her life in China before moving here?
Motivational	Do you know any children from another country? Have you learnt anything from them?

Questions asked in the intercultural competence task

What do you think may be different for Lin living here compared to her previous country - China?

This question was asking for the participants' perceptions of the potential differences that Lin (for example) may experience when living in their current country compared to their previous country, China (for example). It aimed to elicit the participant's cognitive cultural intelligence (Earley & Ang, 2003), which reflected the child's awareness and understanding of the potential differences in cultural norms, practices, and conventions between the two countries. It required the participant to consider the differences between living in two different cultures and draw upon their knowledge of basic frameworks of cultural values.

What do you think might be the same and feel familiar for Lin?

This question was designed to explore the participants' perceptions of the potential similarities or familiarities that Lin may encounter while living in England, which could help ease the transition and create a sense of comfort or familiarity. It targeted the degree to which the children believed that the immigrant child would experience similarities in the new environment compared to their home country. It was included to highlight that similarities between cultures exist and children should not just focus on the differences between themselves and peers from another cultural background. In the context of cultural intelligence dimensions, this question was related to the cognitive dimension in terms of children's ability to identify and recognise commonalities and similarities across cultures.

How do you think Lin might feel about starting school in this country?

This question aimed to assess the participants' ability to demonstrate metacognitive cultural intelligence and empathy by putting themselves in Lin's shoes and considering the potential impact of cultural differences on Lin's emotions on starting school in England. The question provided an opportunity for participants to demonstrate their affective empathy and understanding towards individuals adjusting to new cultural contexts.

What could you do to show Lin you know things are different? And to help them?

This question intended to assess the participants' behavioural dimension of cultural intelligence. As Earley and Ang (2003) note, the behavioural dimension reflects the ability to exhibit appropriate verbal and nonverbal actions when interacting with people from different cultures. This includes the ability to exhibit culturally appropriate words, tone, gestures, and facial expressions based on the cultural values of specific settings. Demonstrating behavioural cultural intelligence involves taking actions to show support, and empathy, towards Lin.

What would you like to know from Lin about their life in China before moving here?

This question was aimed at assessing the participants' motivational dimension of cultural intelligence. As Earley and Ang (2003) state, the motivational dimension reflects the willingness and interest in engaging with people from different cultures. This includes the ability to direct attention and energy towards learning about and functioning in situations characterised by cultural differences. Demonstrating motivational cultural intelligence may involve taking an active interest in Lin's cultural background and experiences in China. By showing a genuine interest in Lin's life before moving to England, participants can demonstrate their willingness and interest in engaging with people from different cultures.

Do you know any children from another country? Have you learnt anything from them?

This question focused on assessing the participants' motivational and cognitive dimensions of cultural intelligence. By knowing and interacting with children from other countries and learning from them, participants can demonstrate their interest and willingness to engage with individuals from different cultural backgrounds, while also gaining knowledge about cultural norms and customs. Additionally, this question aimed to explore whether the participants thought of their friends as being from a different cultural background. It provided an opportunity to discuss the diversity of the school community and to highlight the importance of understanding and appreciating different cultural perspectives.

5.3.2 Procedure

Each of the 6 questions were presented on a separate slide on PowerPoint. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. In the first slide, the child was introduced to the imaginary scenario. If a child struggled with providing a name and country for the hypothetical child, the researcher provided a name and country. Each question was then presented orally and in written form, using the hypothetical name and country given by the child to personalise the questions. The researcher then moved the slideshow to the next item. This continued through all 6 items of the test. At the end of the stimuli presentation, the final slide stated that this was the end and thank you. The children responded orally, and their responses were audio recorded and transcribed verbatim.

5.3.3 Data analysis

Content Analysis as outlined by Elo and Kyngäs (2008) was adopted to analyse children's responses to the intercultural competence task. This decision was made based on the preliminary coding of the data, which indicated that word choice and phrase level differences provided the most meaningful comparisons between participants' responses. This aligns with the view that words and phrases in qualitative research can be indicators of deeper, latent content (Graneheim & Lundman, 2004). The software used to aid the analysis was NVivo (2018), which is a package specifically designed for qualitative data analysis and streamlines the content analysis process as well as assisting in deriving valuable insights from qualitative data. The analysis was guided by predefined themes, extracted from the six open-ended questions: differences, similarities, feelings, helping the new child, enquiring about the new child, and intercultural friendships. This structure facilitated the comparison of children's responses both within and between the two groups at each time point. The analysis followed a three-phase process: preparation, organising and reporting (Elo & Kyngäs, 2008) shown in figure 5.5. This process was iterative and involved continuously revisiting data, refining codes, and developing and consolidating categories.

Figure 5.5 Inductive classification scheme in the content analysis process

Preparation phase	• Selecting the unit of analysis. • Making sense of the data as a whole.
Organising phase	• Open coding • Coding sheets • Grouping • Categorisation • Abstraction
Reporting phase	• Reporting the analysing process and the results. • Model, conceptual system, conceptual map or categories.
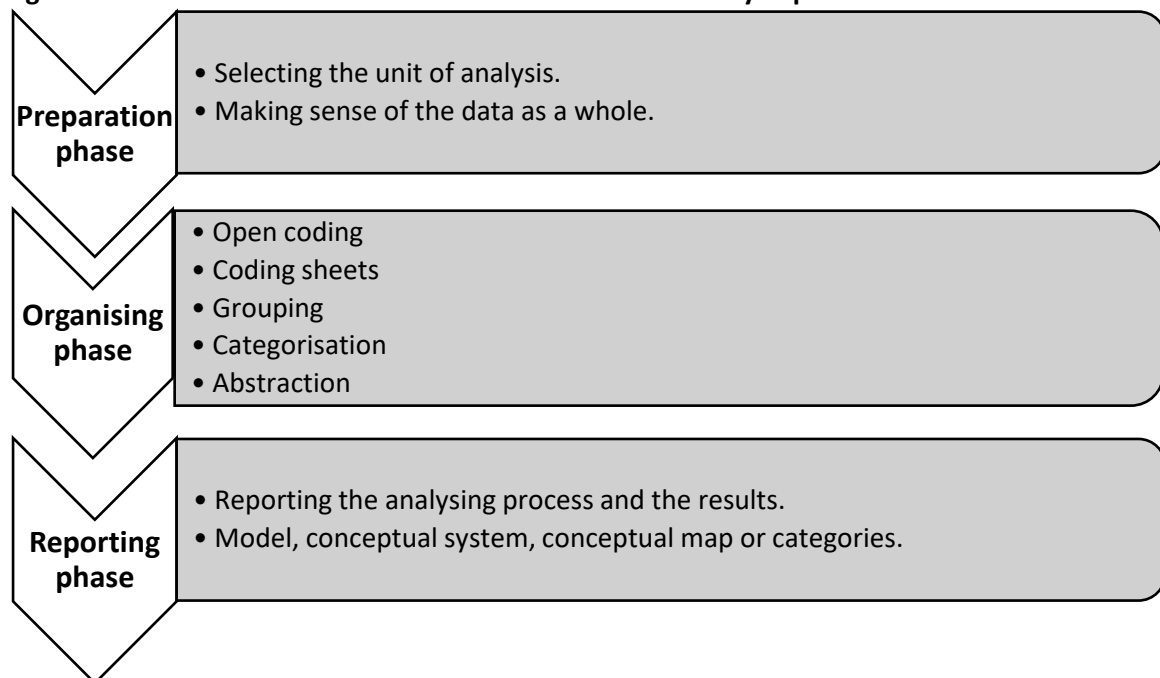
Note. The process of deductive content analysis (Adapted from Elo & Kyngäs, 2008, p.110).

During the preparation phase, the transcripts were read thoroughly to gain a comprehensive understanding of the children's responses. A word frequency analysis was conducted to identify prevalent patterns and was used in a complementary manner to enhance the analysis (Guest et al., 2011). For instance, in response to question 1, "what do you think would be different for the new

child?", words like 'language', 'food', and 'school' frequently emerged, which guided the development of initial codes.

Using the highly frequent words as a starting point, and reading each transcript, codes were developed from each unit of identifiable message. A review of each of the interview transcripts allowed for a comprehensive understanding of the contextual details surrounding the children's responses. This allowed for a deeper exploration of the data and facilitated the generation of more refined codes for each question. For instance, a child's statement "The new child might not understand what we say," was initially coded as 'language barrier' and later refined to 'different language' to capture a wider range of potential language-related issues expressed by the children.

After the first round of coding, 80 unique codes were identified across the six questions, which were then reviewed in the light of the research objectives. There is no standard or agreed number to determine the ideal count of codes (Saldana, 2013), but guided by Wolcott's (1994) proposition that three of anything major is a sensible quantity for reporting qualitative work, categories were generated for those that occurred at least three times in different children's responses. Not all codes, such as 'different people' and 'differences in skin colour,' developed into categories due to their infrequency. Other initial codes, such as 'different celebrations,' 'different culture' and 'different beliefs,' were consolidated into a broader category of 'different ways of living.' During the reporting phase, comparisons were made between different groups, gender, language status, and age, using the matrix coding query cases by code feature on NVivo. These queries yielded frequency counts that initially encompassed the entire sample, thereby providing an overarching view of common and divergent perspectives. Subsequent analyses further dissected these counts based on groups and timepoints, and other demographic variables, offering nuanced insights into the distribution of views within and across these categories. For example, at time 1, 'different language' was mentioned 17 times by the YI children, and 20 times by the control children. When analysing demographic data, frequency counts were converted to percentages for all demographic variables other than the 'groups,' which had equal representation. This conversion was necessary due to the varying number of participants across categories such as gender, linguistic background (monolinguals, (ML), and bi/multi-linguals, (BL)), and age groups (7-, 8-, 9-, and 10-year-olds) within the sample. When interpreting the results, both the count and percentages were taken into consideration before drawing conclusions. Employing a rigorous and iterative analytical process, definitive categories for each question were discerned. To illustrate, the initial twelve codes generated for the first question were distilled into seven final categories.

5.4 Findings and discussion

Introduction

This section presents the results of the content analysis conducted on the participants' responses, aiming to explore their perceptions and experiences regarding cross-cultural interactions. It is organised simply in order of the six questions posed to the children. For each question (theme), categories were developed for codes from responses that occurred at least three times from different children in either group as Wolcott (1994) proposes that three of anything major is a sensible quantity for reporting qualitative work. The frequency that each category was mentioned by each group at each timepoint is recorded in a corresponding table for each question (see appendices I to N for frequencies of codes by each demographic). The comparisons involving demographics such as gender, language status, and age were conducted on the whole sample rather than comparing the demographics for the YI children (group A) against the control children (group B) separately. This approach was necessitated by the small sample size and the lack of substantial differences between Groups A and B at time 1. By examining the whole sample collectively, the analysis provided a more robust and meaningful interpretation of the data, allowing for a comprehensive understanding of the demographic influences without the constraints imposed by subdividing the sample. Detailed findings with example quotations from participants are presented next, before a discussion of the findings in relation to previous research and theoretical models on intercultural competence. The example name of Lin, and the example country of China is used when referring to the questions.

5.4.1 Theme 1 - Exploring Cultural Contrasts

What do you think may be different for Lin living here compared to their previous country China?

This question was asking for the participants' perceptions of the potential differences that Lin (for example) may experience when living in England compared to their previous country, China (for example). This 'Exploring Cultural Contrasts' theme focuses on the exploration of cultural differences and contrasts between different countries. It highlights the participants' perceptions and observations regarding the unique aspects, customs, norms, and values that may differ between cultures. The theme captures the contrasts that exist when encountering different cultural backgrounds. Within the theme of 'Exploring Cultural Contrasts' 12 codes were identified for this theme that resulted in seven categories capturing the various aspects of intercultural differences that were frequently mentioned by the children: different language, different food, different weather, different schooling, different ways of living, tangible cultural differences, and different clothes. Table 5.6 displays the frequency of how many times the different codes appeared in the data for question 1, separated into the A and B groups for each timepoint, with example quotations from the participants.

Table 5.6 Categories and quotations for 'Exploring Cultural Contrasts'

Category	Time 1		Time 2		Time 3		Example quotations
	Frequency		Frequency		Frequency		
	(A) YI	(B) non-YI	(A) YI	(B) non-YI	(A) YI	(B) non-YI	
Different language	18	20	14	15	19	16	"In Spain they speak all Spanish but in England they speak all English so that's what's going to be different for her." (A-time 1) "In India maybe they speak a different language than English, so she probably won't know what to do cause if the teacher asks you to pack away, she won't understand." (A-time 2)
Different food	8	3	11	6	9	10	"The food might also be different cause lots of food are different in different countries." (A-time 2) "Probably have different food from the food we have here." (A-time 2) "They eat different food" (A-time 1)
Tangible cultural differences	7	6	7	7	10	15	"Houses, like the ground- 'cause they don't have grass they just have sand, the nature, the schools, the hospitals, universities." (A-time 1) "Items might be different, and the buildings and things." (B-time 2) "The steering wheel is on the other side. It could be strange that we use p's and pence." (A-time 1)
Different weather	5	3	6	5	9	8	"I think the climate might be different." (A-time 3) "In Portugal its very hot to here, it's very cold, it sometimes rains, it's sometimes sunny, and sometimes there's so many weathers you can't keep up." (A-time 3)
Different schooling	7	3	4	5	8	8	"The schools might be different; they might teach stuff differently." (A-time 1) "I think they might have a different teaching system." (B-time 2) "His school curriculum might be different." (B-time 1)
Different ways of living	4	3	1	5	5	2	"There could be different school curriculums and there could be different cultures. There could be different religions." (B-time 2) "We might do things a little differently. They might celebrate different things like holidays." (A-time 1) "The style of living." (B-time 2)
Different clothes	3	0	1	2	1	1	"They might wear different things." (A-time 3) "The African clothes are not really the same as here's clothes." (B-time 2)

Exploring Cultural Contrasts - Findings

Across the three time points of the current study, the children were able to identify potential differences for the new child starting school in England with both groups providing several relevant identifiable differences at all timepoints. The three most heavily weighted categories across the groups were identifying that the new child might have a different language from their peers in school, differences in physical objects, and variations in food. These categories persisted across the timepoints, while others fluctuated slightly in their prominence. When looking at any variances in gender (female or male), language status (monolingual or bi-/multi-lingual) and age (7-, 8-, 9-, 10 – years old), some points of interest can be drawn from the data, which are outlined below.

Exploring Cultural Contrasts - Group differences

The analysis of the given data suggests that the YIS may have a positive and enduring effect on children's understanding of cultural diversity. Immediately following the training (Time 2), the YIs displayed an increased awareness of various aspects of cultural diversity, both visible, like language and clothing, and more subtle elements such as different perspectives, ways of living, and beliefs. This expanded recognition was sustained six months after the training (Time 3).

Notably, the awareness of the YIs moved beyond more superficial or visible elements of culture, suggesting that the scheme might promote a more complex understanding of cultural diversity. On the other hand, the responses from the control group (Group B) did not demonstrate a similar shift over time. Their references to cultural diversity remained more or less the same, indicating that without the structured input of the YIS, children may not naturally broaden their understanding of cultural diversity in the same way.

Exploring Cultural Contrasts - Differences Over Time

Across nearly all categories and demographics, there was a trend showing increased recognition of differences with time. This suggests that as children grow older or continue their engagement with the topic, they are becoming more aware of the various aspects in which a new environment may differ from the previous one. Specifically, children seem to broaden their understanding from more immediately noticeable, tangible differences such as language, food, and clothing, to more complex, abstract concepts like different ways of living or schooling, or understanding people from various cultural backgrounds. This shift in children's awareness potentially reflects their continuous exposure to multicultural environments in their school setting, YIS participation, or a combination of both.

Exploring Cultural Contrasts - Impact of Multilingualism

Overall, bilingual children seem to have a broader awareness of cultural differences across most categories compared to monolingual children. This likely reflects their personal experiences living

between cultures and languages. As might be expected, 'Different Language' is a category where the bilingual children exhibit greater recognition than their monolingual peers at all time points. This is not surprising, as bilingual, or multilingual children would naturally have more exposure to and understanding of language differences. Bilingual children also showed a higher recognition of 'Different Food' and 'Different Way of Living' across all time points compared to the monolingual children. These aspects may be more salient to children who have exposure to different cultural practices due to their language backgrounds. This higher recognition, as seen in table 5.6, suggests that language status can have a significant impact on children's recognition of cultural differences. It highlights the enriching effects of bilingual experiences on children's cultural awareness and understanding. However, individual experiences can also influence these recognitions, so these patterns should be seen as indicative rather than definitive.

Exploring Cultural Contrasts - Gender Differences

Male and female participants generally show a high degree of alignment in their recognition of differences across most categories. This similarity in perception suggests that gender, at least in this age range and for these topics, may not be a strong determining factor in children's awareness and understanding of cultural differences. The category 'Different Clothes' was identified by a higher percentage of females than males at time points 1 and 2. This might suggest that clothing as a cultural identifier might be more salient for female participants. Males recognised 'Different People' more frequently at time 1, but this gender difference diminishes in the subsequent time points. It suggests that over time, the recognition of this category becomes similar for both genders. These gender differences were observed in this particular sample and may not necessarily apply to all populations of children. A more detailed study may consider other factors like the influence of socialisation, cultural background, and personal experiences.

Exploring Cultural Contrasts - Age differences

One observation of slight differences in responses in the current sample is across the age range. Younger children (7-8 years) often focused on tangible or concrete differences, such as language, climate, and monetary differences. They also mention physical changes like weather or different foods more frequently. Older children (9-10 years), on the other hand, were more likely to mention complex, abstract differences, such as differences in education systems, cultures, and social interactions and delved deeper into these, revealing a more complex understanding of what moving to a new country might entail. This increased perception with age is expected within Bennett's (1986) model as older children should have a deeper understanding of cultural, linguistic, and lifestyle differences compared to their younger counterparts. For example, they may be more capable of recognising nuances in schooling systems, ways of living, and tangible cultural differences. These age

differences add to the work of Phinney (1990) who found that children aged 6-11 had a deeper comprehension of cultural differences compared to children aged 4 and 5 years old. To fully understand these age-related differences however, one might need to take into account other factors like individual maturity, personal experiences, exposure to diversity, and educational influences that are not visible in this dataset.

Exploring Cultural Contrasts – categories

The three most frequent categories identified were differences in language, tangible objects, and food. The prominence of these categories could be attributed to their visibility and experiential relevance. These tangible aspects of culture might be emphasised in the school curriculum and broader societal context, including media, making them more accessible for children to identify and articulate. Overall, the focus on these areas suggests a complex interplay of cognitive development, educational influences, and societal factors in shaping children's perceptions of cultural diversity.

Different language

This category reflected the idea that language can be a significant barrier to communication and understanding between individuals from different cultures. It highlighted the potential challenges of communicating with individuals who do not speak the same language. The new child having a 'Different language' was consistently identified as a significant difference by both groups of children across the three time points, being mentioned a total of 102 times. Language forms a core part of cultural identity (Hall, 1976) and as the children recognise language as a difference for the new child, this indicates that they are aware of the communication barriers that the new child might face. It is interesting to note that the bilingual children did not mention language being a difference any more frequently than the monolingual children. Neither were there any notable differences between the genders and ages in the frequency of mentions of a language difference. Overall, the recognition of 'Different Language' as a difference was quite consistent across all times, groups, genders, language status, and age. This consistency suggests the universal importance of language when discussing cultural differences. It should be noted that out of the 54 children, only 16 children (8 YI's and 8 controls) mentioned language difference at each of the three timepoints, suggesting a shift in focus for the remaining children. The majority of children simply stated that the language would be different, without providing any further detail, as demonstrated by the following two responses from the children.

> *"They don't speak our language." (A child, time 1)*
> *"Speak a different language." (B child, time 2)*

However, some children provided more explanation to their answers and explained the effect that this language difference could have on the new child and their peers. For example, recognising and expressing the impact of language barriers on social interactions. The response below is from a child who recognised the potential struggle the new child might face in interacting with their peers due to language differences and possibly different social norms learned from another culture. It shows a level of empathy and an understanding of the social complexities of language and culture.

"Well, they will speak a different language, they probably have different schooling systems. This is linked kind of to language, they won't know how to interact 'cause they don't know how to talk to them." (A child, time 1)

This child demonstrated a nuanced understanding of the complexities involved in adapting to a new linguistic and cultural environment. In their words:

Maybe since they kind of like speak in a different like language or various languages and she doesn't know English yet and she might need help from people like maybe she might need to go to like, so if she's going to transfer to our school she would have to go with special people who actually know her language and they would have to help her like actually learn like English and help her like write English and stuff like that."
(A child, time 1)

This quotation illustrates the child's recognition of the necessity for additional linguistic support, such as interpretation or language instruction, for a new student unfamiliar with English. Furthermore, it highlights the participant's empathy towards peers facing linguistic barriers, revealing the potential for children to understand and empathise with the struggles of linguistic integration. The category of 'different language' highlighted the nuanced understanding the children developed post YI training, particularly regarding the practical implications of language barriers in a school environment. Following the testimony,

"Maybe it's the way that people write, and the way people talk, 'cause she usually speaks Japanese to her parents and she usually writes Japanese so she doesn't understand and so she probably won't know what to do, cause if someone asks you or the teacher asks you to pack away she won't understand." (A child, time 3)

it is apparent that Young Interpreter training has equipped the child with a more holistic understanding of language diversity. The child not only recognises the challenges of verbal and written communication differences but also appreciates how these differences could impact the everyday activities of a linguistically diverse student, such as following classroom instructions. The child's insights underscore the important part that YIs can play in the school environment, serving as a crucial facilitator to foster communication and understanding for students working through language barriers. Another child reveals their understanding of the intricacies of language barriers and the reciprocal confusion they can cause. The child stated:

> *"And people because, in Pakistan people talk in her language but in England we talk English so sometimes she might get confused what we are saying. If she says it in her language, then the other people will get a little bit confused too." (B child, time 3)*

This child's statement highlights the recognition that language differences are not solely a challenge for the non-native speaker but can also cause confusion for those unfamiliar with the newcomer's language. They display an understanding of the communication difficulties from both sides: the newcomer might not comprehend English, and the native English speakers might not understand the newcomer's language. This confusion for the listener was also repeated by another child.

> *"First of all, it is a completely different country with people speaking different languages. We are in a different school, and nobody understands a thing he is saying." (B child, time 3)*

The shift in understanding evident in one child's reflections illustrates the impact of the YIS on the child's evolving perceptions of the multifaceted nature of language learning. Initially, the child focused solely on the individual's journey of language acquisition. However, following exposure to the YI training, the child's comprehension deepened to consider the broader familial implications of language learning:

> *"He will be speaking a new language…learning English, talking in English, writing in English, reading in English." (A child, time 1)*

By the third instance, the child's understanding had expanded to encompass the family's collective language learning journey:

"So, there's obviously people speak different languages…there's a whole different language that Mohammad has to learn with his family." (A child, time 3)

This development highlights how the YIS enhances understanding of language acquisition as a collective, not just an individual, endeavour. The child's insights, shaped by the YIS, recognise the role of the whole family in language adaptation. This suggests that the YIS plays a critical role in nurturing empathy among children for the broader social and familial implications of language learning.

The collected data under the 'Different Language' category points towards a robust understanding among children that language can act as a formidable barrier to communication, potentially hindering interpersonal interactions and mutual understanding between individuals from different linguistic backgrounds. They displayed varying levels of insight, with some merely noting the difference in language, while others showed a nuanced understanding of the complexities this could introduce into social and academic settings. Over time, some children's perspectives evolved to acknowledge the collective language learning journey of a new child and their family, illustrating their growing awareness of the broader familial and social implications of language acquisition. This underscores the importance of developing support systems that can help children navigate these complexities, affirming the need for further exploration and dialogue on this critical aspect of cultural integration.

Different food

This category captured the idea that individuals from different cultures may have diverse culinary practices and dietary preferences. It highlighted the variations in food choices and eating habits as a significant aspect of intercultural experiences. This category emerged as a significant point of focus in children's perceptions of cultural differences. This theme was brought up consistently across all time points suggesting that the children recognised food as an important component of cultural identity. Bilingual children were more likely to discuss this topic, a finding that might be attributed to their exposure to multiple languages and, by extension, to a broader range of cultural experiences. These children may have been exposed to more diverse types of food at home compared to what they would typically eat at school, thus enhancing their awareness of culinary diversity. The children's recognition of food differences was not very detailed, likely due to their young age and limited experience with a variety of culinary practices. The exception was one child born in Italy, whose firsthand knowledge of Italian cuisine enabled them to provide a more detailed comparison. This points towards personal experience and exposure to different cultures as key factors in enhancing children's understanding of cultural diversity in the realm of food.

> *"And the food because in Italy we usually eat lasagne and here we eat like cottage pie which is not an Italian dish." (B child, time 2 – born in Italy)*

These findings emphasise the need for educational strategies that enhance a nuanced understanding of cultural differences, including food diversity, from a young age. They highlight the value of multicultural experiences and reinforce the importance of comprehensive programmes like the YIS in fostering appreciation for cultural diversity.

Tangible differences

This category captures the observable and touchable aspects of culture, encompassing physical objects, artifacts, and structures that vary across different cultures. Across both groups, the children identified several items that could be different for the new child such as houses, buildings, shops, and other everyday items such as electronics and furniture. This category saw a steady increase in frequency across the time points for both groups. The reflections of these two children, both aged 10, demonstrate an awareness of economic disparities between countries. While it could be seen as an indication of their understanding of global economic dynamics, it may also suggest the potential for stereotypical views to develop. In the first example, a child associates the United Arab Emirates' perceived wealth with better quality school meals compared to England's.

> *"The wealth in the country cause the Emirates, if I'm correct, it's quite wealthy, it's really wealthy and England it's less wealthy so if they go on like school dinners, there gonna be lower class food then they'd normally expect." (A child, time 2)*

In the second, a child from Bangladesh is assumed to be unaccustomed to large buildings due to their home country's perceived economic status.

> *"Because Bangladesh is more poorer so he won't be used to seeing a lot of large buildings [in England]" (B child, time 3)*

These assumptions reveal an underlying stereotypical association between wealth and lifestyle. Such reflections raise questions about the extent to which the YIS currently addresses the development of stereotypes in children's understanding of cultural and economic differences. It might be beneficial for the scheme to place a stronger emphasis on challenging and unpacking such stereotypical views as part of the training.

While all children were able to list various elements that could be different from one country to another, they rarely go into detail about the potential impact of these differences or how they might affect people's lives. This response was a typical response for most children and illustrates a child listing several potential differences; however, they do not delve into any of these categories to elaborate on the nature or impact of these differences, which suggests a surface-level understanding.

> *"The food, language, weather, very different in weather, people, currency, and school." (B child, time 3)*

However, some examples given by the children show that their perceptions of cultural differences can be shaped by various factors, including stereotypes and personal experiences. The first child, aged 7, presents a stereotype-informed view of Mexico, likely influenced by media depictions, describing it as a place of continuous singing and dancing.

> *"Different because there are no people at every second are on the street and singing. In Mexico they are kind of weird, just songs and dancing." (A child, time 3)*

Contrastingly, the second child, aged 9, provides a detailed personal experience-based portrayal of Kurdistan as a safe place, demonstrating how firsthand experiences can shape a child's perspective.

> *"Kurdistan's a way better place! At 3am in the morning you can go outside with no one being scared you're going to be robbed or kidnapped cause there's about 15-year-olds just playing around football and if anything happens to the younger ones they straight away come and help us so it's kind of safe." (A child, time 2)*

These contrasting responses underscore how children's perceptions of cultural differences are shaped by various influences, ranging from cultural stereotypes to personal experiences (Yuval-Davis, 2007), and underline the value of promoting diverse and accurate cultural representations (Banks, 2007). Nevertheless, their understanding was often superficial, inclined more towards detailing potential differences rather than examining their implications. Such surface-level understanding can give rise to stereotypes, thus accentuating the necessity for an educational approach that encourages a deeper understanding of cultural differences (Sloan et al., 2018). This includes addressing and challenging stereotypes and moving beyond simply identifying observable disparities. The YIS could play a pivotal role in fostering this deeper comprehension of cultural differences among children, challenging

stereotypes, and encouraging nuanced perspectives, thereby contributing to a more empathetic and inclusive classroom environment.

Different school

This category reflected the recognition that educational practices and systems may differ across cultures. It acknowledged the potential disparities in schooling approaches and their implications for intercultural interactions. Differences related to schooling and the education system, emerged as an important factor in children's perception of cultural differences, with it being reported 34 times across all time points. The prevalence of this cultural difference increased over time, particularly among 10-year-olds. This may suggest that as children grow older, gain more experience in their own schooling, and interact more with peers from diverse cultural backgrounds, they become more aware of the potential differences in schooling systems across cultures. Furthermore, this trend among the older children could be indicative of the developmental aspect of children's cultural perception. It underscores the dynamic nature of their understanding of cultural differences, which expands and matures along with their personal experiences and cognitive development. However, much like other cultural differences identified by the children, the majority tended to make general statements about schooling differences without delving into the specifics, as evidenced by these two responses.

"The schools might be different." (A child, time 1)

"It will be weird to be in a different school." (B child, time 2)

Nonetheless, there were a few exceptions, where children elaborated a bit more on what these school differences might involve. For instance, some children touched upon potential differences in teaching methods, rules, and the school curriculum. This deeper engagement with the topic suggests a more nuanced understanding of cultural differences in the context of schooling. This child not only mentions differences in schooling but further elaborates on potential variations in teaching methods and learned content, reflecting a more sophisticated awareness of cultural diversity in educational settings.

"Their schools might be a bit different; they might do things differently. They might not have learnt some of the things we've learnt. Some of the different techniques that we use here may be different to the ones they've got used to using." (B child, time 1)

Here, the child pinpoints different school rules as a specific aspect of the new school, demonstrating an understanding that institutional norms and regulations can vary across cultures.

> *"Now we has to go to a new school, it has different rules from the other school." (A child, time 3)*

In this response, the child acknowledges differences in school curricula, showing an understanding that what is taught (content) can be culturally specific.

> *"And his school curriculum may be different." (B child, time 1)*

Overall, these findings highlight the evolving nature of children's perceptions of cultural differences related to schooling as they grow and gain more experience. They also point out the need to encourage children to explore these cultural differences in depth, to foster a more sophisticated understanding of cultural diversity.

Different ways of living

The category referred to the concept of individuals from different cultures having distinct lifestyles, habits, or customs to those of day-to-day lifestyles in England. It signifies that people may live their lives differently based on cultural practices, societal norms, or environmental factors. This category emerged 20 times across all time points. A steady increase in its frequency was noticeable among Group A, the YIs, while it remained relatively consistent among Group B, the controls. This growing trend in Group A might hint at a maturing comprehension of diverse lifestyles, and a by-product of their YI training. Moreover, their engagement with their buddies from various backgrounds could have stimulated their interest in the broad spectrum of life experiences, leading them to inquire about their buddies' lives in their respective home countries.

In the following response, the child acknowledges potential differences in "culture," "food," and "living style," suggesting a rudimentary understanding that lifestyle differences can stem from varying cultural norms and extend to everyday aspects such as cuisine. However, the child does not delve into specifics, indicating a surface-level recognition of differences rather than a detailed understanding.

> *"Their culture may be a bit different to ours, and the food and the living style." (A child time 1)*

Another child presents a more nuanced understanding. By saying practices in England would "probably be different" from those in Lithuania, the child demonstrates awareness that geographical location can influence lifestyle variations. However, similar to the previous response, the child does not specify the nature of these differences.

> *"The way we do stuff in England I think would probably be different to how they do it in Lithuania" (A child, time 3)*

The final response encapsulates the overall idea by addressing the potential experience of a newcomer adjusting to a "new culture" and interacting with "new people," who might engage in activities different from those in their home country. This insight implies a recognition that individuals from diverse backgrounds may carry out distinct practices, acknowledging a broader array of cultural variations.

> *"I guess new culture, new people doing different stuff than they used to do in his country." (B child, time 2)*

Exploring Cultural Contrasts - Discussion

The forthcoming discussion delves into the theme of 'Exploring Cultural Contrasts', framed by the insights derived from children's feedback, relevant academic literature, and the potential for practical implementation within the YIS. The central research question, whether participation in the YIS influences the intercultural competence of children, offers valuable insights into the children's evolving understanding of cultural diversity.

Across both groups and all three timepoints, the children were able to identify several relevant differences that would be present for the new child. The findings suggest that the YIS may have a positive, enduring impact on children's cultural awareness as evident by the broader range of categories mentioned over time and the increased depth to their answers. The responses demonstrated a developing grasp of an array of lifestyle differences, however, the depth of their understanding varied, with some relying on stereotypes or generalised perspectives to articulate cultural contrasts. This aligns with research by Banks (2017), indicating that children, while able to identify cultural differences, often lack depth in their understanding. It highlights the need for more targeted educational strategies to foster a comprehensive understanding of cultural contrasts and diversity. The YIS shows promise in this regard, by providing a structured environment that encourages children to explore cultural differences beyond surface-level observations.

Despite the YIS not being a targeted intervention for enhancing intercultural awareness, the findings still indicate its potential to enrich children's understanding of cultural diversity. It is essential to consider that the multicultural nature of the participating schools, daily exposure to interculturalism (Kim et al., 2006) and personal interactions with diverse peers significantly contribute to the development of children's intercultural competence (Killen et al., 2002). These daily experiences, combined with the effects of the YIS, could explain the noticeable yet not sizeable variations between the groups and time points reported in other specific intervention studies such as that of Dziedziewicz et al. (2014); Santos et al. (2014) and (Acevedo, 2019). Additionally, these daily interactions with children from diverse backgrounds are an important influence on developing intercultural competence (Killen et al., 2002) and allow the children to learn about other cultures (Díaz-Lefebvre, 2004), whilst also developing cultural sensitivity and respect of cultural differences (Scarino, 2009).

Consistent with the Cultural Intelligence model (Earley & Ang, 2003), children's responses indicating knowledge about cultural norms and practices hint at their cognitive cultural intelligence. A significant aspect of these findings is their alignment with Bennett's (1986) Developmental Model of Intercultural Sensitivity (DMIS), which postulates a shift from ethnocentrism, where one's own culture is viewed as central, to ethnorelativism, appreciating the value of other cultures. The findings suggest a gradual move towards this ethnorelativist perspective, evidenced by the increase in the variety of cultural contrast categories over time. Older children's complex understanding of cultural differences, in line with Bennett's (1986) model, attests to the cognitive maturity needed to grasp abstract concepts such as education systems, cultures, and social interactions. Similarly, the broader cultural awareness among bilingual children emphasises the enriching effects of multilingual experiences, as evidenced by their heightened recognition of 'Different Language', 'Different Food', and 'Different Way of Living'.

The findings from this research underscore the complexity and breadth of children's intercultural awareness and the influential role of programs like the YIS. Despite the challenges of comparing current findings to previous work due to the scarcity of studies on intercultural competence in children (Kramsch, 1993) the outcomes corroborate with the findings of Gerlich et al. (2010) demonstrating children's awareness of cultural diversity. The data provide a promising step towards understanding children's perception of intercultural differences, and this understanding can inform educational approaches aimed at fostering intercultural sensitivity. Future research could further explore the factors influencing children's intercultural competence and the ways programs like the YIS can optimise their approach accordingly.

It is evident from the current data that these children, despite their young ages, have a keen sense of the differences and challenges that someone from a different cultural background might face when moving to a new country. This awareness could be an indication of the globalised world they are

growing up in, where diversity and multiculturalism are increasingly the norm. The few observed differences across ages, language status and gender, combined with the notable exceptions, underscore the complex interplay of individual traits, contextual factors, and developmental stages in shaping children's intercultural competence.

5.4.2 Theme 2 - Exploring Cultural Similarities

What do you think might be the same and feel familiar for Lin?

This question was designed to explore the participants' perceptions of the potential similarities or familiarities that Lin may encounter while living in England. This tapped into cognitive cultural intelligence. The 'Exploring Cultural similarities' theme centres around the exploration of cultural similarities and commonalities between different countries. The theme highlights the ability of the participants to identify and acknowledge the similarities that bridge cultural boundaries and foster a sense of familiarity and connection. Within the theme of 'Exploring Cultural similarities,' 11 codes were identified that resulted in nine categories capturing the various aspects of similarities between Lin's home country and England that were frequently mentioned by the children: school, family, people, everyday items, routine, having friends, food, games and leisure, and language. Table 5.7 displays the frequency of how many times the different codes appeared in the data for question 2, separated into the A and B groups for each timepoint, with example quotations from the participants.

Table 5.7 Categories and quotations for 'Exploring Cultural Similarities'

Category	Time 1		Time 2		Time 3		Example quotations
	Frequency (A)-YI	(B)-non-YI	Frequency (A)-YI	(B)-non-YI	Frequency (A)-YI	(B)-non-YI	
School	11	7	11	11	9	8	"Go to school I guess; he still goes to school." (B-time 2) / "That some of the work might be the same, maths, add and division." (A-time 1)
Everyday items	3	8	7	6	10	13	"I think the familiar one would be the shops. The stage, the tables, the chairs" (A-time 2) / "He might have the same trees, grass, soil, water bottles, yeah, these type of things." (A-time 3)
Family	5	5	4	4	5	6	"He has the same family." (B-time 3) / "She is still living with her family" (A-time 3)
People	5	0	3	3	4	3	"Well, we both have people cause like people in Spain aren't aliens, they're human beings." (A-time 3) / "There'd still be people everywhere. People go to sleep. People go to school. People eat. People speak. People walk." (A-time 1)
Routine	3	2	1	0	1	0	"We have the same kind of like routine, wake up and go to school." (A-time 1) / "Routine maybe cause in Italy he might have woke up, gone to school, came back and it would probably be the same in England." (A-time 2)
Having friends	3	1	3	3	2	2	"They will still have friends." (A-time 1) / "And he could still make friends the same way he did before." (B-time 3)
Food	2	2	3	3	3	4	"Some foods might be similar here" (B-time 3) / "One thing that might keep the same is only Chinese. Because when you order takeout sometimes, that would be the kind of food they would eat there." (B-time 1)
Games and leisure	2	3	1	2	3	3	"He'll still be playing like sports" (A-time 1) / "Jack plays in the playground and he uses a skipping rope that might be like familiar cause he might have skipping ropes in Spain." (A-time 2)
Language	2	1	1	2	1	3	"And it might be familiar as there are still Romanian speakers here in the United Kingdom." (B-time 2) / "Other people who speak his language." (A-time 2)

Exploring Cultural Similarities

Both groups of children demonstrated the ability to offer numerous relevant and identifiable similarities across all timepoints. The most significant categories that were consistently important for both groups were the understanding that the new child would still attend school and engage in similar learning activities as they did in their home country, giving examples of familiar everyday objects, and recognising that their family would remain unchanged. These categories remained consistently relevant across different time points throughout the study. Furthermore, there were only minor variations in responses across groups and the different demographics of the participants in terms of gender, language status and age. Nonetheless, the data presents certain interesting observations that merit further exploration, as detailed below.

Exploring Cultural Similarities - Group differences

In the analysis of group differences, it was observed that there were certain variations in the responses of YI children and control children. Specifically, at Time 1, the children in the YI group made references to people being similar for Lin in her new environment, a perspective that was not shared by their control counterparts at this timepoint. Another notable point of difference between the two groups was observed in the responses related to the category of maintaining a 'similar routine.' The YI children exhibited a higher inclination towards this category, especially at Time 1. Interestingly, this category was mentioned less frequently at subsequent time points, specifically, it was mentioned only once at Time 2 and Time 3. This pattern may indicate a dynamic change in YI children's perception of routines and their similarities over time.

Exploring Cultural Similarities - Differences Over Time

Over the study's duration, a general trend of increased recognition of commonalities was observed in both groups, although the patterns of this growth varied. For Group A, participants in the YIS, the growing awareness was prominent in categories such as 'Everyday Items', 'Family', and 'School-related' aspects, with a steady rise across the three timepoints. This suggests a growing understanding of the universal aspects of human experience. In contrast, Group B's responses showed a more irregular pattern. While there were consistent mentions of categories like 'Everyday Items' and 'School-related', there was no clear linear increase. Moreover, mentions of 'Language' did not show a recognisable rise, unlike Group A. Interestingly, Group B showed a drop in the 'Same Routine' category by the third timepoint, possibly indicating an increased awareness of routine variations across different cultures. In summary, although both groups demonstrated an evolving understanding of cultural commonalities, Group A displayed a more consistent increase, potentially indicative of the YIS's impact. An overall increase in the recognition of similarities with each successive time point was also evident across all children, regardless of their group. This longitudinal insight is particularly significant,

underscoring the dynamic nature of children's perceptions and adaptability, gradually broadening their frame of reference to recognise more similarities across cultural contexts.

Exploring Cultural Similarities - Impact of Multilingualism

At the second and third time points, multilingual children showed a marginally higher tendency to identify 'Language' as a similar factor for the new child compared to their monolingual peers. This pattern suggests that multilingual children, perhaps due to their own experiences of navigating multiple language systems, might be more attuned to recognising the potential for language similarities, despite the change in geographical context. The most consistent differences between monolingual (ML) and bilingual (BL) children revolved around their perceptions of 'Everyday items' and 'Games and Leisure'. From the outset, BL children were more likely to identify 'Everyday items' as a common factor, while ML children only started to highlight this category more frequently by the third time point. Conversely, 'Games and Leisure' is a category that was persistently recognised more by BL children across all time points, while it remained largely unmentioned by ML children. This sustained difference could suggest that bilingualism might be associated with broader attention to routine and leisure activities as cultural similarities.

Exploring Cultural Similarities - Gender Differences

The analysis of gender differences in the children's responses exhibits relatively homogeneous response rates across most codes. However, certain codes did show patterns suggesting variations in the perceptions of boys and girls. Notably, boys in the study consistently identified 'Family' as a stable element in Lin's life across all time points more frequently than girls. This could potentially suggest that boys may place a higher emphasis on familial continuity in the context of geographic transitions, but such an interpretation would require further investigation. Additionally, 'Same routine' was a category that boys referred to more frequently than girls at all time points. This suggests that boys may perceive routine as a key similarity factor more than girls do. Whether this reflects broader gender differences in how routines are valued or perceived in the context of cultural transitions could be an interesting avenue for future research. However, it is important to reiterate that while these differences were observed, the general trend showed a largely similar pattern of responses for both genders across most codes. These findings thus need to be understood within the context of overall similarity in the way boys and girls responded to the majority of categories.

Exploring Cultural Similarities - Age differences

Analyses of the differences related to age yielded intriguing findings. Particularly, older children within the study were observed to more frequently acknowledge the similarities present in the school context compared to younger participants. This lends credibility to the hypothesis that with maturity and increased exposure to educational environments, children might develop a better

understanding of the universality of certain aspects of the school system. Further, the data suggested that the youngest participants, those aged 7 years, identified fewer similarities over time in contrast to their older counterparts. Specifically, these younger children displayed a lesser degree of recognition regarding the 'Everyday items' and 'School-related' similarities when compared to older participants. This pattern could be indicative of a developmentally influenced shift in perspective that arises with age and varied experiences. As children mature and encounter a greater variety of scenarios, their capacity to discern underlying similarities in different contexts might enhance.

Exploring Cultural Similarities – categories

The top three categories that carried the most significance across both groups were recognising that the new child would still go to school and complete some of the same learning as in their home country, providing examples of everyday objects that would be the same and acknowledging that their family would remain the same. These categories remained consistent throughout the various timepoints.

Similarities between school

This category referred to the new child would still go to school when they came to England, as they would have done in their home country. The children, regardless of their group affiliation or the time point of data collection, often identified schooling as a consistent aspect of life that the new child would experience in England, just as they would have in their home country. This was identified as a point of familiarity and continuity for the new child. Aspects such as attending school itself, the subjects taught, the teachers, classrooms, and school activities were highlighted as potential points of commonality. A total of 55 mentions of similar schooling were recorded across the three time points. The two responses below highlight typical responses from the children that the new child would still go to school when they arrive in England, reflecting the child's understanding that education is universal and transcends geographical boundaries. This shows basic intercultural competence as the child recognises that even if the new child is in a different country, the system of schooling remains a constant.

"He'll still be going to school." (A child, time 2)

The response provided below hints at the potential influence of the YI training the children participated in. This child, by acknowledging the uniformity of schooling across different nations and simultaneously recognising nuanced changes in context such as language and culture, appears to exhibit a heightened level of intercultural competence.

> *"She goes to school in India so it will be the same for her, but she is just in an English school." (B child, time 3)*

The child's recognition that learning can be the same, despite differences in language, reveals a sophisticated understanding likely nurtured by the YI training.

> *"The learning might be the same but like just in a different language." (A child, time 2)*

Some children also provided more detail on the specific aspects of schooling that would be similar. This child has extrapolated the concept of universal schooling to include subjects taught, indicating a more nuanced understanding of intercultural competence. The child is beginning to understand that, although there might be cultural and contextual differences between countries, there are also underlying similarities in educational content, such as art classes.

> *"Well, like it might be the same that like her classes maybe. For example, if she like did art in France in her old school, there would be art for her here and it wouldn't be different for her." (A child, time 1)*

This next response demonstrates a similar understanding to the previous response, extending the continuity to specific elements of the curriculum. The understanding of subjects like maths being taught universally again indicates an appreciation of shared educational experiences, demonstrating intercultural competence.

> *"Maybe they might do same multiplication, same addition." (B child, time 2)*

Children also reflected an understanding that beyond the classroom teaching, the social and recreational aspects of school life are also likely to be consistent across cultures. This reveals a further developed intercultural competence where children consider the holistic school experience and is demonstrated in the following two responses.

> *"School, friends, playtime and lunchtime and teachers." (A child, time 1)*

> *"She's at school, playing around outside like lunch time breaktime time." (A child, time 1)*

Children also referred to educational structures, such as the presence of teachers and homework, which are common across cultures. These responses show this understanding.

"She's still gonna have some teachers as well and homework." (A child, time 2)

"We have teachers." (B child, time 3)

The concept of a school uniform was also identified as a possible point of similarity, with children referring to this element as a potential bridge between the new child's previous schooling experience and their current one in England. However, these statements also demonstrate a lack of knowledge about school systems in which uniforms are not the norm.

"Like in Spain they might wear school uniforms and in England they wear school uniforms." (B child, time 2)

Similarly, this child also alludes to the new child still having to wear a uniform to school.

"Maybe the type of clothing she used to wear at her old school." (A child, time 3)

In adjusting to a new school environment, understanding the rules is paramount. Children are keen observers and learn early on that the rules, while varying slightly, are generally universal in nature. They recognise that even though a school might be in a different country, there would be a set of rules governing students' behaviour, similar to the rules at their own school. This recognition is a crucial aspect of their intercultural competence.

"He could find the same rules at school." (B child, time 2)

Children are innately social beings, and the social environment of a school plays a crucial role in their overall schooling experience. It is interesting to observe that children understand that irrespective of geographical location, schools universally would have many students, thereby creating a vibrant social environment. This shows their understanding that the dynamics of peer interactions are a universal aspect of school life:

"There's a school with lots of children in like her old one." (B child, time 2)

The children's understanding of the universality of education is not limited to recognising the same rules or social structures. They comprehend that while the mode of instruction and language might differ across cultures, the essence of getting an education remains the same. This understanding shows a mature level of intercultural competence:

"Education might be slightly different but you're still going to get education here and in Spain."(B child, time 3)

Despite the language difference, the basic purpose of a school remains the same, which can be comforting for a new child who has just moved countries. The children show an understanding that attending school is a common concept across cultures, reinforcing their intercultural competence.

"She goes to school in India so it will be the same for her, but she is just in an English school." (B child, time 3)

The exploration of the theme of "similarities between school" provides valuable insights into children's intercultural competence. Throughout the study, children, especially the older children, demonstrated their understanding that even if a newcomer child transitions to a school in a different country like England, certain elements of the school environment would remain familiar. This recognition was not limited to attending school itself but extended to various aspects of school life, such as subjects taught, teachers' presence, and school activities. This shows some understanding of the universality of education. However, the children's understanding of the universality of education may be oversimplified as there are differences in educational practices, approaches, and systems between countries that the children are not acknowledging.

Everyday items

Exploring the category of 'Everyday items reveals yet another dimension of children's intercultural competence. The children demonstrate a clear understanding that, despite a new country and culture, certain tangible aspects of the child's everyday life would continue to exist. They discuss the continuity of everyday items or practices that would offer comfort and familiarity to the new child, thus making the transition smoother. This understanding highlights their ability to recognise the commonality of material culture across geographical and cultural boundaries. The children in the study referred to a large variety of tangible elements such as houses, toys, and household items. They show an understanding that the new child would likely have access to similar items in their new home in England as they did in their original home. This is an essential component of intercultural competence

as it involves understanding that some material aspects of life, such as some of the items that we use daily, can be use by people in other countries as well. The ability to identify and relate to these universal elements can significantly enhance a child's capacity to empathise and connect with children from other cultures.

This response indicates the child's recognition of universal necessities and constructs such as shelter (a house), numerical systems (numbers), and temporal perception (time). Recognising these commonalities fosters an understanding that we are not as different from each other as we might think, facilitating a sense of global connectedness. Houses being similar was frequently mentioned.

"A house to live in. We all have numbers and the time." (B child, time 1)

These responses show that everyday items such as school supplies are common across different locations, offering a sense of familiarity.

"The same is like maybe like the stuff you that you learn with so maybe like wool, cards, like paint, glitter and stuff like that might be the same there but I'm not sure." (A child, time 3)

"And that we might have the same stationery." (B child, time 3)

The child here recognises the common existence of commerce (shops and markets), an important aspect of social and economic life across many, but not all, cultures. This understanding can facilitate the realisation that people's needs and ways of meeting them have much in common, no matter where they live. Many children spoke of shops being similar across countries.

"Maybe like shops and markets." (A child, time 2)

Additionally, this child identifies a commonplace activity - shopping. Regardless of cultural backgrounds, shopping for necessities is a typical experience for many cultures.

"She will still go shopping." (B child, time 2)

Similarly, the child here is recognising the cross-cultural aspects present within their own locality - the existence of Bengali shops in the UK. This recognition helps the child link aspects of their home culture with that of the foreign culture, providing a tangible connection between the two.

> *"Go to shops, like in the UK there are actually some Bengali shops for dresses for Bengali people. It's the same because there is one in Bangladesh and one here." (B child, time 1)*

While shopping for essentials is a relatable and shared experience across various cultures, it is necessary to consider that there might be exceptions or variations in different parts of the world. These exceptions could arise due to unique cultural practices, economic factors, or other regional considerations that shape the way shopping is approached. This simple observation of a universal element, 'fresh air', indicates the child's ability to identify that certain elements of life are the same regardless of geographical location. This understanding, while basic, forms a foundational building block for perceiving and appreciating the similarities between diverse cultures and locations.

> *"The fresh air." (B child, time 1)*

The concept that all individuals, regardless of country, have basic human needs was also demonstrated by these two children.

> *"Just normal things like that we need in our life like water." (A child, time 3)*

> *"There is still shops, like there is still the essentials." (A child, time 3)*

The children also showed awareness of shared natural features, in this case, animals and wildlife, across cultures. The understanding of shared elements in the natural world reinforces the concept of commonalities across different cultures, a crucial part of intercultural competence.

> *"And we have wildlife like we do in Bangladesh." (B child, time 3)*

> *"That there are still the same animals, some animals." (A child, time 3)*

> *"Maybe the pets because we have dogs and cats and rabbits, even here there are dogs and cats." (B child, time 3)*

The category of similarities between everyday items reveals the children's intercultural awareness and their recognition of commonalities in objects and activities across cultures. Their ability to identify shared experiences and familiar items demonstrates their understanding that tangible aspects of daily life can transcend cultural boundaries. The increased recognition of similarities in everyday items among the YI children could indicate the effectiveness of the YI training in fostering this awareness, underlining the importance of such programmes in nurturing intercultural competence. Overall, the category of everyday items serves as a powerful testament to the children's intercultural awareness and their ability to find common ground across diverse cultures. Overall, the category of everyday items serves as a powerful testament to the children's intercultural awareness and their ability to find common ground across diverse cultures.

Family

In this category, the focus was on elements related to family life that the children perceived as being the same or similar for the new child. It included concepts such as parents, siblings, and home life. Overall, there were similarities in the recognition of the importance of family across different demographics. Both Group A and Group B show consistent mentions of the family category throughout the time points, with similar percentages. This suggests that the concept of family was recognised and valued by children from different groups. However, there was one variation in the extent to which different demographics express their thoughts on family. The boys in the sample spoke about family being the same more than the girls did at each time point. The percentages of mentions in the family category varied across different age groups. The children aged 9 years had the highest percentage of mentions at times 1 and 2. Overall, the consistency of mentions across all demographics over time indicates a stable recognition of family as a universal concept.

The simple statement below emphasises the child's recognition of the significance of family in their life. It reflects their understanding that family members play a central role in shaping their identity, providing support, and fostering a sense of belonging.

> *"His Family."(A child, time 2)*

The response below refers to the child's recognition that family plays a crucial role in their life and cultural transition. It reflects their understanding that familial relationships provide a sense of stability, love, and support, regardless of the cultural context. This response displays the child's intercultural

competence by acknowledging the continuity of family connections and their impact on the child's well-being and adaptation to a new country.

> *"He'll still be living with his parents or like grandparents, or the people who brought*
>
> *him into England." (A child, time 1)*

Similarly, this further response highlights the significance of parental presence in a child's life, emphasising the role of family in providing emotional support, guidance, and stability. It reflects the child's understanding that having parents by their side contributes to a sense of familiarity and security in a new cultural environment.

> *"That she has her parents with her." (A child, time 1)*

These responses collectively showcase children's intercultural competence by highlighting their awareness of the role of family in their lives, their understanding of the continuity of familial relationships across different cultural contexts, and their recognition of the significance of communication and support within the family unit. These insights reflect their ability to navigate and appreciate the interplay between culture, relationships, and personal identity within the context of family dynamics.

Exploring Cultural Similarities – Discussion

Across both groups and all three timepoints, the children identified several relevant similarities that would be present for the new child. The children's ability to identify and appreciate similarities across diverse cultural contexts reflects their developing intercultural competence, which can be understood through the lens of several relevant theories. The identification of similarities aligns with the conceptual frameworks developed for adults, such as the Cultural Intelligence model (Earley & Ang, 2003) and the Developmental Model of Intercultural Sensitivity (DMIS) by (Bennett, 1986). The children's ability to identify cultural similarities reflects their cognitive cultural intelligence (Earley & Ang, 2003). This refers to their knowledge and understanding of the norms, practices, and conventions in different cultures. The children's recognition of similarities reflects their growing cultural intelligence, indicating their ability to identify and appreciate similarities across cultures. Brislin et al. (2006) stated that those with high cognitive CQ understand similarities and differences across cultures, thus reflecting the children's developing intercultural competence. Furthermore, the findings align with Acevedo's (2019) perspective that intercultural understanding involves exploring different perspectives and recognising connections between children from different cultures.

From the perspective of the DMIS, the children's progression from mentioning fewer categories to a broader range of categories over time suggests a shift from an ethnocentric view, where their own culture is central, to an ethnorelativist perspective, where they recognise and value the diversity of other cultures. This development of intercultural sensitivity is crucial for fostering empathy, understanding, and effective communication across cultures. However, Bennett's (2017) concept of minimisation highlights the tendency to emphasise similarities while downplaying differences, which can lead to a superficial understanding of other cultures. While recognising and appreciating similarities is an important aspect of intercultural competence, it is crucial to also acknowledge and explore cultural differences to develop a more comprehensive understanding.

The scarcity of expressed uncertainty by the children, with only one child from Group A and two from Group B expressing a lack of knowledge about intercultural similarities at the initial time point, is a noteworthy observation. This suggests that, even prior to any formal intervention like the YI training, these children already possessed an natural ability to perceive commonalities across cultures, potentially due to the multicultural environment of their schools. Furthermore, the absence of such uncertainty in later responses may point to a natural evolution in their intercultural understanding. Their increasing intercultural competence enables them to foster connections, build empathy, and promote a sense of belonging for newcomers, thereby contributing to the creation of a more inclusive and culturally diverse society.

The current research conducted represents a novel and distinctive contribution to the field, as it investigates children's perceptions of cultural overlaps beyond their own cultural context. Unlike previous studies that have primarily explored children's intercultural competence, this research also focuses on how children identify and recognise similarities between diverse cultures. By addressing this specific aspect, the study fills a research gap and provides valuable insights into children's understanding of cultural commonalities. This distinct perspective offers a fresh lens through which to examine how children navigate and appreciate cultural diversity, opening new avenues for future research in the field of intercultural studies.

5.4.3 Theme 3 - Emotional Awareness: Understanding the New Child's Feelings

How do you think Lin might feel about starting school in this country?

This question was designed to explore the participants' perceptions of how the new child would feel when starting school in England. This question was related to metacognitive cultural intelligence. This 'Emotional Awareness' theme emphasises the participants' emotional perception towards the experiences and feelings of a new child in an unfamiliar cultural setting. It reflects their ability to perceive, identify, and understand the range of emotions that the new child may go through. Within the theme of 'Emotional Awareness,' 13 codes were identified for this theme that resulted in 9

categories capturing the feelings that were frequently mentioned by the children: nervous, scared, excited, worried, confused, shy, anxious, sad, and curious. Table 5.8 displays the frequency of how many times the different codes appeared in the data for question 3, separated into the A and B groups for each timepoint, with example quotations from the participants.

Table 5.8 Categories and quotations for 'Emotional Awareness'

Category	Time 1 Frequency		Time 2 Frequency		Time 3 Frequency		Example quotations
	(A) YI	(B) non-YI	(A) YI	(B) non-YI	(A) YI	(B) non-YI	
Nervous	15	18	22	18	23	21	"She might be feeling a bit nervous because she's new." (A time 3) / "She might feel a bit nervous and scared because she's never been to England, and it's a new school and new people, and they don't speak the same language." (B time 1)
Scared	12	15	11	8	9	12	"Scared cause it's going to be a brand-new school for him." (A time 1) / "I think Jim would keel kinda scared and worried about if he will make any friends and how his first day is going to be." (B time 2)
Excited	8	4	6	7	6	7	"Excited to make new friends and language and learn a lot of new things." (B time 3) / "Well, if I was going to Spain and I was starting a school, I would be excited and nervous cause I wouldn't have any friends but it's a new country and stuff and like excited and nervous at the same time." (A time 3)
Worried	4	8	7	7	4	3	"I think they will feel worried because like new school, new people, none of your friends would be the same." (B time 2) / "He might feel a bit worried cause he might not understand what the teacher is saying, and he might not make any friends just because he might speak a different language." (A time 1)
Confused	2	3	4	3	1	1	"Confused because like he doesn't know what he's doing." (A time 3) / "He might be a bit confused because of the language." (B time 2)
Shy	4	1	2	1	3	2	"I feel like he might be a little shy." (B time 2) / "He wouldn't know anything so he would just be a shy kid." (A time 3)
Anxious	0	0	4	1	3	2	"Maybe she might feel nervous or anxious about coming here." (A time 2) / "I think she might feel quite anxious because she's probably never gone to another country before" (B time 2)
Sad	3	0	2	3	5	0	"Sad. Because he might miss his friends from Italy." (B time 2) / "He'd probably be sad as well 'cause he's moved away from his friends." (A time 2)
Curious	3	0	2	0	1	0	"He might feel curious cause really wants to find out how England is." (A time 1) / "She might feel nervous, curious." (B time 2)

Emotional Awareness: Understanding the New Child's Feelings - findings

Both groups were able to identify several relevant feelings that the new child could experience on starting school in England. The children's responses suggest an evolving understanding of the range and depth of emotions someone in Lin's situation might experience. Notably, children predicted a variety of emotions for Lin, with a prevalence of negative emotions like 'nervous' and 'scared', and positive ones such as 'excited' and 'curious'. This suggests a general understanding of the emotional complexity associated with starting school in a new country. 'Nervous', 'Scared', and 'Excited' emerged as the most common emotions. Overall, the patterns observed in the data indicate that 'nervous' was consistently the dominant emotion expressed across all demographic groups. However, there were slight variations in the frequency of other emotions such as 'excited', 'scared', and 'worried' among different demographic groups and over time. These differences, however, were not substantial or consistent.

Emotional Awareness - Group differences

Group A's predictions reflected a slightly broader range of emotions, including more positive and neutral emotions, as compared to Group B. Specifically, at Time 1, there was a significant difference in the expression of excitement between Group A and Group B. Approximately twice as many children in Group A reported the new child could feel excited as group B. This indicates that Group A, with the benefit of the YI training, displayed a higher level of possible excitement for the new child compared to Group B. Moreover, it was observed that Group B never mentioned feeling 'curious' at any time point, whereas Group A included 'curiosity' in their predictions, suggesting a potential limitation in their empathic understanding of the new child's perspective. Additionally, overall Group A reported the feeling 'sad' more frequently than Group B. Notably, Group B did not mention feeling 'sad' at either Time 1 or Time 3. These findings imply that Group A displayed a wider range of emotional predictions, including sadness and curiosity, compared to Group B, indicating a potential disparity in emotional sensitivity and recognition of the new child's emotional state.

The results highlight the potential positive effects of the YI training on Group A's ability to predict a range of emotions in the hypothetical peer 'Lin'. However, it is important to note that these findings do not establish a causal link between the training program and the observed differences. Further rigorous testing is required to establish if a causal relationship exists between the training program and the enhanced empathic and emotional competencies exhibited by Group A.

Emotional Awareness - Differences Over Time

The analysis revealed a general increase in expressions of emotions such as 'nervous' and 'scared' over time across all groups. At Time 1, no children from either Group reported feeling anxious. However, as time progressed, there was an increase in the number of children expressing feelings of

anxiety for Lin. Overall, the patterns observed in the data indicated that 'nervous', 'scared' and 'excited' were consistently the dominant emotions expressed across the three timepoints, with minimal changes observed over time.

Emotional Awareness - Impact of Multilingualism

The multilingual (BL) children expressed the emotion of 'scared' more frequently compared to monolingual (BL) children. Additionally, the code for 'shy' was reported more frequently by BL children, as ML children did not mention this emotion at Time 1 or Time 2. The bilingual children predicted a slightly different emotional profile for Lin that might reflect their own experiences of navigating different languages and cultures, allowing them a greater capacity to empathise and therefore predict Lin's emotions. Specifically, at Time 1, BL children mentioned 'sad' as an emotion, while ML children did not report this emotion. However, at Time 2, ML children included emotions such as 'confused', 'lonely', 'shy', and 'surprised', which were not mentioned by BL children. Finally, at Time 3, ML children mentioned 'confused' and 'curious' as emotions. The unique experiences of ML children in navigating different languages and cultures may contribute to their broader emotional repertoire and ability to empathise with the emotions that a peer like Lin might experience. These results provide insights into the interplay between language, culture, and emotional understanding in children. Further research is needed to explore the underlying mechanisms and long-term impact of multilingualism on children's emotional competence, empathy, and intercultural development.

Emotional Awareness - Gender Differences

Gender differences were observed in the expression of specific emotions among the participants. Males more frequently reported feelings of confusion and worry compared to females. In contrast, females consistently expressed higher frequencies of feeling 'nervous' and 'scared' across all time points. Furthermore, girls reported the feeling 'excited' more than boys at all times. No other noticeable trends in gender differences were identified in the data. The findings suggest that gender plays a role in the emotional experiences of children in relation to intercultural scenarios. Males may experience a greater tendency to feel confused and worried, while females demonstrate higher levels of nervousness and fear. Moreover, girls exhibit a consistent expression of excitement compared to boys. Further research is warranted to explore the underlying factors contributing to these gender differences in emotional expressions within intercultural contexts and if they are present in other samples. Understanding these variations can provide insights into the development of intercultural competence and empathy across genders.

Emotional Awareness - Age differences

Age differences were observed in the expression of specific emotions among the participants. To detail, 7-year-old children exhibited higher levels of feeling 'nervous' and 'scared' compared to their

older peers at all three time points. This suggests that younger children may be more susceptible to experiencing feelings of nervousness in new and/or intercultural contexts. No other noticeable trends in emotional expressions were identified across the different ages in the sample. The data did not reveal consistent patterns of emotional differences among the participants based on age.

Across the dataset, the emotions of 'Nervous', 'Scared', and 'Excited' were identified as the most prevalent among all groups and demographics. Notably, 'Nervous' emerged as the most commonly reported emotion at all time points for both groups.

Emotional Awareness - Categories

Nervous

The category of 'Nervous' explored the potential feelings of nervousness experienced by the new child when starting school in England. It is prominent that, irrespective of their group or the time point of data collection, the children consistently identified 'nervous' as the primary emotion that the new child would likely feel. In fact, a total of 117 mentions of feeling nervous were recorded across the three time points. This indicates a shared understanding among the children of the apprehension associated with entering a new educational environment. It is worth noting that many children simply mentioned the word 'nervous' without providing further details or explanations for why the new child might feel this way. This is shown in the two responses below.

"Maybe nervous." (A child, time 2)

"A bit nervous." (B child, time 3)

Despite the brevity of most of the children's responses, identifying nervous still conveyed a sense of empathy and understanding towards the potential nervousness that the new child may encounter. The children's ability to identify and acknowledge this emotion demonstrates their awareness of the challenges and uncertainties that the new child might face in a new school environment. However, some children's answers provided a deeper insight into the children's understanding, shedding light on why Lin might feel nervous in such situations. These responses demonstrated a more nuanced comprehension of the emotions associated with being new to a school and country, as well as the potential challenges and uncertainties that contribute to their nervousness.

Some children explained that the new child might feel nervous due to the language barrier that they may face. In the response below, the child empathises with the language barrier and the fear of being misunderstood. The child's statement draws upon a personal scenario, imagining themselves in the shoes of the new child. They acknowledged that being in a situation where others may not

understand their language can be nerve-wracking, as it may lead to misinterpretations or judgments. It also showcased their empathy and awareness of the challenges that a new child may encounter.

> *"If I were going from England to Spain and started new, I'd definitely be nervous because I know if I was just talking and talking, they might not even know what I'm saying, and they might just think I'm talking weird stuff. Meeting new people is definitely quite nervous." (A child, time 2)*

Similarly, child also referred to difficulties with the potential new language of English. The mention of learning a new language, writing, and reading in a different country demonstrates the child's awareness of the linguistic and cultural adjustments that the new child will need to make, contributing to feelings of nervousness. The child's statement shows a deeper comprehension of the difficulties that the new child might encounter when moving to a new country. The mention of learning a whole different country implies the need to adapt to a new culture and customs. The emphasis on writing and reading highlights the linguistic challenges the new child may face, as they will need to acquire proficiency in a new language. The recognition of these obstacles contributes to the child's understanding of why the new child might feel nervous in such a situation.

> *"Nervous 'cause he'll have to learn a whole different country that he doesn't know, he'll have to write in a different country, and he'll have to read in a different country."*
> *(A child, time 3)*

The control children also demonstrated a similar depth of awareness to the YI children in terms of feeling nervous due to the language barrier. This response highlights the child's recognition that language proficiency plays a significant role in feeling comfortable and confident in a new school environment. It emphasises the importance of language skills and their impact on social interactions and overall confidence levels.

> *"I think she might feel nervous because she might not know English and she might not think she's very good at the language, so she might feel scared and nervous." (B child, time 2)*

Some children recognised that the new child might feel nervous primarily due to the challenge of making friends in a new school environment. They empathised with the potential social difficulties

faced by someone who is new and the importance of establishing connections and fitting in. The child's statement suggests an understanding that making friends is an essential part of feeling comfortable and accepted in a new school environment. It reflects their own observations of how starting school as a newcomer can be nerve-wracking when there are no pre-established friendships to rely on. This recognition of the potential social isolation and the effort required to make friends displays the child's empathetic perspective and their ability to put themselves in the shoes of the new student.

> *"Maybe she might feel nervous because she's new and normally when people are new, they don't really have friends, so they have to get friends and try and fit in" (A child, time 2)*

Similarly, this response from a control child also shows a similar explanation for the new child feeling nervous. The child's observation stresses the significance of social connections for a newcomer. They recognise that arriving at a new school can be daunting, particularly when there is uncertainty about forming friendships. The fear of not making friends can contribute to feelings of nervousness and anxiety as the new child navigates the unfamiliar social landscape.

> *"She probably felt nervous because when she got to her new school, she didn't know if she'd make friends. She might think, 'Oh, I'm not going to make friends,' and yeah, she's not going to understand what the people are saying. (B child, time 3)*

An additional explanation was also provided by this control child. The child's observation highlights the potential nervousness arising from the new child's lack of familiarity with the other students. The presence of unknown faces can contribute to feelings of apprehension and uncertainty. The child further acknowledges the possibility of encountering bullies, which can add to the new child's apprehension about the social dynamics of the school.

> *"Probably a bit nervous, there would be a lot of children. He would actually not know any of the children, and they would be quite nervous because he's never met them before, and he doesn't know what kind of people there are. And especially bullies that can make him a bit nervous if he knows that there are bullies there or if he finds out. And he might also be scared of bullies" (B child, time 3)*

By highlighting the importance of forming connections and fitting in, the above three responses citing the need to make new friends stresses the significance of a supportive and inclusive school environment. It indicates their awareness that fostering a sense of belonging and friendship can alleviate the nervousness experienced by the new child, ultimately contributing to a smoother transition and integration into the school community.

The following responses highlight the children's personal experiences of feeling nervous when they themselves arrived in a new country and started at a new school. These personal anecdotes provide a relatable perspective and demonstrate their ability to empathise with the potential nervousness of the new child moving to England. This statement reflects the child's own experience of feeling nervous upon arriving in a new country and starting school. They emphasise that the nervousness persisted until they learned to speak English, indicating the language barrier as a significant factor contributing to their initial apprehension.

"I was nervous when I came here. I felt nervous from when I started school, and then when I learned English, I started speaking." (A child, time 3)

The two children below draw parallels between their own experiences of being nervous on their first day of school after moving to a new country and the potential nervousness the new child may feel. This indicates a personal connection and understanding of the emotional challenges associated with starting afresh in an unfamiliar environment.

"I think she'll probably be like a little bit nervous 'cause I was nervous, I was nervous on my first day of school 'cause I moved as soon like, I moved like when I got here." (A child, time 3)

She might be nervous at first and also, she might have butterflies in her tummy because the first time which I came back to year 5, I was nervous and also, I had butterflies in my tummy. (A child, time 3)

These personal experiences shared by the children demonstrate their ability to empathise and relate to the potential nervousness of the new child. Their own encounters with new school environments and language barriers enable them to understand the challenges and uncertainties the new child may face. By sharing their own stories, the children convey a sense of empathy and solidarity, creating an atmosphere of support and understanding for the new student.

The responses varied in their level of depth and insight into the new child's emotions. Some children provided detailed explanations, while others offered brief suggestions. The range of depth indicates that the children have different levels of understanding and empathy towards the new child's situation.

Scared

Many children acknowledged that the new child might feel scared about starting school in a different country, irrespective of their group or the time point of data collection. They recognise that the unfamiliarity of the surroundings, people, and routines can evoke fear or apprehension in the new child. Feeling scared was mentioned a total of 67 times across both groups and the three timepoints. As with the category of 'nervous,' some children simply mentioned the word 'scared' without providing further details or explanations for why the new child might feel this way. This is shown in the two responses below.

"Scared, nervous" (B child, time 1)

"She might feel a bit scared" (A child, time 3)

These children's responses, though brief, revealed their empathetic understanding of a potential feeling that the new child might experience. Their ability to identify and acknowledge the new child feeling scared demonstrates their awareness of the challenges and uncertainties associated with starting anew in a different school and country. Some children provided more detailed insights into the specific reasons behind this feeling, and the reasons for feeling scared that were provided map closely onto those provided for feeling nervous such as language barriers and making friends.

The children not only recognised 'scared' as a likely emotion that a new child might experience upon changing their environment, but also linked this feeling to specific aspects of the adjustment process. To illustrate, some of the children in the study recognised that language barriers could be a daunting issue for new students. Their comments highlighted the potential for fear, confusion, and worry that may arise from not being able to communicate effectively or understand the new language. The responses below exemplify these concerns. One child expressed empathy towards a new student by saying,

"He might feel a bit scared 'cause he might not understand what the teacher is saying."
(A child, time 1).

This child's comment underscores a very real fear that a newcomer might experience when confronted with a language barrier. Similarly, another child showed understanding of the newcomer's potential trouble with English, acknowledging,

> *"She'll feel a little scared 'cause she doesn't know anyone, and she doesn't understand anything people say." (A child, time 1).*

This highlights the feeling of isolation that could come from not understanding English. It is not just about language comprehension; self-doubt also factors in. As one child expressed,

> *"I think she might feel scared because she might not know English and she might not think she's very good at the language so she might feel scared and nervous." (B child, time 1).*

The fear here is not only about communication but also the newcomer's self-perception about their language skills. The fear associated with a new language was simply put by another child as

> *"A bit scared as well, as it's a whole other language." (B child, time 2).*

This succinctly sums up the overarching fear of encountering an entirely different language.

Another provided reason for feeling scared came from changes in the environment. Environmental changes can provoke a sense of unease, especially in children. The children in the current study were able to identify these factors as potential causes for the hypothetical new child to feel 'scared.' One young girl displayed a keen awareness of these fears, commenting,

> *"Scared 'cause it's going to be a brand-new school for him" (A child, time 1).*

Her insight succinctly captures the fear and uncertainty that can arise from the prospect of starting in a new and unfamiliar school environment. Another child drew upon their own personal experience of starting a new school, expressing,

> *"I was really scared when I started a new school, it might just be starting a new school I guess and going to a whole new country that he's never been before" (A child, time 1).*

This statement not only reveals an understanding of the fears a new child might face, but also demonstrates an ability to empathise based on personal experiences. This ability was also demonstrated by several children, as exemplified in this response from a YI child.

> *"Well if I were to be starting a new school, I'd probably be really scared and nervous, like will people like me, I won't know anyone, and I would just be stressing the whole time while I'm waiting to start school." (A child, time 3)*

Recognising that moving schools could be equivalent to moving countries, another child also empathetically stated.

> *"He might feel nervous or scared because that's probably how I would feel if I was moving countries or moving schools." (A child, time 2)*

Adjustment to a new environment encompasses more than just new surroundings; it also includes adapting to new peers. Children demonstrated understanding of the importance of social connections in a school environment, and their responses indicated a sensitivity to the potential fear associated with making new friends or fitting into a new social environment. A thoughtful observation was made by a child who said,

> *"She might feel a little bit scared 'cause she's new and normally when people are new, they don't really have friends so they have to get friends and try and fit in." (A child, time 2).*

This statement showed a child's understanding of the complexities of establishing new friendships. Another participant was very straightforward in their assessment of the social challenge, saying,

> *"He might feel scared because he doesn't know anybody there." (B child, time 2).*

It is clear that the child can empathise with the fear and uncertainty that comes with being alone in a new environment. A different child combined the reasons of a language barrier and social integration as reasons for the new child feeling scared.

> *"He might not make any friends just because he might speak a different language." (B*
> *child, time 2).*

This statement highlights an understanding of the intersections between language barriers and social integration. Bullying is a significant concern that can induce fear in children, particularly those joining a new environment. The children in the current study recognised this fear as a potential challenge for the hypothetical new child, with several voicing concerns about the potential for bullying to occur. One child expressed the fear that the new child might be bullied because of their nationality, stating,

> *"Maybe quite scared because people may bully her 'cause she's from a different*
> *country." (A child, time 1)*

This response illustrates the child's awareness of the possible prejudices that the new student might face due to their foreign origin. The fear of bullying on the first day was also highlighted by another child, who said,

> *"And she might feel scared because what if she gets bullied on her first day of school?"*
> *(B child, time 3).*

This response shows the child's understanding of the immediate fear a new child may face as they step into an unfamiliar environment. Another participant conveyed a more general fear of being tormented or bullied at school, saying,

> *"Maybe a bit scared, you don't want to be tormented or anything at school, bullied."*
> *(B child, time 3).*

This response demonstrated the child's empathy and their recognition of bullying as a potential source of fear for any new student.

Excited

The children in this study identified 'excitement' as one of the main emotions that the hypothetical new child might experience when transitioning to a new school. While many children simply stated the word 'excited', some children offered deeper insights into the potential sources of this emotion, and highlighted the opportunities that such a change could bring. The anticipation of

making new friends was seen as a significant contributor to this excitement. For instance, one child said,

"She might be feeling excited to meet new people and make new friends." (A child, time 1)

Their comment underscores an understanding that the opportunity to establish new relationships and expand one's social circle can be an exciting aspect of a new school experience. New environments can also stir feelings of excitement due to the sheer novelty and the promise of unfamiliar experiences. This idea was encapsulated in a child's remark,

"A bit excited to see all the new things." (A child, time 3)

Their observation suggests an appreciation for the thrill that comes from exploring uncharted territories, echoing the curiosity inherent in children's nature. Children also associated excitement with play and camaraderie. As one child pointed out, the new child could be,

"Excited because he can play with new friends." (B child, time 2)

This statement reflects an understanding that play and shared activities offer opportunities for bonding and can therefore generate a sense of excitement about entering a new social environment. The prospect of a fresh start at a new school was also identified as a potential source of excitement.

"He even might feel excited to go to a different school." (A child, time 2)

This perspective demonstrates recognition that novelty, in itself, can bring about excitement and anticipation for new beginnings and experiences. The excitement associated with learning, especially in areas as fundamental as language acquisition and making new friends, was highlighted by one child as shown in the response below.

"Excited to make new friends and [learn a new] language and learn a lot of new things." (B child, time 3)

Their comment implies an understanding that a new school offers a wealth of learning opportunities that can spark excitement. The final response highlights the resilience children recognise in the face of change. One participant captured this understanding of emotional transition when they said,

> *"She would definitely feel scared and nervous but then after a while she would get used to it." (A child, time 3).*

In this comment, the child not only acknowledges the initial emotions of fear and nervousness that a newcomer might feel but also conveys the understanding that these feelings are not permanent. With time, they recognise, the unfamiliar becomes familiar, and the initial discomfort can subside, giving way to a sense of normality and comfort. This statement illustrates a mature understanding of emotional adaptability and the inherent capacity to adjust to new situations.

The children in this study showed a sophisticated understanding that a newcomer's experience in transitioning to a new school is likely not defined by a single emotion. Instead, they recognised that it would probably be a blend of various emotions all coexisting in the newcomer's emotional landscape. These insightful perspectives reveal their depth of emotional comprehension, marking their empathetic ability to grasp the complexity of the newcomer's emotional journey. In providing a comprehensive list of feelings, one child said:

> *"Worried, scared, happy, joyful, terrified, nervous." (A child, time 3).*

These emotions range from negative (worried, scared, terrified, nervous) to positive (happy, joyful), reflecting the understanding that the transition experience can be emotionally complex, filled with ups and downs. This range of emotions vividly illustrates the potential highs and lows that a newcomer might experience while adjusting to a new environment. Another child provided an extensive and diverse list of feelings that a newcomer might face:

> *"She might feel confident, she might feel scared, confused, worried, sad, she might feel sick. Sick because she's sick of meeting new people, she's worried, she's confused." (A child, time 2).*

This child's reflections suggest a deep understanding of the range of emotions - from confidence to confusion, worry, sadness, and even feeling 'sick' - that a newcomer could potentially experience in a new environment. The diverse list of emotions the child articulates serves to highlight the emotional

whirlwind a new student might go through in the process of adjusting to a new school, new people, and an unfamiliar setting. In contrast, some responses did not merely catalogue a list of emotions. Rather, the child took it a step further by intertwining these feelings with a personal narrative, offering a rich and authentic insight into the emotional landscape of a newcomer. One child offered a particularly poignant insight into the range of emotions experienced when transitioning to a new school and country, remarking,

"Nervous, sad, amazed, excited, every feeling you could ever think of. I was nervous when I came here. I felt nervous from when I started school and then when I learned English, I started speaking." (A child, time 3).

By recalling their own experiences and feelings when they started school and learned English, the child presents an empathetic understanding of the complex emotions a new student might encounter. Their comment reflects the multifaceted emotional journey that such a transition can entail, from nervousness and sadness to amazement and excitement.

Emotional Awareness: Understanding the New Child's Feelings – Discussion

In synthesising the children's responses, they display a deep understanding of the varied emotions a newcomer might face. Their ability to identify and express both the challenging and uplifting feelings that accompany a transition to a new environment highlights their capacity for empathy and comprehension of the complexity of such a scenario. They articulate the fears, excitement, curiosity, and nervousness the newcomer might experience, indicating their sensitivity to these experiences. These responses demonstrate the children's embodiment of the metacognitive aspects of intercultural competence as theorised by Earley and Ang (2003). The children demonstrated cognitive understanding by recognising the challenges a newcomer faces, from language barriers to adapting to a new environment. They also exhibited emotional intelligence in their acknowledgment of the complex array of feelings a newcomer might grapple with, from fear to excitement. The recognition of a range of emotions experienced by the newcomer aligns with 'emotional intelligence' in Early and Ang's (2003) model. They have the capacity to empathise with the emotional journey of a newcomer. This emotional intelligence is also linked to the higher stages of the DMIS model by Bennett (2017) where acceptance and integration of differences are valued and is also reflected in the later stages of Bennet's DMIS model, where recognising the changes and challenges in a new environment is key for developing intercultural sensitivity.

Moreover, metacognitive cultural intelligence also taps into empathy, which involves recognising and understanding others' emotions and perspectives. In light of the focus on empathy,

the children's predictions can be viewed through the lens of Hoffman's (1984) four stages of empathy. The children's wide range of predicted emotions could reflect the different stages of empathy as described by Hoffman as the array of emotions given suggest that the children are moving beyond a solely self-focused perspective, to considering Lin's unique perspective and emotions. The children's ability to express these sentiments reveals an inherent motivation and emotional commitment to understanding others' experiences. Furthermore, their sensitivity towards cultural differences and empathy towards the newcomer's experiences show their potential readiness to contribute to an inclusive, multicultural environment. Santos et al. (2014) found that after their intervention program to increase intercultural competence, the children had enhanced empathy for others. Although the children in the current study displayed empathy for the new child, it is unclear whether this was enhanced because of the YI training as this empathy was present at time 1 before the YI training.

In conclusion, this study reveals that children, through their empathetic understanding and expression of a newcomer's potential experiences, possess a fundamental level of intercultural competence. This recognition is vital as it signifies the potential for children to play an instrumental role in nurturing an inclusive and empathetic classroom and school environment. As a result, their insights could be utilised to inform strategies aimed at supporting children during such transitions. Implementing training programs like the YI program in schools can potentially benefit children's intercultural competence, particularly for those who receive the training. By equipping children with enhanced empathic understanding, such programs can foster a more supportive, empathic, and inclusive school culture, benefiting not only the trained children but also the wider school community. The study also underscores the importance of addressing intercultural competence in children, particularly during periods of cultural transition and adaptation. Educators and practitioners can use the insights gained from this study to better support the emotional well-being of children from diverse cultural backgrounds as they integrate into new environments. These findings should be used as a starting point for further research, which is warranted to explore the underlying mechanisms and long-term effects of intercultural training programs.

5.4.4 Theme 4 - Fostering a Supportive Environment

What could you do to show Lin you know things are different? And to help her?

This theme revolves around the participants' recognition and commitment to creating a supportive and inclusive environment for individuals from diverse cultural backgrounds. It evaluated the behavioural dimension of cultural intelligence Earley and Ang (2003). It highlights the participants' willingness to extend kindness, compassion, and assistance to ensure a welcoming and nurturing atmosphere for new pupils. Demonstrating behavioural cultural intelligence involves taking actions to show support, and empathy, towards the new child. Within the theme of 'Fostering a Supportive

Environment', 10 codes were initially identified that resulted in 9 final categories capturing the methods of helping, which were frequently mentioned by the children: Show them around the school, help with English language, be their friend, play with them, introduce them to people, make them feel welcome, help them in general, don't know what to do and non-verbal communication. Table 3.9 displays the frequency with which the different categories appeared in the data for this question separated into the A and B groups for each timepoint, with example quotations from the participants.

Table 5.9 Categories and quotations for 'Fostering a Supportive Environment'

Category	Time 1 Frequency (A) YI	Time 1 Frequency (B) non-YI	Time 2 Frequency (A) YI	Time 2 Frequency (B) non-YI	Time 3 Frequency (A) YI	Time 3 Frequency (B) non-YI	Example quotations
Show them around the school	13	10	7	13	15	14	"Give him a little tour around the school and show him where everything is." (A time 1) "We can show him because in his school there might not be a dinner hall, but in our school, there is a dinner hall. We could show him around our school and that might help him because then he knows where to go "(B time 1)
Help with English language	8	10	6	8	11	11	"Help him in some questions if he's stuck and if he's another language then I could just get an iPad and translate." (A time 2). "Help him a little bit with the language." (B time 3)
Be their friend	8	2	4	5	5	5	"You could be friends with them, so they don't feel lonely." (B time 2) "I might make her by my friend" (A time 3)
Play with them	2	5	2	3	3	3	"I would ask him to play with us because I wouldn't like to just leave him alone" (A time 1) "I would make sure I always play with her make sure she knows she has a friend near her" (B time 2)
Introduce them to people	3	1	1	1	2	3	"I'll first introduce her to everyone." (A time 1) "And introduce him to people." (B time 3) "I would show him all my friends." (A time 2)
Make them feel welcome	3	0	2	0	1	0	"Try and make him feel like welcomed" (A time 2) "Make er feel part of the community... Yeah, just make her feel welcome." (A time 1)
Help them in general	5	2	4	2	3	5	"Just like help him do stuff." (A time 1) "Help him with something he needs help with." (B time 3)
Don't know what to do.	0	3	0	2	0	0	"I'm not sure." (B time 1) "What I could do is, I don't know actually." (B time 2) "I would tell him that, I don't know." (A time 1)
Non-verbal communication	NA	NA	5	NA	8	NA	"In school we have these lanyards, and they show like, what is it, so like a hand to tell them to stop or like something like lunch so like it's lunchtime." (A child time 3)

Fostering a Supportive Environment - Findings

The children in both groups were able to identify potential ways to support the new child starting school in England. The three categories with the highest mentions were showing the new child around the school, helping the new child with English, and being the new child's friend. In general, the patterns of responses and their frequencies did not reveal significant disparities across different demographics, whether we consider the groups (children who were part of the YI program versus those who were not), or when looking at gender, age, and language status differences for the whole sample. Nonetheless, the data are sufficiently nuanced to warrant further investigation and discussion.

Fostering a Supportive Environment - Group differences

Both Group A and Group B provided responses in several categories indicating a shared understanding of the importance of engaging newcomers in social activities and aiding them in language and navigation around the school. Both groups showed similar frequencies in the ideas suggested over the three timepoints, with only a handful of distinct differences existing. A few children from Group A mentioned 'Make them feel welcome' across all time points. This indicates Group A's focus on emotional support for social inclusion, a strategy that was not mentioned at all by Group B. This cannot however be attributed to the YI training as this was present at time 1. At time 1 only, the category of 'be their friend' was more prevalent in group A. At times 1 and 2, group B were unable to provide a strategy to help the new child and reported 'don't know', where no group A children said this at any time point. Furthermore, Group A's responses were unique in the 'Non-verbal communication' category at Times 2 and 3, reflecting their exposure to the YI training that Group B did not receive. Generally, there was notable overlap in the strategies proposed by the two groups, indicating a shared basic understanding of social inclusion. The differences point to divergences in their experiences and influences, with Group A's responses suggesting a slightly broader array of strategies post YI training and a greater focus on emotional support, as indicated by the frequencies in table 5.9.

Fostering a Supportive Environment - Differences Over Time

Data analysis led to the identification of several trends across different demographic groups over time. A key observation is the increased prominence of helping with English between times 1 and 3. Contrastingly, there was a decrease in emphasis on social connections over time, with categories such as 'Be their friend' and 'Play with them' displaying a diminished frequency. This decrease might reflect a potential transition from the social to more pragmatic dimensions of aid provided to newcomers and be an indicator of the children's evolving comprehension that practical support may prove more beneficial to new students adjusting to their new environment. This shift in thinking could be attributed to the influence of the multicultural school environment, where the children regularly

interacted with peers from diverse cultural backgrounds, as well as the YI training for group A, which likely nurtured their intercultural competence and understanding of practical support for newcomers.

The implementation of the YI training program between the first- and second-time points appears to have influenced the progression of ideas for the YI children in at times 2 and 3. There were distinct shifts in Group A's approach to supporting newcomers during Time 2 and Time 3, which closely align with the principles and methods taught during the YI training. In particular, the children began to discuss and advocate for non-verbal supportive strategies that were emphasised during the YI training, such as the use of actions, sign language, body language, and pictures to facilitate communication. This marked shift suggests that the YI training was effective in enhancing the children's understanding of non-verbal communication methods, and in instilling a greater awareness of the need to overcome language barriers. The notable increase in the emphasis on 'Help with English language' from Time 1 to Time 3 reflects this change. This is discussed in further detail under the category of 'Ideas from YI training.'

Fostering a Supportive Environment - Impact of Multilingualism

When comparing the monolingual (ML) and bi/multilingual (BL) children in the sample across the three time intervals, several differences emerge. Firstly, BL participants emphasised the need to 'Help with English' more than their ML counterparts at times 1 and 2. This could suggest an understanding based on their own experiences of multilingualism, making them more sensitive to language-related challenges faced by newcomers. Another discernible trend is the varying emphasis on social support strategies such as 'Be their friend' and 'Play with them.' While ML participants appear to increase their focus on these strategies over time, especially from Time 2 to Time 3, BL participants show a relative decrease in these categories. This could reflect shifting perceptions of social support, with ML participants gravitating towards informal social interactions as a form of assistance. Moreover, the data indicates a growing importance placed by BL participants on familiarising newcomers with their surroundings, as suggested by the increased emphasis on 'Show them around.' This trend is less prominent among ML participants, who maintained a relatively steady emphasis on this strategy. These patterns suggest that language proficiency backgrounds might shape participants' perceptions and strategies for supporting newcomers. Bilinguals, possibly drawing from their personal experiences of language learning and cultural navigation, tend to prioritise more practical, language-focused methods of support. Conversely, monolinguals, whilst still recognising the importance of practical assistance, seem to lean towards social and environmental familiarisation strategies over time. This difference in approach could be attributed to the potential advantage of bilinguals' metalinguistic awareness, fostering greater empathy, and understanding of the language learning journeys for new arrivals.

Fostering a Supportive Environment - Gender Differences

The data across three time points demonstrate that males and females share a common understanding of many essential strategies to support newcomers, but some unique gender tendencies also emerged in their perceptions of providing a supportive environment. Female respondents show a consistent emphasis on 'Help with English,' indicating a preference for direct, practical support strategies. In contrast, male respondents initially place more weight on strategies that focus on social interaction, such as 'Be their friend' and 'Play with them.' This might suggest that males, at this stage, perceive social engagement as a vital aspect of helping newcomers acclimate to their new environment. However, at Time 2, a significant shift occurs. Males maintain their focus on the strategies that they mentioned at time 1, but also reported they would help by making the new child feel welcome. This may imply a growing understanding among males of the emotional aspect of adjustment, seeing the value of creating a welcoming environment for newcomers and perhaps was an impact of the YI training, although it is not a specific strategy taught in the training per se. The category 'non-verbal communication' shows an interesting contrast. Females introduce such ideas at the second time point while males have no mention of them at this stage. This could suggest that females may be more quickly influenced by the formal training. Still, it is important to note that by Time 3, males also reported using ideas from the YIS training, even exceeding the females in the number of responses. This may indicate a delayed but strong assimilation of the training ideas among the males. These nuanced differences indicate that while there is a shared understanding of how to support newcomers across genders, certain strategies resonate differently with males and females. Eisenberg et al. (2006) argues that girls exhibit more prosocial behaviour than boys and whilst this study cannot confirm this as the frequency of helping behaviour was not consistently reported by the YI children, it can be said that both genders had ideas for prosocial behaviour, with minimal differences in the number of ideas. These findings highlight the need to account for gender-specific preferences when developing training or interventions designed to foster a supportive environment for newcomers.

Fostering a Supportive Environment - Age differences

Although no major differences emerged in the strategies chosen by different age groups to support newcomers, subtle variations highlight their unique perspectives. The younger children in the whole sample, particularly the 8-year-olds at Time 1, sometimes reported 'Don't know', indicating less certainty in their approaches. As children age, an increased emphasis on 'Help with English' became apparent, suggesting their growing awareness of linguistic challenges faced by newcomers. The application of 'non-verbal communication' was more pronounced in the older children in group A, hinting at a better retention and understanding of formal instruction with age. The strategy of showing

newcomers around the school held consistent importance for all ages, though 10-year-olds most frequently cited it, possibly revealing their more profound appreciation of the school environment. However, despite these minor differences, a shared understanding of the importance of friendliness, language assistance, and school familiarisation cuts across all ages in supporting newcomers.

Fostering a Supportive Environment - categories

Show them around the school

As can be seen in table 5.9, the most frequent category from the students was the idea of helping the newcomer acclimate to the new environment by 'showing them around' the school. From the younger to the older students, there was an inherent understanding that familiarising a newcomer with the physical layout and the workings of the school would be helpful to the new child. This category remained consistent across all time periods and demographic groups. The response below suggests a practical and comprehensive approach where the helper plans not just to give a physical tour of the school, but also to explain the daily routines, practices, and expectations - giving the newcomer a sense of what a typical school day looks like.

> *"Well, I would first show her around the school, and I would show her what type of classes we do and everything that we usually do and stuff like that." (A child, time 1)*

In this response, the student demonstrates empathy by considering the language barrier that the new student might face and offers a practical solution by providing a written map in the newcomer's native language to assist in navigating and understanding of the school layout.

> *"I would draw a small map of the hallway, so he knows where his room is and everything, but write it in Chinese using Google Translate." (B child, time 1)*

In another response, the child's capacity to use empathy to guide their actions was evident. The child expressed an understanding of the need for emotional support in addition to physical orientation around the school.

> *"I'll show her that it has lots of the same items, maybe whiteboards and other items she had at her old school, but I would also tell her that things might be different but inside its all the same. (B child, time 2)*

One child's response was particularly striking, as it displayed an empathetic understanding of the need to integrate the newcomer's past experiences into their new environment.

"I'll try to show him what we do in Leeds and what is new in our school, and I would probably ask him 'what's different to your school from our school?' and then try to show him around." (A child, time 3)

This response not only highlights practical support but underscores the significance of social and cultural adaptation, mirroring the competencies and understanding they cultivated through their YI experience. The child's curiosity about the disparities between the newcomer's old school and their current one implies a wish to form a connection between the two different cultures, a characteristic that the YI training promotes. The student demonstrates a readiness to not only guide the newcomer around the school but also display an interest in their past experiences - a fundamental facet of empathy and intercultural understanding.

In conclusion, fostering a supportive environment for newcomers appears to be a shared value among the children in this study with the responses demonstrating the children's understanding of the importance of helping newcomers acclimate to the environment. Both A and B groups displayed readiness to support and connect with new students, fostering a sense of belonging and understanding. The multicultural school setting and the children's experiences with diversity likely played a role in nurturing their intercultural competence. The impact of YI training on the A group's deeper responses at times 2 and 3 remains noteworthy, suggesting that the YI scheme is successful in equipping pupils to become empathetic mentors and friends to newcomers, fulfilling its primary aims.

Help them with English language

Another prominent category was the children stating that they would help the new child with English, which remained consistent across all time points and demographic groups. Their suggestions demonstrated a clear understanding of the potential language barriers these newcomers might face, along with a willingness to help them navigate these challenges. In a show of commitment and sensitivity to the newcomer's struggle with a new language, one child's response offered to work on specific, everyday English words, which shows an understanding of the importance of starting with basic, everyday vocabulary, which will likely be immediately useful for the newcomer.

"I may try to help her with some English, like some like normal like English like school words like "hello," "whiteboard," "rubber" things like that." (A child, time 1)

Similarly, another child also offered the same strategy by proposing a translation of common words from the newcomer's language to English, but also adding the importance of pronunciation in the language-learning process.

"First of all, translate some of the main words that we do use, from African to English to try and help him pronounce them." (B child, time 1)

Another strategy mentioned several times was to make use of their bilingualism to ease the newcomer's transition into the new English language environment. These students' willingness to use their own bilingual abilities for the benefit of the newcomer demonstrates empathy and understanding, as shown in the two responses below.

"I could help them with English because we will both be Latvian, and I could speak to them in my language and tell them what everybody is saying and translate it for them." (B child, time 1)

"Maybe if I know how to speak their language, I could translate for him." (A child, time 3)

The proposed method of translating words from the new child's home language to English could provide a comfort zone for the newcomer, and possibly expedite their learning process. Several children also said that if they did not share a language with the new child, then they would employ the use of technology to assist them. This strategy is demonstrated in the two example responses below.

"I probably need to use Google Translate. So, I would just need to type something in English, and so when it goes to Chinese, I will make it so it says it, so it's kind of text to speech. And he will understand what it's saying at least." (B child, time 1)

"Help him in some questions if he's stuck and if he's another language then I could just get an iPad and translate." (B child, time 3)

The children here highlight the potential of technology, specifically translation apps, as a tool for overcoming language barriers. This suggestion not only exhibits the student's resourcefulness but also

reflects their awareness and acceptance of the technological resources available to aid communication.

Be their friend

This category represented a heartening reflection of children's understanding of the universal human need for companionship and emotional support, particularly during periods of significant change such as integrating into a new school and community. The children in both groups recognised that forging friendships could provide a sense of comfort, security, and belonging for newcomers. Their understanding of the importance of social connections and their innate empathy underscores their readiness to establish a nurturing and accepting environment. While many of the children's responses highlight the basic but fundamental aspect of offering friendship, there are some with more depth. In this response, the student proposes an immediate and uncomplicated solution - offering friendship as a means of support and comfort.

"I could offer to be her friend and try." (A child, time 1)

This response showed a deeper awareness of the emotional struggles potentially faced by newcomers and proposes friendship as a method to mitigate feelings of isolation.

"You could be friends with them, so they don't feel lonely." (B child, time 2)

Demonstrating a compassionate and inclusive mindset, the child's response below reflects their willingness to share their existing social circle with the newcomer, displaying a more group-oriented approach. By introducing the newcomer to their friends, the student aims to create a sense of belonging and foster new connections.

"I'll show him every single one of my friends so he can become one of us and be our friends." (A child, time 1)

The children's responses in the 'Be their friend' category revealed their genuine understanding of the importance of friendship in welcoming new students, aligning well with the ethos of the YI training. Their display of empathy, willingness to support during challenging transitions, and readiness to share their social circle with newcomers, all echo the fundamental goals of the YI training. These children's inherent aptitudes could be further honed through YI training, enhancing the welcoming atmosphere in schools, and fostering more positive learning experiences for all students.

Non-verbal communication

By Times 2 and 3, a distinct category of non-verbal communication strategies for supporting a new child emerged amongst the YI children. These strategies were explicitly introduced during the YI training. The frequency of strategies exclusively from the YI training was, however, small. This lower frequency does not reflect a limited impact of YI training; instead, it underscores the natural alignment between the training's content and the children's intuitive approaches already employed at Time 1. These shared strategies indicate that the children were already intuitively using many of the support methods reinforced in the YI training.

No child in the control group proposed any non-verbal communication strategy to support a new pupil at any time point. This complete absence is particularly notable, given that both YI and control children share the same multicultural school environment. The lack of non-verbal strategies among the control group might primarily be attributed to the absence of formal instruction, as provided in the YI training, which equips children to recognise and utilise non-verbal cues effectively. It is less likely to be a consequence of inadequate exposure to multicultural contexts or peers with language barriers, given their shared environment. This observation emphasises the pivotal role of structured programmes like the YI training. Such programmes not only impart specific skills like non-verbal communication but also widen the repertoire of strategies children can employ to assist and establish connections with newcomers effectively.

At the second timepoint, immediately following the delivery of the four YI training sessions, the YI children's responses illustrated a pronounced influence of the YI training on their proposed strategies for supporting a new child with EAL. They exhibited an increased use of non-verbal communication methods, such as gestures and drawings, as highlighted by the category 'Ideas from YI training'. One child insightfully suggested the use of actions to facilitate language learning, stating,

> *"I could use actions to help her and whilst I'm using actions, I keep saying what I want to say in English, so she'll pick it up as we go along. I'll be skipping and I'll go 'this is called skipping' so she could pick it up as we go along." (A child, time 2)*

This response emphasises the participant's understanding of the multimodal nature of language acquisition. The willingness to actively engage in supportive behaviours, such as using actions to reinforce English language learning, speaks volumes about the positive impact of the YI training. The participant is seen to take a proactive approach towards creating an inclusive environment for the EAL student. Another child voiced a similar strategy for overcoming language barriers, noting,

> *"Then if you didn't understand the language, you could have done actions and point*
> *at things and draw it." (A child, time 2)*

The child's response here underlines their empathetic understanding of the challenges faced by EAL students. It also showcases the application of learned strategies from the YI training sessions, such as using actions and drawings, to overcome language barriers and help the new student integrate into the school environment. A different participant communicated their willingness to utilise drawings to aid communication, remarking,

> *"To help her I will draw pictures or maybe I will draw a picture to show her how to say*
> *'Hello' so if I say 'Hello' then maybe I know that language and I will speak to her in that*
> *language." (A child, time 2)*

The inclination towards using visual aids, as illustrated in this response, demonstrates the participant's flexibility in communication strategies – a skill highlighted during the YI training. The use of drawings not only aids in language learning but also serves as a medium to initiate and maintain interactions, promoting the social inclusion of the EAL student. Another student proposed the use of body language for communication, stating,

> *"I could use my body language to show them what things are called; what things are*
> *different to them." (A child, time 2)*

The insight provided here speaks to the understanding of the role of non-verbal communication in language learning. By using body language, the child plans to bridge the language gap and provide a supportive learning environment, reflecting the impact of the YI training. The final response was from a YI child who offered to use drawings and handwritten notes in English to bridge the language gap, mentioning,

> *"Maybe like do some actions with my hands, maybe if I don't know how to say the*
> *word properly or stuff like that, or maybe with my body or my face. I would say to her*
> *like, I would ask her if you want to be my friend but if she doesn't know English, so she*
> *doesn't know how to talk English but she likes how to at least read English, I would*
> *write it down on a paper." (A child, time 2)*

This response showcases a range of strategies that the child has learned from the YI training. From using hand gestures and facial expressions to written English, the child is prepared to utilise various forms of communication to support the new EAL student. It demonstrates the child's understanding of the multifaceted nature of communication and empathy towards the new student's experience. The children's responses at Time 2 provide compelling evidence of the immediate impact of the YI training. Children demonstrated an understanding and application of strategies taught during the training sessions, specifically in non-verbal communication methods.

In the final data collection point, Time 3, the insights shared by the children further demonstrated a deepening understanding and proficiency in strategies taught during their training. By this stage, the children had had the opportunity to operate as YIs in their school, and their responses clearly illustrate how the training's influence has extended beyond immediate application and is now becoming integrated into their regular interaction approach with EAL students. The following eight responses for this category at time 3 are discussed below. One child described how they had learned to leverage non-verbal cues, showing a nuanced understanding of communication beyond spoken words:

"I think I should just do sign language or writing in the air the name. I will go ahead and gesture to come to me and then we can show her around the school and everybody and what's gonna happen." (A child, time 3)

This response shows that the YI training had successfully taught the child the importance of non-verbal communication methods, which are particularly useful in situations where there is a language barrier. The concept of using visual aids as a communication bridge was articulated by another child:

"I could, you know those like those keychains that have like, they show like eat, like pictures on them, I could have one of them and to show him with those and I could also like help him around the school." (A child, time 3)

The child's thoughtful approach towards using visual aids indicates that the YI training had been successful in instilling innovative problem-solving skills and fostering creativity in the children. The training's impact on the children's empathy and understanding of language complexity was clearly visible in another child's response:

> *"Like I would be like, say for example 'what's this' a random item I would explain what it is and if they're looking confused at something I will like explain what it is in a more simpler version of English because they might not understand complex English yet." (A child, time 3)*

This extract highlights that the child has understood the importance of patience and simplification in language instruction for EAL students, as taught during the YI training sessions. The significance of making a good first impression and using gestures to aid in understanding were also discussed by one of the children:

> *"Well first you would have to like make a good first impression like smiling and then you might gesture to them to come over here and then you can show them something that they wouldn't understand before and you can help them understand it and you can point to things and say it in the English language." (A child, time 3)*

This response shows a thoughtful application of the training principles, illustrating the training's impact on the children's interpersonal skills. One child showed a clear understanding of the role of an interpreter and how language similarity could be leveraged for better communication:

> *"Like the people who speak like the same language, like interpreters like me, who would help him." (A child, time 3)*

This response shows that the child has internalised the concept of interpretation and is aware of the advantages it offers in communication. The YI training's emphasis on community and collaboration were clearly reflected in another child's response:

> *"Yeah, like telling if anyone knows like the language that he speaks I'll just go get them 'cause we have Young Interpreters so we can just look on the posters and find whoever we need." (A child, time 3)*

This extract shows that the YI training has successfully instilled in the children a sense of community, teamwork, and a collective responsibility towards the EAL students as mentioned the role of the YI's in school. Another child mentioned using school resources like lanyards to aid in communication, reflecting their innovative approach to problem-solving:

"If in school we have these lanyards and they show like, what is it, so like a hand to tell

them to stop or like something like lunch so like it's lunchtime." (A child, time 3)

This suggests that the training not only teaches direct communication techniques but could also encourage creative thinking and problem-solving. Finally, one child discussed the possibility of engaging other students who speak the EAL student's language to assist in communication:

"So, like either write it down on like paper or like show them like the different type of

actions to show them. If there's anybody in here that, as I said, like if there's anybody

in here that speaks Italian they could help her too, I could get them to help her to let

her know what I mean like to tell the person that speaks Italian to tell her, to tell that

person to tell her in Italian so that she knows what I mean." (A child, time 3)

This response showcases the students' sense of teamwork and collective responsibility, a major focus of the YI training. It further proves the effectiveness of the training in instilling these values among the children. At time 3, the YI children demonstrated a growing maturity and an informed approach to supporting children with EAL, embodying the essence of the YIS. Their time functioning as YI's has not only enabled them to effectively utilise the strategies they were taught, but also to adapt these strategies based on their experiences and observations. Their strategies incorporated using simplified English, actions, drawings, and the use of supportive resources such as keychains and lanyards, all practical and empathetic techniques learnt from the YI training. These approaches not only aid in overcoming language barriers but also foster an inclusive and welcoming environment for the newcomers, a testament to the training's success. Moreover, the children displayed an understanding of the broader support systems within the school, including the use of posters and other interpreters. This highlighted their recognition of their role within a larger, collaborative network, indicating the YIS's success in instilling a sense of collective responsibility. In comparison to the initial stages where friendship was considered the primary support mechanism, the children have evolved in their understanding and application of a variety of support strategies. This indicates the lasting and transformative impact of the YIS, providing these children with an adaptable toolkit that significantly enhances their ability to provide effective support for EAL students within their school community.

Fostering a Supportive Environment – Discussion

Research underpinning the importance of interventions like the YIS echoes throughout the findings. The observations affirm a direct impact of structured guidance in nurturing a sense of

inclusivity and responsiveness among children, thereby fostering an environment conducive to newcomer assimilation. For example, in alignment with the findings of Gerlich et al. (2010), the children in the current study developed skills that allowed them to solve problems that arose in intercultural communication. Work by Szuba (2016) found from observing intercultural competence in a Dutch-English bilingual setting that the children demonstrated several verbal communication approaches to aid understanding such as code-switching, body language and actions. This was seen in the current study whereby the children reported that would use their shared language to help a new child, and that they would use their body language and mimes to help to explain concepts.

Drawing parallels with Earley and Ang's (2003) Cultural Intelligence (CQ) Model, the current findings amplify the significance of the behavioural dimension, which underscores the capacity to tailor one's actions in alignment with a given cultural context. This aspect was vividly embodied in the way group A children assimilated the training, modifying their communication tactics and behavioural responses to facilitate the smooth induction of newcomers into the school environment. Individuals exhibiting high behavioural CQ leverage suitable expressive vocabulary and tone, along with appropriate facial expressions, displaying a clear understanding of the cultural nuances (Gudykunst et al., 1988).

Simultaneously, the findings align with Bennett's (1986) intercultural sensitivity model, with the children's responses resonating with the stages of adaptation and integration. In the stage of adaptation, individuals adjust their behaviours and communication styles to resonate with the norms, customs, and expectations of the specific cultural setting. The children's willingness to use non-verbal communication, simplified English, and signs reflect their flexibility, open-mindedness, and willingness to modify their approach to accommodate diverse perspectives. Their behaviours promote meaningful connections, enhance intercultural communication, and demonstrate the effects of YI training. Following adaptation is the integration stage, where individuals adapt their behaviour, embrace diverse viewpoints, and promote inclusivity. Integration signifies a high level of intercultural competence and the ability to thrive in multicultural environments. The children's efforts to integrate both their language and the newcomer's language, as well as using the resources around them, like other interpreters and visual aids, exemplify the integration stage. They bridge cultural gaps and promote inclusivity without losing their cultural identity. While traditionally applied to adults and broader societal interactions, Bennett's (1986) model appears to have profound relevance in the context of a school environment where YI training is implemented. Here, children engage with peers from diverse cultural and linguistic backgrounds, reflecting on the ethos of the YIS.

Upon examining the 'Fostering a Supportive Environment' theme across all three time points, it becomes evident that both the school's supportive ethos and the YI training have played significant

roles in shaping the children's strategies to assist newcomers. Initially, at Time 1, the participants' responses primarily revolved around offering friendship and generic assistance, reflective of the existing supportive environment within the schools. However, as the YI training unfolded, a shift towards more practical, empathetic, and language-specific strategies was observed at Times 2 and 3. These included the use of simplified English, non-verbal cues, and other resources specific to the training, highlighting the training's role in enhancing their supportive capabilities. Furthermore, by Time 3, after having gained experience as YIs, the children demonstrated an enriched set of strategies. This evolution underscores the potent influence of the YI training, suggesting that it served to reinforce and extend the existing school-based supportive ethos, providing the children with a more comprehensive toolbox to support newcomers. This study thus illuminates the children's perceptions and strategies for assisting newcomers, shedding light on the interplay between school-based activities and specific interventions like the YIS. It underscores the transformative impact of such programmes on children's abilities to foster supportive and inclusive environments for EAL students. These findings carry important implications for future interventions and support structures for new international students, reinforcing the significance of training programmes within diverse educational settings. They highlight the vital role of interventions like the YIS in developing these competencies, which forms a critical step towards cultivating more inclusive and culturally intelligent future generations.

5.4.5 Theme 5 - Curiosity about Different Cultures

What would you like to know from the new child about their life in their home country before moving here?

In response to the question the theme titled 'Curiosity about Different Cultures' was used. This theme encapsulated the participants' eagerness and interest in discovering various aspects of the hypothetical new child's life in their home country prior to relocation. Their curiosity about the new child's cultural norms, customs, and experiences demonstrated an open-minded attitude and a desire to broaden their perspectives. Within this theme, 13 codes were identified for this theme that resulted in eight categories capturing the methods of helping, which were frequently mentioned by the children: 'life in general in the home country', 'the child's experiences', 'about school', 'about food', 'about friends', 'about games and leisure activities', and 'about language'.

Table 5.10 displays the frequency of how many times the different codes appeared in the data for question 5 separated into the A and B groups for each timepoint, with example quotations from the participants, before detailed discussion.

Table 5.10 Categories and quotations for 'Curiosity about Different Cultures'

Category	Time 1		Time 2		Time 3		Example quotations
	(A) YI	(B) non-YI	(A) YI	(B) non-YI	(A) YI	(B) non-YI	
Ask about life in general in home country	11	9	16	9	9	12	"How it was like in India. Like how she lived in India." (B time 1) "I would like to know about how is it in Mexico." (A time 3) "His lifestyle." (B time 3)
Ask about specific concepts	11	13	6	8	11	9	"What his favourite colour is. Do you have funfairs?" (A time 1) "If she had any pets and what kind of pets." (A time 2) "How the weather is like? What did she do in Spain? Is the weather awesome?" (B time 3)
Ask about school	3	5	9	8	10	3	"Like how are the schools compared to our schools." (B time 2) "What did she learn there. What lessons do they learn. Do they go to school every day?" (A time 3) "What was it like in the schools, if they do different teaching." (A time 1)
Ask about food	4	5	11	4	6	3	"Maybe what kind of food he ate because maybe French people have different food to us.". (B time 1) "What type of food is there?" (A time 2) "I would like to know like what type of food they used to eat there." (A time 3)
Ask about friends	6	3	1	3	4	9	"Like what kind of friends she had, if she had like any fake friends or if someone was rude to her or someday they bullied her, basically about her friends." (A time 2) "How were your friends and who were your friends at school too." (B time 1)
Ask about games and leisure activities	3	4	6	3	4	5	"What she normally does in her free time." (A time 3) "What did you like to do in your spare time over there?" (B time 2) "What sports does he like." (B time 1)
Ask about language	4	1	3	5	4	3	"Did she speak English there or did she speak Latvian to her parents?" (A time 1) "What language do you speak?" (B time 2) "I would like to know maybe some of her language." (A time 3)

Curiosity about Different Cultures – Findings

The children provided several ideas for what they would like to find out from a new child starting at their school. The three categories with the most frequent mentions, across all time frames, were 'life in general,' 'the child's experiences' and 'school.' These areas of interest remained high irrespective of the child's group, gender, language status, or age. Accompanying these general queries were specific indicating a spontaneous and diverse range of inquiries driven by the children's curiosity about the new child's unique experiences.

Curiosity about Different Cultures - Group differences

Overall, there were not large differences between the two groups at each timepoint in the frequency of mentioning each category. However, there were two differences to note. The YIs exhibited an increased interest in asking about food from Time 2 onwards, while Group B's queries remained relatively steady. This increase could suggest an increasing fascination with culinary aspects of different cultures over the course of the study. YIs demonstrated a preference for asking the new child about their language at time 1, highlighting a perhaps innate curiosity towards linguistic variations, but this reduced at subsequent time points, suggesting a shift in focus in what they wanted to know from the new child. Conversely, Group B showed a somewhat consistent, albeit lower, interest in asking about language across all three times.

Curiosity about Different Cultures - Differences Over Time

When tracking the shifts in over time, an increase in Group A's interest towards school-related questions was evident. This tendency became more pronounced as the time points progressed. The YI children provided several more questions to ask the new child immediately after the YI training as demonstrated by an increased frequency in most categories. Conversely, Group A's focus on friends declined over time while Group B's interest grew over the three time points. These shifting foci reflect the dynamic nature of children's curiosity regardless of YI training.

Curiosity about Different Cultures - Impact of Multilingualism

The monolingual children demonstrated a pronounced interest in inquiring about language across all time points, setting them apart from the bilingual children in this aspect, likely considering it as a pivotal element in understanding a new culture. Their heightened curiosity could be seen as a response to navigating an increasingly multilingual environment in school. As monolingual individuals, they may be more intrigued by unfamiliar languages that they encounter, using these as entry points to learn about new cultures. On the other hand, bilingual children, who are already accustomed to managing linguistic diversity, may not regard language as an exotic aspect of a new culture, resulting in their comparatively reduced interest in language-related inquiries. The growing interest in food—a universal cultural marker—was initially mirrored by both monolingual and bilingual children. Yet, over

time, monolingual children's inquiries became more food-oriented, signifying food's role as a relatable touchpoint when first encountering a different culture. This pattern suggests that culinary traditions offer an appealing and understandable gateway to cultural exploration. The bilingual children were more interested in the new child's leisure activities. This may indicate a propensity among the children to explore shared experiences or common interests, suggesting an avenue through which culture is accessed via daily activities and recreational practices. However, it is important to note that such an approach could be critiqued for its potential reductionism, as it may risk oversimplifying cultural differences to merely food, faith, and festivals, thereby neglecting the complexity and richness of cultural identities. Moreover, bilingual children often posed broader questions about life in general. This comprehensive curiosity indicates an inclination to understand what life was like for the hypothetical new child in a holistic sense, likely stemming from their own experiences navigating multiple cultures. This indicates that ML children might be more curious about everyday aspects of the hypothetical new child's life. This suggests that bilingual children might be more interested in the social aspects and cultural aspects of the hypothetical new child's life. This could point towards bilingual children being more attuned to social nuances and cultural differences.

Curiosity about Different Cultures - Gender Differences

When examining gender differences in the responses some distinct patterns emerged. Boys consistently showed more interest in games and leisure at all time points, pointing towards their inclination towards more practical and tangible topics. Further delineation of these gender differences shows girls starting with a more socially oriented focus, asking about 'friends' and 'family'. As time progressed, they developed a strong interest in academic life ('school') and broader existential inquiries ('life in general'), demonstrating an evolution in their curiosity. Conversely, boys commenced with more practical interests, focusing on 'food' and 'houses'. However, they too exhibited an increased curiosity about 'school' and 'life in general' over time, indicating that despite initial gender differences, common areas of interest emerged as the children matured. These findings highlight the dynamic nature of children's curiosity, with distinct trajectories observed based on gender. Research by Killen et al. (2002) focused on gender differences in 10-year-old children's intercultural awareness. The study discovered that females were more likely to demonstrate interest in understanding other cultures and to pursue cross-cultural friendships. However, the current study diverged from these findings, indicating a high level of curiosity and a propensity to ask insightful questions across both genders.

Curiosity about Different Cultures - Age differences

Observations made over time highlight intriguing age-specific trends in children's inquiries for the new child. Specifically, there was an absence of any language-related queries amongst the youngest, 7-year-old participants, at all timepoints. This may suggest that, at this developmental stage,

children's curiosity is directed towards more tangible, immediate aspects of culture, while more abstract concepts such as language remain less explored. The older children, particularly 10-year-olds, demonstrated a notable surge in their curiosity about school during the second time period. This suggests a possible shift in the children's focus of curiosity towards more societal and institution-based topics. However, it is essential to exercise caution when interpreting these findings, given the relatively short timeframe of the study, which may not be sufficient to definitively establish a trend in their maturing interests.

Curiosity about Different Cultures -Categories

The questions posed by the children to their new peer signified a broad and intersecting interest in various elements of cultural life. Their curiosity was not confined to distinct categories, but rather intertwined multiple domains, reflecting their comprehensive fascination with varied life experiences. Despite identifying common themes, the children's responses showcased a wide array of topics they sought to understand.

Life in general

The responses below embody the children's expansive curiosity about their new peer's life before relocating to England.

What was it like? Was it different? How was it? How did they live? I just like to know cause they're from a different country, it could be a bit different to ours. (A child, time 1)

"How it was like there, how school was, what do you do in your normal life, what do you do in these subjects, what do you play, like playing with your friends what would you play and what did you eat like there?" (A child, time 2)

"I would like to know how was the people? Who was your friends? Did you like your school? I would have lots of questions like What were the festivals there? What did you like to do in your spare time over there? Questions like that." (B child, time 2)

The children's questions about the new child's life in their home country exemplified a genuine and all-encompassing curiosity, irrespective of group affiliation. Their questions often went beyond specific categories, reflecting a broader interest in diverse cultural experiences. This curiosity from both groups demonstrated the children's openness to learning and embracing differences, fostering a welcoming and inclusive environment.

Several children posed highly specific questions to their new peer, aiming to uncover unique and captivating details about life in their home country. The ensuing responses provide a glimpse into the profound curiosity of the children concerning their new classmate's life before their arrival in England.

"I want to know the reason why she and her parents moved away. And what was the reason for coming in this country." (B child, time 1)

"I want to know whether they saw whether they lived near the rainforest or not. If they did live near the jungle, I would want to know if they saw any cool animals." (A child, time 2)

"I'd ask what is there any other types of dog breeds or cat breeds because there are like some dogs were extinct." (A child, time 3)

The children's genuine curiosity in asking about the child's experiences reveals their inquisitive and open-minded nature. Their desire to learn about distinctive elements of the new child's life in their home country demonstrates a deep interest in embracing diversity and broadening their understanding of cultural experiences. These engaging questions exemplify the children's eagerness to connect, share, and celebrate the unique aspects of their fellow classmate's cultural background.

School

In their quest to comprehend the new child's life before moving to England, the children from both groups demonstrated a keen interest in understanding the educational aspects of the new child's home country. This category provided an avenue for the children to inquire about various aspects of schooling, ranging from the physical appearance of schools to differences in teaching methods and curriculum. Through these questions, the children sought to gain insights into the educational experiences and learning techniques that may differ from their own, showcasing their enthusiasm to embrace diversity and expand their knowledge about other cultures.

"I'd like to know more about his school life. What subjects he learned, what's his favourite subject?" (B child, time 1)

"How the schools looked and what he already learnt there and maybe he might have learnt some different stuff and different learning techniques that we could use here."
(B child, time 2)

"What did she learn there. What lessons do they learn. Do they go to school every day." (A child, time 3)

The children's curiosity about the new child's schooling experiences in their home country was evident through their thoughtful inquiries. They delved into various aspects of the school environment, curriculum, and teaching methods, seeking to understand the similarities and differences with their own educational experiences. These questions not only reflect the children's eagerness to know more about their classmate's cultural background but also demonstrate their genuine interest in fostering a sense of connection and understanding across diverse educational settings.

Curiosity about Different Cultures – Discussion

In relation to the central research question concerning the influence of YI training on intercultural competence, the findings offer a direct contribution, the findings of this study provide a unique glimpse into children's curiosity about different cultures, highlighting a broad and encompassing interest in their peer. Children demonstrated consistent curiosity about the everyday life, food, and schooling experiences of a hypothetical new child at their school, thus confirming the role of children's innate curiosity as a driving force for understanding and accepting cultural diversity. By gathering children's first-hand perspectives, this study expands the existing literature on the development of children's intercultural awareness, thus addressing a significant research gap.

In the current study, the YI-trained children differentiated themselves from the control group by exhibiting an increased frequency of questions across most categories immediately following the YI training. This aligns with the intent of the YIS, implying that structured intercultural initiatives like these can effectively foster an environment that enhances children's curiosity and appreciation for cultural diversity. This comprehensive interest aligns with findings from an intervention study conducted by Santos et al. (2014), in which an increased curiosity about different cultures was observed following the intervention to increase intercultural competence. This increase in curiosity was particularly observed in the context of food, perhaps pointing towards food's unique role as a universally relatable touchpoint for first encountering a different culture. The evidence from this research suggests that such broad curiosity sets the stage for the acceptance of diversity, cultivation of understanding, and advancement of a culturally inclusive environment. Initiatives like the YI training may play a pivotal

role in this process by fostering an environment that nurtures children's curiosity and appreciation for cultural diversity.

The scope and depth of questions asked by children in the current study echo this heightened curiosity and underscore the pivotal role that educators play in fostering such inherent interest. In accordance with Bennett's (2017) stages of intercultural sensitivity, the results suggest that children in the current study are in the acceptance stage, as they actively sought to understand cultural nuances. Findings from this study contribute to the understanding of the role metacognition plays in Cultural Intelligence (CQ). Flavell (1979) posited that individuals use metacognitive strategies for the acquisition and understanding of cultural information. The children's detailed inquiries about unique aspects of their new peer's background in the current study could be seen as indicative of such metacognitive processes.

The specific and general inquiries posed by these children underscore their eagerness to understand and accept differences, thus fostering an inclusive environment from an early age. They demonstrated an ability to interconnect questions from various categories in a pursuit to construct a comprehensive understanding of the new peer's life prior to moving to England. Crucially, the questions asked by these children extend beyond mere curiosity; they serve as the foundation for building bridges of understanding and empathy between individuals from diverse backgrounds. Their inquiries encompassed diverse aspects of life, including daily routines, social dynamics, recreational activities, and educational experiences. This widespread and intersecting curiosity underscores a significant inclination towards understanding and empathising with the lived experiences of others, thus illuminating children's inherent capacity for cultural openness and inclusivity.

5.4.6 Theme 6 - Multicultural Connections

Do you know any children from another country? Have you learnt anything from them?

The final question was two-fold in that children were asked whether they knew anyone from another country and if they had learnt anything from them. This question sought to understand children's firsthand experiences and the impact of personal interactions on their cultural understanding. Table 5.11 displays the frequency of how many times the children responded yes and no to knowing a child from another country and also if they identified someone other than a peer. The frequency of reporting learning something from an international peer is also reported. The categories are illustrated by example responses in the table.

Table 5.11 Categories and quotations for 'Multicultural Connections'

Category	Time 1 Frequency		Time 2 Frequency		Time 3 Frequency		Example quotations
	(A) YI	(B) non-YI	(A) YI	(B) non-YI	(A) YI	(B) non-YI	
Yes – peer in school	19	19	18	18	23	22	"I know this guy called Lucas in our class and he's from Spain." (A time 1) "Yes, some of the people in my class are from Slovakia and Poland." (B time 1) "Well, I know a boy named Ohbay, he's moved from like I think it's something like Serbia." (A time 2) "I guess so, my friend comes from Africa, Ghana." (B time 2) "I have a friend Gemma, she's from Romania. And there's also one more, Roda from Italy." (A time 3) "Yes, someone in my class is from Slovakia, Lithuania, one of my friends is from Lithuania." (B time 3)
Someone outside school	3	1	7	4	0	2	"Yeah. So, I know my mum's friend and she's from the street that's near us and she talks French." (A time 1) "My Mum." (B time 1) "I know our neighbours are from Japan I think and some of them are from Pakistan." (A time 2) "My cousins are from Germany." (B time 2) "I have a load of cousins in Bangladesh." (B time 3)
No identification	4	7	1	6	3	4	"No not really." (B time 2) "Not sure." (B time 2) "No." (A time 3) "No, I don't know anyone which is from another country." (A time 3)
Learnt something from peer	4	2	7	8	15	7	"Yes, she teaches me a bit of Spanish every day." (A time 1) "Yeah, I know a lot. I have a friend called Ayaas and he's from Pakistan and his country is famous in cricket and more than half of his country is Muslim." (B time 2)

Multicultural Connections – Findings

Findings indicate a high recognition of acquaintances from different countries across all groups and time points. However, a small subset from both groups failed to identify any cross-cultural friendships. When looking at any variances between the groups, gender, language status or age, several differences were noted.

Multicultural Connections - Group differences

Both groups of children reported similar familiarity with peers from other countries at Times 1 and 2. By Time 2, a larger proportion of the YI group broadened their connections beyond school peers; however, this distinction faded by Time 3. Concurrently, by Time 3, the YI children reported a significant increase in knowing a peer from another country, while an upward trend emerged in the frequency of YI children stating they had learned something from a new peer. These observations collectively suggest that the YI scheme may serve dual roles: initially broadening children's cultural networks beyond the school and subsequently deepening their engagement with international peers, thereby potentially fostering cross-cultural learning experiences.

Multicultural Connections- Differences Over Time

At Time 1, before the YIs training commenced, children in the YI group and Group B demonstrated a similar degree of international connections, indicating a comparable baseline. However, after the YI training had concluded, an interesting pattern emerged. While the immediate post-training results at Time 2 did not show a marked difference in the YI group's recognition of international connections, a significant shift became evident by Time 3, six months after the completion of the training. This suggests that participation in the YIS possibly enhances awareness and interaction with international peers over time. This was a period when the YI children had been actively interacting with their EAL peers in the school environment. The noticeable increase in the YI children's recognition of international connections at Time 3 suggests that the YI program's long-term impact might be more significant when the children have had the chance to practically apply their skills with EAL learners. The hands-on experience of interacting with EAL learners appeared to have deepened their understanding of different cultures and languages and heightened their awareness of international connections. This shift can be attributed to the interplay of theory and practice. By coupling the theoretical understanding gained from the YI training with the practical experience of engaging with EAL peers, the YI children were able to effectively internalise and apply their learning. This potent combination seemed to reinforce their cross-cultural understanding, leading to a more salient recognition of their international connections.

In relation to children being taught something by a new peer from a different cultural background, a considerable increase has been noted over time within Group A, particularly at time 3.

This indicates that the YIS may enhance children's opportunities for cross-cultural learning experiences. The response rate in Group B for this metric, while lower than in Group A, also increased slightly over time.

Finally, the category of 'no identification of cross-cultural friendship' revealed a marked decrease over time in both Group A and Group B, suggesting an increased exposure or understanding of cross-cultural friendships in both groups. The more significant decrease within Group A could again be attributed to the influence of the YIS.

In essence, this data underscores the potential of the YI program in fostering long-lasting cultural awareness and empathy. The enhanced reporting at Time 3 highlights the effectiveness of this approach, particularly when the training is supplemented by real-life interactions with peers from diverse linguistic and cultural backgrounds. It reveals the importance of direct application in strengthening the training imparted by the YI program, offering a path towards fostering global connections and intercultural understanding among children.

Multicultural Connections - Impact of Multilingualism

Despite linguistic differences, ML and BL children showed a comparable level of recognition of their international connections. This suggests that children's awareness and understanding of their global connections may not be solely dependent on their mono or multilingualism. Rather, it seems that other factors, such as environment, experiences, and interactions with diverse cultures, might also play a significant role in shaping their awareness of international connections.

The trend of children acknowledging educational interactions with new peers from different national backgrounds significantly increased in both monolingual and bilingual cohorts. Such a trend may reflect the influence of multilingual environments on fostering cross-cultural learning opportunities, although this interpretation warrants further empirical validation. It indicates that regardless of their language status, children are increasingly experiencing and acknowledging learning instances from their international peers. This underscores the value of multicultural environments in promoting mutual learning and understanding. Considering this data, it appears that the language status does not inhibit children from benefiting from the cultural diversity in their surroundings. Rather, as time progresses, both monolingual and bilingual children are capitalising more on the unique learning opportunities that multicultural interactions can provide.

While the study primarily focuses on the differences between children who were YIs and those who were not, it was observed that within whole sample, bilingual children reported 'no identification of cross-cultural friendship' more frequently than their monolingual counterparts at each time point. This observation is noteworthy because it invites a deeper understanding of cross-cultural dynamics within children. One could initially find this counterintuitive, as bilingual children may be expected to

have a broader range of cross-cultural experiences. Various explanations could account for this finding. For instance, bilingual children might compartmentalise their experiences, failing to recognise some interactions as 'cross-cultural.' Alternatively, they may apply more nuanced criteria for what they consider 'cross-cultural,' leading to fewer reported instances. Moreover, their everyday immersion in multiple languages might make these connections appear unexceptional to them. These subsidiary observations underscore the complexity and subjectivity in children's identification of cross-cultural friendships, enriching our understanding of multicultural dynamics. Consequently, these findings serve as a salient point for future dialogue and reflection, particularly in shaping a more nuanced approach to studying multicultural and linguistic diversity among children.

Multicultural Connections Gender Differences

The data revealed distinct gender-based differences in the acknowledgment of knowing children from other countries. Boys consistently reported knowing a child from another country more often than girls. Throughout three separate observation periods, only one boy, at Time 1, did not mention a peer from another country, instead identifying his mother, which suggests a misunderstanding of the question.

Understanding these gender discrepancies in social dynamics encourages the examination of several potential hypotheses. One hypothesis revolves around the universality of certain forms of play, specifically football, a game that enjoys global recognition and participation. It posits that boys, with their frequent engagement in such shared games in the playground, could have increased opportunities to interact with and establish connections with peers from diverse backgrounds and countries. This theory gains further credence from responses to question 5, where children were asked what they would want to know from a new child. Boys demonstrated a pronounced interest in games and leisure activities compared to girls. This evidence proposes that shared interests in universal activities, such as games, potentially offer boys an effective platform for establishing and acknowledging connections with children from other countries.

An alternative hypothesis proposes that boys may possess a heightened awareness of specific attributes such as race or skin colour, making them more cognisant of the diversity within their social circles. An instance supporting this hypothesis was observed at Time 1 when a boy suggested that 'skin colour' might be different for a new child starting school in England. This suggests that boys might report more cross-cultural connections as they may be more likely to notice and acknowledge physical differences. Conversely, it could be proposed that girls, when establishing social connections, might concentrate more on the individual rather than their origin. This could mean that girls perceive their peers more in terms of their personhood rather than their nationality, possibly leading them to

underreport connections from other countries. However, these are speculations at this stage, and further research is needed to substantiate these propositions.

In terms of being taught something by a new child from a different country, both boys and girls exhibited an increase in this experience over time. However, the increase was notably higher among girls. This pattern suggests that while both genders are benefitting from enriched interactions and learning experiences with peers from diverse cultural backgrounds, girls seem to have experienced a more pronounced increase. This could be due to a variety of factors, including possibly growing comfort levels, increased opportunities for interaction, or potentially differing social dynamics with children from different cultures. This increase in cross-cultural learning experiences for both genders, but particularly for girls, underscores the significant role of peer interactions in fostering multicultural understanding among children. In the context of the YIS, the observed increase in cross-cultural learning experiences for both genders, particularly for girls, underscores the potential effectiveness of such initiatives. The YIS, by design, encourages interaction and understanding between children from different cultural backgrounds. Further research could examine why girls seem to be taking more advantage of these cross-cultural learning experiences and how the YIS could be adjusted to encourage even more interaction across all demographics.

Multicultural Connections - Age differences

When age was taken into consideration, a slight trend emerged indicating an increase in the acknowledgment of knowing children from other countries among the older children in the sample. This aligns with Feddes' (2009) study demonstrating that older children aged 11 years were more likely to form interethnic friendships than younger children aged 7 years. This pattern could reflect the natural expansion of social networks as children grow and mature, leading to an increasing likelihood of interactions with diverse peer groups. In addition, as children age, they may develop a more profound understanding and appreciation of cultural diversity, leading them to be more cognisant of their interactions with children from different countries. Although the overall trend is modest, the progression towards increased acknowledgment of international connections amongst older children provides an intriguing avenue for further exploration, potentially revealing critical insights into the development of children's multicultural awareness and social networks with age. Furthermore, there was a marked shift in the youngest children's reporting of cross-cultural friendships over time. Initially, they had the highest percentages of failing to identify cross-cultural friendships, but this number declined noticeably as they grew older. This trend suggests a gradual understanding and recognition of cross-cultural connections as they mature.

The instances of being taught something by a new child from a different cultural background were also significantly influenced by age. The oldest children exhibited a substantial increase over time,

suggesting that older children might have more opportunities or capacities to learn from their peers of diverse cultures. These age-related trends underscore the significance of developmental factors and maturation in the understanding and formation of multicultural connections. They also highlight the importance of introducing and reinforcing multicultural awareness from early childhood.

Multicultural Connections – categories

In this analysis, the primary focus is on the category 'Learnt something from a peer', which has showed to be the most dynamic and insightful in terms of capturing the nuanced nature of cross-cultural interactions among the children. This category provides an enriched understanding of children's lived experiences, particularly highlighting those instances where learning opportunities arise directly from peers hailing from diverse cultural backgrounds. The remaining categories - 'Yes – peer in school', 'Someone outside school', and 'No identification', while informative, yield relatively straightforward insights. These categories primarily assist in establishing the existence and source of multicultural connections, but do not delve into the intricate dynamics of these connections through the responses that the children provided.

Do you know any children from another country? - Yes

The high frequency of affirmative responses to the query, "Do you know any children from another country?" underscored the multicultural backdrop of the schools in which this study was conducted. Each of these institutions had a substantial proportion of learners who were acquiring English as an additional language, implying that the children were interacting with peers from diverse backgrounds.

Do you know any children from another country? - No

The data collected during this study revealed that a consistent subset of children across groups and time points indicated that they did not know a child from another country. Despite this, the total count declined over time. For Group B, simply participating in this study and contemplating the associated questions might have led to an increased awareness of their social interactions and relationships, resulting in more children acknowledging their cross-cultural friendships over time. For Group A, the YIs' training could have fostered greater cultural understanding and recognition, leading to an increased acknowledgement of cross-cultural connections as time progressed. However, understanding why there remained a consistent subset of children in group A who did not identify any cross-cultural connections, irrespective of their participation in the YIS , is an intriguing question, as is why some group B children did not when they are in a multinational school. This persistent subset suggests that there might be factors at play which are inhibiting the formation of cross-cultural friendships. Further research is warranted to delve deeper into these conjectures and unravel the

precise dynamics and influences at play in the formation and recognition of cross-cultural connections amongst children.

Learnt something from peer

The data indicated that, while a substantial portion of the participants reported knowing a peer from another country, the proportion of those who then reported learning something from these international peers was significantly lower. This pattern emerged across both groups and throughout all three time points. These observations suggest that despite the presence of multicultural environments providing an abundance of opportunities for interaction with multilingual peers, these interactions do not necessarily translate into reported learning experiences; or children do not consciously recognise learning in this way. The factors contributing to this discrepancy certainly merit further exploration. However, it should be reiterated that the YI children did report higher frequencies over the three time-points. For those children who did report learning from their peer, this section explores the cross-cultural learning experiences of children where they gained knowledge in several areas. These areas were typically religion, language, food, and climate in different countries. The following analysis presents the children's responses, highlighting their unique experiences of cross-cultural learning.

Language

The study showed that participants notably learned elements of new languages from their peers, most prominently during the second and third observation periods. However, in the first instance, none of the children reported having learned any words or phrases from their peers' native languages. This experience of learning new languages provided the children an invaluable opportunity to both connect with their peers and expand their linguistic skills. On a similar note, children from group B also reported learning from their peers but failed to provide specific examples of their learning at any time. Many children stated that they learned different words, phrases, and even songs in their friends' native languages and even experiencing humorous moments while attempting to learn and communicate in different languages. Anecdotes from the children highlight their linguistic adventures:

"Yes. She taught me some Spanish 'uno, dos, tres,' and 'hola.'" (A child, time 2)

"Yeah, I have some [children from another country] in my class and there are a lot in
this school. I have learnt a bit of a language because they kind of teach us a little bit."
(B child, time 2)

> *"Yes, Adela told me how to say 'Oh my god!' in her language, and how to say 'Hi' in her language. She speaks like 3 languages, but she told me how to say 'Oh my god!' in Slovakian. Something like [speaks Slovakian] and Ana taught me how to say 'Yes" in her language, 'Si.' She's Portuguese." (A child, time 3)*

> *"Yeah, you know that girl that I said she came from Hong Kong, she's taught me how to like to speak, I only know how to say 'Hi' in traditional Chinese 'nǐ hǎo'." (A child, time 3)*

The data also reveal an understanding of difficulties entailed in language acquisition. The challenges they faced, from navigating the intricacies of Korean to retaining a handful of Italian words, offer a nuanced insight into the layered process of language learning. These specific instances reflect not just an eagerness to embrace new languages, but also highlight the substantial effort and complexity inherent in such a task.

> *"She knows Korean. She taught me how to speak a bit of Korean. Korean is hard. It took a month for me to learn one word." (B child, time 3)*

> *"Yeah, two of my friends, actually no not two, only one of my friends, they moved here from Italy, they only beginning of September as well so. She told me a few words, but I've completely forgotten it, I don't know I just can't remember Italian words." (A child, time 2)*

Through their attempts to learn new languages, the children gained firsthand experience of the complexities and challenges their peers may face when communicating in a non-native language. These experiences may suggest an emerging appreciation for the effort and dedication required to learn and retain a new language. It is possible that such experiences could contribute to fostering empathy and understanding in their diverse peer group, although further investigation would be needed to fully confirm this impact.

Religion

Across all timepoints, six children across the whole sample revealed that they had learned about different religions from their peers. They mentioned gaining insights into the religious practices, beliefs, and traditions of various cultures through interactions with classmates from diverse backgrounds. For instance, gaining knowledge about Hinduism from their peer Ayomi.

> *"I've heard about Ayomi's gods. In her country Hinduism is one of the main religions in Sri Lanka." (A child, time 1)*

Ayomi appears to be quite willing to share her culture with others as another child also referenced her as teaching them something.

> *"Well yeah, a lot of my class and in this school. For an example Ayomi, I learnt something from her like religion. When we do religion, she talks a lot about the thingy we are learning about because she knows about it." (B child, time 1)*

Children also reported learning about the Islamic faith from their peers, as demonstrated by these responses.

> *"I know Muslims. I have a lot of Muslim friends. They taught me about Henna? the God they believe in, no, I think it's Allah, things like that." (B child, time 2)*

> *Most of my friends are actually from another country. I know that my friend Lafiq is Muslim, and I learnt that from his religion…he is not allowed to wear makeup because of his religion. And also, that he can't have pork. And there's like a bunch of other stuff." (B child, time 2)*

The children's responses demonstrate their openness to learning about different faiths and beliefs from their peers of diverse backgrounds. These findings indicate that the multicultural environment in the classroom fosters an environment of sharing and learning, enabling children to gain valuable insights into various religions and cultural practices.

In addition to languages and religions, the children also reported learning about various other aspects of their peers' cultures. Even without specific examples, food was a topic that came up often. The children were interested in the different dishes their peers consumed. One child described their friend from Ghana and the different culinary traditions they were exposed to, stating:

> *"My friend comes from Africa, Ghana. And basically, they have this special dish that they eat with their hands, and that is also spicy. But for kids yeah, if they don't like spice, they make the dish with no spice but a little bit of spice." (B child, Time 2)*

Climate differences also piqued the children's curiosity. They showed interest in the contrasting climates between their country and their peers' home countries, as one child noted:

"She used to say that whenever it snowed it always used to be lots of snow, it wasn't like here where if it snows just like a sprinkle, it used to be up to her knees, it used to be really high snow." (A child, time 1)

Apart from language and food, the children from both groups gained exposure to a diverse range of cultural aspects through their interactions with peers. These included a broad spectrum of experiences, from understanding unique celebrations and festivals to learning about different sports popular in their friends' home countries. Awareness of diverse currencies also presented a unique opportunity for children to grasp economic differences across the globe. Additionally, differences in English vocabulary, particularly between the UK and the US, provided another facet of learning, reinforcing the rich variety within a single language. While these cultural exchanges likely broadened the children's global perspectives, these conclusions are drawn from individual accounts. Even so, it seems plausible to suggest that such peer interactions play a crucial role in fostering a multicultural understanding among children. Additionally, the children are getting a broad exposure to different cultural aspects through their peers, potentially contributing to a greater understanding and appreciation of cultural diversity. However, it would be prudent to remember that these findings are preliminary, and more detailed exploration is needed to better understand the nature and depth of these cultural exchanges among children.

Multicultural Connections – Discussion

The study's findings demonstrate a pronounced recognition of multicultural friendships among the children, aligning closely with the research question concerning the impact of YIS on intercultural competence. Contrary to Volet and Ang's (1998) assertion that children limit their social interactions to culturally similar peers, the children in this study exhibited an understanding and appreciation for cultural diversity within their social circles. This suggests that participation in the YIS may have been instrumental in fostering such a positive outlook on diversity, in accordance with previous research by Hayden and Thompson (1998) and Killen et al. (2002). However, it should be noted that a small subset of children reported no cross-cultural friendships, a pattern which warrants further investigation for a comprehensive understanding of the YIS's efficacy.

The accounts of children being taught by their EAL peers signify an acceptance stage in Bennett's (1986) model of intercultural sensitivity, where individuals not only acknowledge but also

value cultural differences. This stage aligns with the children's readiness to actively comprehend cultural nuances. However, as all schools involved had a high number of EAL students, there may be a movement towards Bennett's 'integration' stage, characterised by the merging of cultural perspectives, fostering inclusivity, and highlighting intercultural competence. This suggests that children might not perceive their international peers as different, or they may not consciously recognise their multicultural environment.

The varying recognition of multicultural connections between different groups and over time sheds light on the influence of factors such as the YIS, linguistic abilities, gender, and age. Although most children acknowledged knowing a peer from a different country, fewer reported learning from these international peers. This distinction, however, does not undermine the importance of cross-cultural exchanges that covered a spectrum of experiences, including language, religion, food, and climate. These experiences align with Gerlich et al's (2010) findings about children's knowledge of other cultures in bilingual preschool settings. Furthermore, this study echoes Feddes' (2009) results, suggesting that older children are more likely to report interethnic friendships. The multicultural interactions narrated by the children reinforce the potential of schools as environments fostering cultural learning. These spaces allow children to gain insights into different cultures through their peers, enhancing their cultural sensitivity and global awareness. However, it is essential to approach the conclusions drawn from this study with caution due to the reliance on self-reported data from children. Future research could delve deeper into understanding the dynamics of these cross-cultural friendships, their influence on children's attitudes towards diversity, and how these relationships contribute to promoting cultural adaptability.

5.5 Conclusions

The findings of this study contribute unique insights to the field of intercultural competence, focusing on children's perceptions of cultural overlaps beyond their own culture. Contrary to the findings of Takeuchi (2015), who questioned the appropriateness of applying models such as Byram's (1997) to assess primary school children's intercultural competence, the current study suggests that children, despite their young age, can grasp complex concepts related to intercultural competence. They are capable of understanding, identifying, and appreciating the richness of cultural diversity in their surroundings. This underscores the need for further exploration into methods and approaches to engage and teach intercultural competence at this developmental stage.

With primary schools becoming increasingly multilingual, these insights underline the significance of fostering socio-cultural inclusion and raising awareness of cultural diversity and the significance of initiatives such as the YIS in fostering socio-cultural inclusion and raising awareness of cultural diversity. Most of the children in this study demonstrated an awareness and appreciation of

cultural diversity, consistently identifying differences and similarities across cultures. This aligns with Ang et al. (2007), who suggested that meaningful interactions can challenge and reshape individuals' cultural beliefs and models. However, it is essential to note that some children from both groups did not recognise any cultural similarities, underlining the complexity of intercultural competence and the myriad of factors influencing it.

Children trained as YIs demonstrated a sophisticated understanding of cultural diversity and an ability to navigate cross-cultural interactions with nuanced appreciation. The benefits of YIS extended beyond the children involved directly, influencing the wider school community, and reinforcing the benefits of multilingualism. The fact that a child from the control group could articulate the function of a YI and leverage their skills indicates that the YIS's reach, and impact are significant, and not just limited to the children directly involved in the program. This broader influence potentially contributes to a school-wide culture of mutual respect and understanding, even among those not formally participating in the scheme. It attests to the scheme's effectiveness in not only fostering intercultural competence among YIs but also in raising the overall level of cultural awareness and understanding in the school community. Such initiatives sensitise children to the value of diverse linguistic competence and set a precedent for children speaking a first language different from the majority language, positioning them as a source of enrichment rather than a problem.

The increasing cultural diversity in schools necessitates the development of educational initiatives such as YIS to foster socio-cultural inclusion and raise cultural diversity awareness. These schemes can be crucial in maintaining and respecting ethnic, linguistic, and cultural diversity and enhancing social harmony, fairness, and intercultural understanding (Santos et al., 2014). Early experiences with diverse cultures provide a strong base for children's learning Kim et al. (2006), and educational programs focusing on attitudinal changes, cultural sensitivity, and respect for diversity can help develop emotional competence and empathy.

Our findings suggest the potential universality in children's perceptions of cultural differences. Despite the subtle variations observed across demographic groups, these differences may indicate complex interactions influenced by multiple factors. Further research with larger sample sizes and diverse contexts is required to ascertain more definitively these demographic factors' impact.

The scheme serves a dual purpose: firstly, it facilitates practical language assistance, as evidenced by the intercultural data on aiding a new child; secondly, it cultivates an environment conducive to empathy and cultural understanding among the Young Interpreters and their peers, a claim supported by both the recorded increase in affective empathy and the qualitative responses to intercultural questions. By placing children in the role of interpreters, they are given the opportunity to develop a deeper understanding and appreciation of languages and cultures different from their

own. They learn the importance of effective intercultural communication and become more attuned to the nuances of different languages and cultures. Their unique training also enhanced their ability to identify cultural similarities, understanding that, while cultures may be diverse, there are universal human traits and experiences that connect us all. As YIs, they showed an increased propensity for cross-cultural interaction, with a high prevalence of multicultural friendships among them, a testament to how the YIS fosters an environment that encourages and facilitates these connections. In terms of learning, YIs were more inclined to report gaining new insights from their international peers. This might be due to their role as interpreters, which requires them to engage more deeply with the cultural and linguistic backgrounds of their peers.

Overall, this study underscores the value of fostering intercultural competence in childhood and the potential role of schools, bolstered by initiatives such as the YIS, as multicultural learning environments. It highlights the importance of not just teaching children about cultural differences, but also helping them identify and appreciate cultural commonalities. However, it is important to remember that our findings are based on a relatively small sample size. Further research is needed to explore the broader impacts of the YIS in various multicultural contexts, and how it might be refined or expanded to enhance its effectiveness further. Nonetheless, it can be concluded that the YIS is an innovative approach that holds significant potential in promoting intercultural competence and understanding in a multicultural school environment. This unique focus fills a significant gap in existing literature and offers new perspectives and avenues for future research in the field of intercultural studies.

5.6 References

Aboud, F. E. (2008). A social-cognitive developmental theory of prejudice. In *Handbook of race, racism, and the developing child.* (pp. 55-71). John Wiley & Sons, Inc.

Acevedo, M. V. (2019). Young children playing their way into intercultural understanding. *Journal of Early Childhood Literacy*, *19*(3), 375-398. https://doi.org/10.1177/1468798417727134

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Ameli, F. (2020). Teaching and learning for the twenty-first century: educational goals, policies, and curricula from six nations. *Leadership and Policy in Schools*, *19*(3), 536-538. https://doi.org/10.1080/15700763.2020.1734631

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and organization review*, *3*(3), 335-371. https://doi.org/https://doi.org/10.1111/j.1740-8784.2007.00082.x

Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood cliffs Prentice Hall.

Banks, M. (2007). *The politics of cultural work*. Springer.

Banks, M. (2017). *Creative justice: Cultural industries, work and inequality*. Rowman & Littlefield.

Beacco, J.-C. (2011, 30 November 2011). *The cultural and intercultural dimensions of language teaching: Current practice and prospects* Curriculum convergences for plurilingual and intercultural education, Strasbourg, 29.

Bennett, J. M. (1986). A developmental approach to training for intercultural sensitivity. *International Journal of Intercultural Relations*, *10*(2), 179-196. https://doi.org/https://doi.org/10.1016/0147-1767(86)90005-2

Bennett, J. M. (1993a). Cultural marginality: Identity issues in intercultural training. In R. M. Paige (Ed.), *Education for the intercultural experience* (Vol. 3 (5), pp. 109-135). Intercultural Press.

Bennett, J. M. (1993b). Toward Ethnorelativism: A Developmental Model of Intercultural Sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (2nd ed., pp. 21-71.). Intercultural Press.

Bennett, M. J. (2017). Developmental model of intercultural sensitivity. In Y. Kim (Ed.), *The international encyclopedia of intercultural communication* (pp. 1-10). Wiley.

Brislin, R., Worthley, R., & Macnab, B. (2006). Cultural Intelligence:Understanding Behaviors that Serve People's Goals. *Group & Organization Management*, *31*(1), 40-55. https://doi.org/10.1177/1059601105275262

Brown, H. D., & Lee, H. (2015). *Teaching principles*. P. Ed Australia.

Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Multilingual Matters.

Cajander, Å., Daniels, M., & McDermott, R. (2012). On valuing peers: Theories of learning and intercultural competence. *Computer Science Education*, *22*. https://doi.org/10.1080/08993408.2012.727710

Collier, V. P., & Thomas, W. P. (2004). The astounding effectiveness of dual language education for all. *NABE Journal of Research and practice*, *2*(1), 1-20. https://doi.org/https://www.researchgate.net/publication/251435686

Deardorff, D. K. (2006). Identification and Assessment of Intercultural Competence as a Student Outcome of Internationalization. *Journal of studies in international education*, *10*(3), 241-266. https://doi.org/10.1177/1028315306287002

Derman-Sparks, L., & Ramsey, P. G. (2011). *What if all the kids are white?: Anti-bias multicultural education with young children and families*. Teachers College Press.

DfE. (2023). *Schools, pupils and their characteristics*. London: Department for Education. Retrieved from https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics

Díaz-Lefebvre, R. (2004). Multiple Intelligences, Learning for Understanding, and Creative Assessment: Some Pieces to the Puzzle of Learning. *Teachers College Record*, *106*(1), 49-57. https://doi.org/10.1111/j.1467-9620.2004.00317.x

DoBroka, C. C. (2012). Teaching to develop children's intercultural sensitivity: A multicultural literature lesson on The Sandwich Swap. *Ohio Journal of English Language Arts*, *52*, 53-57.

Dziedziewicz, D., Gajda, A., & Karwowski, M. (2014). Developing children's intercultural competence and creativity. *Thinking Skills and Creativity*, *13*, 32-42. https://doi.org/https://doi.org/10.1016/j.tsc.2014.02.006

Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press.

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial Development. In *Handbook of child psychology: Social, emotional, and personality development, Vol. 3, 6th ed.* (pp. 646-718). John Wiley & Sons, Inc.

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychol Bull*, *101*(1), 91-119. https://doi.org/10.1037/0033-2909.101.1.91

Eisenberg, N., & Mussen, P. H. (1989). *The roots of prosocial behavior in children*. Cambridge University Press.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107-115. https://doi.org/https://doi.org/10.1111/j.1365-2648.2007.04569.x

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). Norton.

Fantini, A., & Tirmizi, A. (2006). Exploring and Assessing Intercultural Competence. *World Learning Publications*, *1*. https://doi.org/https://digitalcollections.sit.edu/worldlearning_publications/1

Feddes, A. R., Noack, P., & Rutland, A. (2009). Direct and Extended Friendship Effects on Minority and Majority Children's Interethnic Attitudes: A Longitudinal Study. *Child Development*, *80*(2), 377-390. http://www.jstor.org/stable/29738621

Fischer, R. (2011). Cross-cultural training effects on cultural essentialism beliefs and cultural intelligence. *International Journal of Intercultural Relations*, *35*, 767-775. https://doi.org/https://doi.org/10.1016/j.ijintrel.2011.08.005

Flavell, J. (1979). Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry. *American Psychologist*, *34*, 906-911. https://doi.org/https://psycnet.apa.org/doi/10.1037/0003-066X.34.10.906

Gajda, A., Jankowska, D., & Karwowski, M. (2015). How to Develop Children's Creativity and Intercultural Sensitivity: Around Creativity Compass Program. In (pp. 133-145). https://doi.org/10.1007/978-981-287-636-2_9

Galinsky, A. D., & Ku, G. (2004). The effects of perspective-taking on prejudice: The moderating role of self-evaluation. *Personality and Social Psychology Bulletin*, *30*(5), 594-604. https://doi.org/https://doi.org/10.1177/0146167203262802

Gerlich, L., Kersten, K., Massler, U., Wippermann, I., & Kersten, H. (2010). Intercultural Encounters in Bilingual Preschools. In K. Kersten, R. Rodhe, C. Schelletter, & A. Steinlen (Eds.), *Bilingual Preschools. Volume I: Learning and Development* (pp. 137-176). WVT Wissenschaftlicher Verlag Trier.

Goodman, M. E. (1952). *Race awareness in young children*. Addison-Wesley Press.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*, *24*(2), 105-112. https://doi.org/https://doi.org/10.1016/j.nedt.2003.10.001

Gudykunst, W. B. (2005). An Anxiety/Uncertainty Management (AUM) Theory of Strangers' Intercultural Adjustment. In *Theorizing about intercultural communication.* (pp. 419-457). Sage Publications Ltd.

Gudykunst, W. B., Ting-Toomey, S., & Chua, E. (1988). *Culture and interpersonal communication*. Sage Publications, Inc.

Guest, G., Macqueen, K., & Namey, E. (2011). *Applied Thematic Analysis*. SAGE Publications, Inc. https://doi.org/https://doi.org/10.4135/9781483384436

Hall, E. T. (1959). *The silent language*. Doubleday & Company, Inc.

Hall, E. T. (1976). *Beyond culture*. Anchor.

Halualani, R. T., Chitgopekar, A., Morrison, J. H. T. A., & Dodge, P. S.-W. (2004). Who's interacting? And what are they talking about?--intercultural contact and interaction among multicultural university students. *International Journal of Intercultural Relations*, *28*, 353-372. https://doi.org/10.1016/j.ijintrel.2004.08.004

Hammer, M. R., Bennett, M. J., & Wiseman, R. (2003). Measuring intercultural sensitivity: The Intercultural Development Inventory. *International Journal of Intercultural Relations*, *27*(4), 421-443. https://doi.org/10.1016/S0147-1767(03)00032-4

Hayden, M. C., & Thompson, J. J. (1998). International education: Perceptions of teachers in international schools. *International review of education*, *44*, 549-568. https://doi.org/https://www.jstor.org/stable/3444853

Hernández-Bravo, J. A., Cardona-Moltó, M. C., & Hernández-Bravo, J. R. (2017). Developing elementary school students' intercultural competence through teacher-led tutoring action plans on intercultural education. *Intercultural Education*, *28*(1), 20-38. https://doi.org/https://doi.org/10.1080/14675986.2017.1288985

Hernández Bravo, J. A., & Cardona, M. C. (2007). *La competencia intercultural en alumnado de educación primaria: diseño y evaluación de un plan de intervención para su desarrollo.* Universidad de Alicante.

Hoffman, M. L. (1984). Interaction of affect and cognition in empathy. In C. E. Izard, Kagan, J. and Zajonc, R. B. (Ed.), *Emotions, cognition, and behavior* (pp. 103-131). Cambridge University Press.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

International, Q. (2018). *NVivo 12*. In QSR International.

Killen, M., Lee-Kim, J., McGlothlin, H., Stangor, C., & Helwig, C. C. (2002). How Children and Adolescents Evaluate Gender and Racial Exclusion. *Monographs of the Society for Research in Child Development*, *67*(4), i-129. https://doi.org/http://www.jstor.org/stable/3181568

Kim, B. S. K., Green, J. L. G., & Klein, E. F. (2006). Using Storybooks to Promote Multicultural Sensitivity in Elementary School Children. *Journal of Multicultural Counseling and Development*, *34*(4), 223-234. https://doi.org/https://doi.org/10.1002/j.2161-1912.2006.tb00041.x

Kim, Y. Y., & Gudykunst, W. B. (1988). *Theories in intercultural communication International and Intercultural Communication Annual* (Vol. 12). ERIC.

Kramsch, C. (1993). *Context and culture in language teaching*. Oxford university press.

Matsumoto, D., LeRoux, J., Ratzlaff, C., Tatani, H., Uchida, H., Kim, C., & Araki, S. (2001). Development and validation of a measure of intercultural adjustment potential in Japanese sojourners: the Intercultural Adjustment Potential Scale (ICAPS). *International Journal of Intercultural Relations*, *25*(5), 483-510. https://doi.org/https://doi.org/10.1016/S0147-1767(01)00019-0

Michael, O., & Rajuan, M. (2009). Perceptions of 'the other' in children's drawings: an intercultural project among Bedouin and Jewish children. *Journal of peace education*, *6*(1), 69-86. https://doi.org/https://doi.org/10.1080/17400200802658407

Nesdale, D., Durkin, K., Maass, A., & Griffiths, J. (2005). Threat, Group Identification, and Children's Ethnic Prejudice. *Social Development*, *14*, 189-205. https://doi.org/10.1111/j.1467-9507.2005.00298.x

Nesdale, D., & Todd, P. (2000). Effect of contact on intercultural acceptance: A field study. *International Journal of Intercultural Relations*, *24*(3), 341-360. https://doi.org/https://psycnet.apa.org/doi/10.1016/S0147-1767(00)00005-5

Orioni. (2021). Cultural iceberg model. In C. I. Model (Ed.). Wiki.

Phinney, J. S. (1990). Ethnic identity in adolescents and adults: Review of research. *Psychol Bull*, *108*, 499-514. https://doi.org/10.1037/0033-2909.108.3.499

Piaget, J. (1952). *The origins of intelligence in children*. W W Norton & Co.

Ponciano, L., & Shabazian, A. (2012). Interculturalism: Addressing diversity in early childhood. *Dimensions of Early Childhood*, *40*(1), 23-29. https://doi.org/https://eric.ed.gov/?id=EJ968645

Porter, J. D. (1971). *Black child, white child: The development of racial attitudes* (Vol. 49). Harvard University Press.

Powlishta, K., Serbin, L., Doyle, A., & White, D. (1994). Gender, Ethnic, and Body Type Biases: The Generality of Prejudice in Childhood. *Developmental psychology*, *30*, 526-536. https://doi.org/10.1037/0012-1649.30.4.526

Raabe, T., & Beelmann, A. (2011). Development of ethnic, racial, and national prejudice in childhood and adolescence: a multinational meta-analysis of age differences. *Child Dev*, *82*(6), 1715-1737. https://doi.org/10.1111/j.1467-8624.2011.01668.x

Robinson, J., Witenberg, R., & Sanson, A. (2001). The socialization of tolerance. In M. Augoustinos & K. J. Reynolds (Eds.), *Understanding prejudice, racism, and social conflict* (pp. 73-88). SAGE Publications Ltd. https://doi.org/https://www.doi.org/10.4135/9781446218877.n5

Ruben, B. D. (1989). The study of cross-cultural competence: Traditions and contemporary issues. *International Journal of Intercultural Relations*, *13*(3), 229-240. https://doi.org/https://doi.org/10.1016/0147-1767(89)90011-4

Saldana, J. (2013). *The Coding Manual for Qualitative Researchers*. SAGE Publications. https://books.google.co.uk/books?id=RwcVEAAAQBAJ

Santos, M., Araújo e Sá, M. H., & Simões, A. R. (2014). Intercultural education in primary school: a collaborative project. *Language and Intercultural Communication*, *14*(1), 140-150. https://doi.org/10.1080/14708477.2013.866130

Scarino, A. (2009). Assessing intercultural capability in learning languages: Some issues and considerations. *Language Teaching*, *42*. https://doi.org/10.1017/S0261444808005417

Short, K. G., & Acevedo, M. V. (2016). Creating global understanding through play. In R. J. Meyer & K. F. Whitmore (Eds.), *Reclaiming Early Childhood Literacies: Narratives of Hope, Power, and Vision* (pp. 185-188). Routledge.

Sinicrope, C., Norris, J., & Watanabe, Y. (2007). Understanding and assessing intercultural competence: A summary of theory, research, and practice (technical report for the foreign language program evaluation project). *Studies in Second Language Acquisition*. https://doi.org/https://api.semanticscholar.org/CorpusID:148177771

Slavin, R. E. (2011). Instruction based on cooperative learning. In R. E. Mayer & P. A. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 358-374). Routledge.

Sloan, L., Joyner, M., Stakeman, C., & Schmitz, C. (2018). *Critical multiculturalism and intersectionality in a complex world*. Oxford University Press.

Spencer-Oatey, H. (2012). *What is culture? A compilation of quotations.* GlobalPAD Core Concepts. https://doi.org/http://www2.warwick.ac.uk/fac/soc/al/globalpad/interculturalskills/

Spitzberg, B. H., & Changnon, G. (2009). Conceptualizing intercultural competence. In D. K. Deardorff (Ed.), *The SAGE handbook of intercultural competence* (pp. 2-52). Sage.

Stephan, W. G., & Stephan, C. W. (2013). Designing intercultural education and training programs: An evidence-based approach. *International Journal of Intercultural Relations*, *37*(3), 277-286. https://doi.org/https://doi.org/10.1016/j.ijintrel.2012.05.001

Subramaniam, V., Abd Rahim, N., Affendi, N., Sujud, A. i., Dani, N. A., & Hamzah, M. (2009). The English Picture Books on Intercultural Awareness of Malaysian Kindergateners. *The International Journal of Learning: Annual Review*, *16*, 441-450. https://doi.org/10.18848/1447-9494/CGP/v16i03/46158

Szuba, A. (2016). *The intercultural communicative competence of young children in a bilingual education setting* Radboud University Nijmegen].

Tadmor, C. T., & Tetlock, P. E. (2006). Biculturalism: A model of the effects of second-culture exposure on acculturation and integrative complexity. *Journal of cross-cultural psychology*, *37*(2), 173-190. https://doi.org/https://doi.org/10.1177/0022022105284495

Tajfel, H., & Turner, J. C. (2001). An integrative theory of intergroup conflict. In M. A. Hogg & D. Abrams (Eds.), *Intergroup relations: Essential readings* (pp. 94–109).

Takeuchi, A. (2015). Developing a Scale of Children's Intercultural Competence: Issues and Challenges. *Maebashi Kyoai Gakuen College*, *1*, 45-58. https://doi.org/https://doi.org/10.1016/j.tsc.2014.02.006

Triandis, H. C. (1994). *Culture and social behavior*. Mcgraw-Hill Book Company.

Unsworth, S., & Blom, E. (2010). Child L2, Adult L2, Child L1: Differences and Similarities. A Study on the Acquisition of Direct Object Scrambling in Dutch. *Language Acquisition*, *Vol. 14, No. 2*, 215-217. https://doi.org/https://www.jstor.org/stable/20462488

van der Zee, K., & Oudenhoven, J. P. (2000). The Multicultural Personality Questionnaire: A multidimensional instrument of multicultural effectiveness. *European Journal of Personality*, *14*, 291-309. https://doi.org/https://doi.org/10.1002/1099-0984(200007/08)14:4%3C291::AID-PER377%3E3.0.CO;2-6

Volet, S. E., & Ang, G. (1998). Culturally Mixed Groups on International Campuses: an Opportunity for Inter-cultural Learning. *Higher Education Research & Development*, *17*(1), 5-23. https://doi.org/10.1080/0729436980170101

Wagner, R. K. (2011). Practical intelligence. In *The Cambridge handbook of intelligence.* (pp. 550-563). Cambridge University Press. https://doi.org/10.1017/CBO9780511977244.028

Wohlwend, K. E. (2013). Play, literacy and the converging cultures of childhood. In J. Larson & J. Marsh (Eds.), *The Sage Handbook of Early Childhood Literacy* (2nd ed., pp. 80-95). Sage.

Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation*. Sage.

Yuval-Davis, N. (2007). Zionism, antisemitism and the struggle against racism. *Soundings*(36), 122. https://doi.org/http://dx.doi.org/10.3898/136266207820465796

Chapter 6: <u>Metalinguistic awareness</u>

Introduction

This chapter focuses on metalinguistic awareness because this was added as an additional component to the YI training. The chapter begins with a literature review of metalinguistic awareness, then morphological awareness, and syntactic awareness. This review includes what metalinguistic awareness is, how it develops in monolingual and bilingual children, how to assess morphological and syntactic awareness, the role of vocabulary in metalinguistic awareness, before describing interventions to increase morphological awareness, syntactic awareness, and vocabulary. The participants, materials and procedure follow the literature review. The results are then analysed, followed by the discussion section.

6.1 Literature review

6.1.1 Metalinguistic awareness

Definitions and clarification of terminology

Metalinguistic knowledge and metalinguistic awareness are sometimes used interchangeably in the literature yet are distinct concepts. To understand the distinction, one must first consider that linguistic knowledge is a set of implicit skills associated with the formal features of language, and is the comprehension of the structure and rules of language (Bialystok, 1988). Metalinguistic knowledge is an individual's explicit knowledge surrounding their skills about language and their ability to correct, describe and explain language errors (Roehr, 2008). Metalinguistic awareness is being able to consciously think about, and reflect on, these implicit and explicit skills (Bialystok, 1988). In addition, metalinguistic awareness serves as the foundation for the capacity to discuss various ways of utilising language (Ter Kuile et al., 2011). When referring to bilingual children in this chapter, the implied meaning is children with high proficiency in at least two languages. This should be distinguished from the term EAL, whereby these children may not have high proficiency in English.

Domains of metalinguistic awareness

Several areas comprise metalinguistic awareness; phonological awareness (the capacity to recognise and manipulate the sounds in words; orthographic awareness (the understanding of the link between letters and sounds); morphological awareness (the capacity to identify and employ morphemes, the smallest units of meaning in language, in order to comprehend and generate words); syntactic awareness (the understanding of the principles that control the construction of sentences); semantic awareness (the capacity to comprehend the meaning of words and their relationships within phrases); and pragmatic awareness (the capacity to comprehend how language is utilised in various social and cultural settings). Knowledge in these areas is essential for vocabulary growth (Deacon et al., 2014; Goodwin et al., 2017; Levesque et al., 2019), reading comprehension (Carlisle & Feldman,

1995; Deacon et al., 2014; Zhao et al., 2019) and writing ability (Allen & Lembke, 2022; Asaad & Shabdin, 2021).

Development of metalinguistic knowledge and awareness

Development of the formal structure of language emerges following the mastering of vocabulary and language comprehension (Duncan et al., 2009), around the ages of 5 or 6, when children must analyse these structural components in order to enter literacy in education (Duncan et al., 2009; Herriman, 1994). In school, children are taught about the structure and patterns of words in the language they are exposed to, and thus begin to develop a degree of metalinguistic awareness. Explicit teaching as part of language and literacy activities in school helps children to recognise meaningful language units (such as roots, prefixes, and suffixes) as they progress from relying on sound-to-letter decoding, and they begin to utilise morpho-syllabic recognition to generate and comprehend new words. Metalinguistic awareness is facilitated by exposure to the formal language of books that follow the standardised rules of grammar and spelling. This process continues throughout childhood (Melogno et al., 2022), with a progression to a higher level of metalinguistic awareness at around the age of eight years old (Edwards & Kirkpatrick, 1999). Metalinguistic awareness enables individuals to use language efficiently and comprehend how language functions, making it a crucial aspect of literacy development (e.g.,Adams, 1994). For example, children with high levels of metalinguistic awareness might be able to identify the root words in an unknown complex word (for example in the word *hydrophobia*, children could identify *hydro* to mean *water* and *phobia* to mean *fear*), and hence understand meaning of the whole word to be a fear of water. Metalinguistic awareness therefore can lead to a wider and richer vocabulary, and better word recognition and decoding of unfamiliar words. Three pertinent areas of metalinguistic awareness are phonological, morphological, and syntactic awareness. These are first present at an implicit level ('epilinguistic level'), then eventually become conscious ('metalinguistic level') due to their intimate and reciprocal interaction with reading (Reder et al., 2013). Initially, verbal skills are subsequently stored and restructured in long-term memory, leading to the development of 'epilinguistic abilities' upon which children can rely at the onset of literacy education. Then, through being exposed to reading and writing materials during literacy education, children eventually become conscious of their implicit knowledge and update it by making it more conscious ('metalinguistic level') (Reder et al., 2013). Thus, literacy education facilitates the transition from an epilinguistic to a metalinguistic process, and the subsequent acquisition of explicit linguistic knowledge and progress in reading are mutually reinforcing (Kuo & Anderson, 2006). Metalinguistic awareness is not a fixed skill and will continue to improve through adolescence (Singson et al., 2000) and will also be improved with education and practice. For instance, a teacher may encourage students to recognise and manipulate prefixes and suffixes in words

in order to develop their morphological awareness, or to evaluate the subject-verb agreement in sentences in order to develop their syntactic awareness. This in turn can also help to improve vocabulary knowledge, word recognition skills, and reading comprehension. When pupils have a solid grasp of morphology, they can recognise and interpret new words more quickly. By identifying prefixes and suffixes, children can comprehend the meaning of words that they have never encountered. For example, knowing that the prefix '*un*' means '*not,*' or '*the opposite of,*' will aid children to understand that '*unhappy*' means not '*not happy,*' thus leveraging morphological awareness can lead to word learning. They can then build new words or alter the meaning of current ones by altering these word units such as changing '*friendly*' to 'unfriendly.' Again, this assists children to increase their vocabulary.

The relationship of metalinguistic awareness and language experience

Metalinguistic awareness is present in both monolingual and bilingual children, although the development and nature of metalinguistic awareness may differ between the two groups, especially for balanced bilinguals (Bialystok et al., 2014). For both, metalinguistic knowledge develops as a result of language exposure, and through explicit instruction and practice in educational settings. For bilingual children phonological awareness tends to develop at an earlier age than for monolinguals (Bruck & Genesee, 1995) and at a faster rate of progression (Kuo & Anderson, 2012). Owing to the enhanced opportunities for comparison and contrast between their two languages, bilingual children may have an advantage in metalinguistic awareness (Bialystok, 2001). Knowing two languages with varying forms and structures enables bilinguals to have a more explicit understanding of how language functions, especially when syntactic rules differ (Adesope et al., 2010). Some research has indicated an advantage for bilingual children in metalinguistic awareness compared to monolingual children (Adesope et al., 2010; Galambos & Goldin-Meadow, 1990), yet other work has not (Bialystok et al., 2005; Bialystok et al., 2014; Goldstein et al., 2005; Lesaux & Siegel, 2003). The mixed findings could be due to several factors; for example, proficiency in each language (Altman et al., 2018), the typological distance of each language (Chung et al., 2018; Torregrossa et al., 2022), the domain of metalinguistic awareness assessed, the length of exposure to each language, the age at which children are assessed, and the tasks that they completed.

Metalinguistic awareness encompasses a range of abilities rather than a single ability, and it is therefore important to compare tasks that vary systematically across this dimension (Bialystok et al., 2014). Although knowing two languages can enable bilinguals to have a more explicit understanding of how language functions (Adesope et al., 2010), and hence increased metalinguistic awareness, if a bilingual uses elements of one language when using their other language, this could result in mistakes being produced .If such mistakes are made when participating in research, then bilinguals would score lower than their monolingual controls. This crosslinguistic influence, whereby a bilingual uses

elements of one language when using their other language (Hulk & Müller, 2000), together with disparities in language exposure and usage, may result in bilingual children encountering difficulties in developing metalinguistic awareness.

6.1.2 Crosslinguistic influence in bilingual children

Several terms have been used to describe the interplay between the two languages of a bilingual child (Serratrice, 2013). As per Serratrice (2013), the phrase crosslinguistic influence will be used to refer to influences one language has on the other. For example, if a person who speaks Spanish as their first language is learning English as a second language, they might transfer some aspects of their native language to their use of English. This could involve using Spanish grammar rules or syntax when speaking or writing in English. For example, applying adjective placement in Spanish to English and consequently producing '*the cat black*,' as in '*el gato negro'* in Spanish rather than the target '*the black cat.*' The Contrastive Analysis Theory (Lado, 1957) posits that when two languages have the same units and structures, a low typological distance, it can result in positive transfer, leading to correct language production. However, if the units and structures of two languages differ, negative transfer may occur, resulting in errors. The extent of negative transfer is likely to increase with greater differences between the two languages.

The typological distance between two languages can impact cross-linguistic transfer. It refers to the degree of difference between two languages in terms of their linguistic features and structures. When two languages have a high typological distance, such as English and Chinese, which have very different grammatical structures, a learner of one language may struggle to transfer their knowledge of their native language to the target language. This is because the differences in grammar, syntax, and vocabulary make it difficult to apply knowledge from one language to the other. For example, a Chinese speaker learning English may struggle with verb conjugation or word order, due to the lack of similarity between the two languages. On the other hand, when two languages have a low typological distance, such as Spanish and Italian, which share many linguistic features and structures, cross-linguistic influence can be more successful. Therefore, it can be argued that the more the two languages share similar properties and thus knowledge can be transferred across languages, the greater the ability to use two languages fluently and effectively. Contrastingly, Kuo and Anderson's (2010) hypothesis of structural sensitivity argues that the bilingual advantage is not necessarily just down to the potential for crosslinguistic transfer. The simultaneous exposure to two languages may allow bilingual children to recognise and comprehend the similarities and contrasts between these two languages with greater clarity. Accordingly, regardless of crosslinguistic parallels, by repeated comparison of a person's first and second languages, close and distant metalinguistic characteristics become more apparent and

make the presentation of language structure more salient (Kuo & Anderson, 2010), potentially increasing metalinguistic awareness as bilinguals are frequently thinking about their languages.

6.1.3 Morphological awareness

Definition of morphological awareness

Morphological awareness is a subcomponent of metalinguistic awareness regarding the underlying structure of words and how morphemes, the smallest units of meaning in a word, can be combined to produce new words. It refers to an individual's reflective and manipulative understanding of the morphemic structure of words (Carlisle & Feldman, 1995). This awareness entails identifying, evaluating, and manipulating morphological units (Carlisle, 2003) in order to discern a word's meaning. Morphological awareness is essential for reading and spelling, as well as for the development of vocabulary. The lexical quality hypothesis (LQH) (Perfetti & Hart, 2002) posits that successful reading and writing depend on the quality of mental representations of words. Lexical quality refers to the level of detailed information speakers have about a word. High-quality word representations combine phonological, orthographic, syntactic, and semantic information. When any one of these components are missing, word representations will be of lower quality and reading comprehension will be affected. The findings of Kieffer (2014) support the hypothesis that students with underdeveloped insight of the morphological system are ill-equipped to decode morphologically complicated words effectively and to extract meaning from texts that contain such words. Through explicit teaching and repeated experience detecting and manipulating word parts, morphological awareness is developed.

There are two types of morphemes: free morphemes and bound morphemes. Free morphemes can function as words without being connected to other morphemes. Also referred to as a base word, they are the smallest meaningful unit of language that distinguishes one lexical unit from other lexical units (Reder et al., 2013). Examples include *dog, run,* and *glad*. Bound morphemes are morphemes that require the addition of additional morphemes, typically prefixes or suffixes, to generate words, for example the *un-* in *unhappy*, *-ness* in *happiness*, and *-ly* in *quickly*. Further, the word *break* is made of only one morpheme, whereas the word *unbreakable* is a morphologically complex word composed of three morphemes: the prefix *un*, the base *break* and the suffix *able*.

Types of morphology

Morphological units include base words and affixes. Affixes can be either inflectional or derivational. Inflectional affixes create new forms of the same word and can indicate tense, plurality, possession, and gender, and hence modify the grammatical properties of a word without changing its core meaning. An example of an inflectional affix is the suffix *-s* in the English word *dogs,* indicating plurality or *-ed* to indicate the past tense. In contrast, derivational affixes change either the meaning or syntactic category of a word, hence creating new words. Suffixes and prefixes enable the

development of new words by changing part of speech such as (*hope* (Noun) → *hope<u>less</u> (Adjective*, and -*ly* (the adverb form of adjectives, such as *quick<u>ly</u>*).

Compounding

Compounding is another derivational process in English. Compounding differs from affixation in that affixation involves attaching a bound morpheme to a base, whereas compounding involves combining two free morphemes, hence creating a new word. When the free morpheme *green*, an adjective, is combined with the free morpheme *house*, a noun, a new word is formed: *greenhouse.* The definition of *greenhouse* differs from the result of combining the two terms to form a phrase, for example, 'a green house.' A *greenhouse* is not the same as 'a green house'; it is a new term developed via compounding.

Morphological awareness in bilingual children

According to Kuo et al. (2017), bilingual children have a more complete understanding of how language works than their monolingual peers. This gives bilingual children an advantage when manipulating morphology. For example Kuo et al. (2017) found that Spanish-English bilingual children aged 9-10 years outperformed their monolingual peers in using derivational suffixes on pseudo-words to complete sentences. In contrast, Reder et al. (2013) compared the metalinguistic skills of French monolingual and French-German bilingual six-year-olds. On tasks involving compounding and syntactic awareness, bilingual children outperformed their monolingual classmates, but no differences were seen on tasks involving morphological awareness and phonological awareness. Due to the phonological similarities between French and German, the authors believed that the bilingual children were not required to observe and compare the different phonological elements of each language and so differences compared to monolinguals were not apparent. When two languages do not share the same derivational rules (such as between English and Arabic), it is less probable that derivational morphological knowledge would transfer between languages (Saiegh-Haddad & Geva, 2008). Rodríguez-Ortiz et al. (2021) examined Spanish-English, and Chinese-English bilingual children, with a monolingual control group, at ages 9-10 years and 12-13 years in a Canadian school where English was the language of instruction. In the English compound awareness test, Chinese-English bilinguals fared similarly to monolingual English speakers, although English monolinguals outperformed Spanish-English bilinguals. In contrast, monolinguals and Spanish-English bilinguals fared equally in terms of derivational knowledge and both outperformed Chinese-English bilinguals. Similar syntactic and distributional characteristics of derivational morphology in English and Spanish may explain why the performance of Spanish-English bilinguals was similar to that of monolinguals. Due to the limited role that derivational morphemes play in the Chinese word formation process, bilingual Chinese-English speakers have less opportunity to acquire these derivational morphological abilities in their original

language. Parallel findings come from Zhang and Zhou (2019) who showed that Chinese 11–12-year-olds studying English as a second language were able to utilise their knowledge of Chinese compound morphology to the aid the interpretation of unknown English compound nouns. Deacon et al. (2007) found that in a longitudinal study of French-English bilingual children aged 6-9 years, morphological awareness, as measured by past tense analogy tasks, at age 6 positively correlated with morphological awareness in French at ages 7, 8 and 9 years. Additionally, morphological awareness at aged 6 years had strong, positive correlations with reading ability in both languages.

These studies all used different pairs of languages. Marks et al. (2022) argue the ability for a child to utilise their knowledge of morphology in one of their languages and apply it to the morphology of their other languages is contingent on the similarity in linguistic structure between the two languages and their knowledge of those languages. For example, Spanish and English are both rich in derivational morphology and share some entire word forms, thus facilitating morphological transfer. However, transferring knowledge of phonology, or the sounds of a language, is not as feasible. English has complex and opaque orthographic mapping, with considerable variability in the grapheme-phoneme transparency (Frost, 2005). In languages with a transparent mapping system, such as Spanish or Italian, surface phonology is reflected in spelling with a high level of consistency – the pronunciation of a given letter is almost always the same, irrespective of the word in which they appear. Therefore, this phonological knowledge should be transferred between Spanish and Italian for example quite readily. but such transfer to English is not always reliable due to letters being pronounced differently in different words. Similarly, Chinese characters refer to morphemes rather than sounds, and like English, have many lexical compounds, again facilitating morphological transfer of knowledge of compounding rules from Chinese to English as found by (Lin et al., 2018; Shen & Crosson, 2022). In contrast, some studies have not found a bilingual advantage for morphological awareness. A study by Marks et al. (2022) did not find any differences between Spanish-English and Chinese-English bilinguals' performance on derivational ability in English (e.g. extracting *friend* from *friendly*), nor on their compound ability (e.g. extracting *room* from *classroom*). However, the children in their study were highly proficient in both of their languages and their proficiency is likely to have led to the null results as Ramirez et al. (2011) did find differences in morphological performance when looking at unbalanced bilinguals.

Overall, research typically shows that bilingual children tend to outperform monolingual children in tasks that measure morphological awareness, mainly because bilinguals are exposed to multiple languages and must learn to navigate the complexities and differences between them. This linguistic flexibility and sensitivity can lead to stronger understanding of the morphological structure of words, leading to better performance on tasks such as inflection and derivation. However, it is

important to note that individual variation exists within both monolingual and bilingual populations, and other factors such as home and school environment, and language proficiency can also impact morphological awareness.

6.1.4 Syntactic awareness

Definition of syntactic awareness

Syntactic awareness refers to the ability to reflect and manipulate the morphemic structure of words, the order of words and structural relationships between words in a sentence (Simard & Gutiérrez, 2017). This requires comprehending subject-verb agreement (e.g., '*She* plays the piano,' where the singular subject '*she*' agrees with the third-person singular form of the verb 'plays'), anaphoric dependencies (e.g., 'The *boy* walked to school. *He* was carrying a rucksack,' where '*he*' agrees in gender and number with the antecedent '*boy*'), and hierarchical syntactic relationships. Sentences can be analysed as hierarchically structured into 'constituents,' like noun phrases, verb phrases, and prepositional phrases). An awareness of syntax is essential for language development, as well as reading comprehension and writing skills (Deacon & Kieffer, 2018). Syntactic awareness makes a considerable contribution to the overall performance of children in the areas of sentence decoding, reading, and understanding of text (Nation & Snowling, 2004). As with morphological awareness, it can be acquired by formal instruction and practice in identifying and modifying the grammatical structure of sentences.

Syntactic awareness in bilingual children

The relationship between language experience along the monolingual-bilingual continuum and syntactic awareness, similar to phonological awareness, have produced inconsistent results in the relationship between language status and syntactic awareness. Syntactic variations across languages enhance bilingual children's ability to discern grammatically correct and incorrect syntactic structures on grammaticality judgement tasks. However, if they have not yet fully established awareness of these differences, they may perform less well than monolingual children. (Davidson et al., 2019). If syntactic construction overlaps between the two languages, then this could increase their awareness (Paradis et al., 2010), but ambiguity between languages may lead children to overgeneralising syntactic rules form their dominant language to their other language (Davidson et al., 2019).

Galambos and Goldin-Meadow (1990) studied 8-year-old Spanish-English bilingual children and compared the ability to explain grammatical errors in sentences to that of their English or Spanish monolingual peers. Their findings demonstrated that bilinguals were better able to notice and correct grammatical errors in sentences than monolinguals of the same age, but no more likely than monolinguals to provide grammatical explanations for their corrections. Similarly, Davidson et al. (2010) discovered that 6-year-old English-Urdu bilinguals scored better than their monolingual

classmates when asked to identify grammatically incorrect sentences, but no difference was noticed when asked to identify grammatically correct sentences, with the authors concluding that the two groups did not differ in their overall accuracy on grammaticality judgment. Higher performance by bilingual children on syntactic awareness tasks was also found by Cromdal (1999) who tested Swedish-English bilinguals aged 6 to 7 years on judging if sentences were grammatical or not and correcting them. Corroborating results were also observed for young French-English bilinguals (Foursha-Stevenson & Nicoladis, 2011), Urdu-English bilingual children (Davidson et al., 2010) and other language pairs (Bialystok, 1986)

Other studies however have not found such differences such as work by Simard et al. (2013) into Portuguese-French 10 year old bilinguals in an error replication task, whereby they had to identify and reproduce an error in an orally presented sentence. Some studies have found that bilinguals are at a disadvantage compared to monolinguals on measures of syntactic awareness creating further inconsistencies in the literature for whether a bilingual advantage exists. For example, Lesaux and Siegel (2003) found that children aged 8 years old, who were schooled in English in Canada, but who spoke another language at home, scored worse than monolinguals in syntactic awareness as measured by an oral cloze task.

The fact that these studies used different kinds of tasks may help to explain, at least in part, why they came to contradictory conclusions, given that metalinguistic awareness is not a single process, but rather a collection of distinct domains with distinct developmental pathways (Bialystok, 2001). A model developed by Bialystok (2001) is a theoretical framework that explains how metalinguistic ability is founded on two distinct processes: the lexical-semantic system and the executive control system. The lexical-semantic system is responsible for the storage, retrieval of words, and word meanings. The executive control system is responsible for regulating attention, inhibiting irrelevant information, and resolving conflicts between competing responses. This control of attention develops earlier in bilingual children due to their constant engagement in language switching, inhibition of irrelevant information, and resolving conflicts between competing responses. These processes are necessary for successful completion of metalinguistic tasks. Therefore, only if the task requires control of attention can it be expected that bilingual children would score higher than monolinguals as they may have greater executive control.

Other factors that may influence the differences in task performance between monolinguals and bilinguals could be that a bilingual advantage is only apparent in the early stages of syntactic awareness (Galambos & Goldin-Meadow, 1990) and for highly proficient bilinguals (Davidson et al., 2017). For example, Swedish-English bilinguals children with proficient vocabulary skills in both languages fared better on a test of syntactic grammaticality than less skilled multilingual children who

performed similarly to their monolingual classmates (Cromdal, 1999). Additionally, similarities between the syntactic structures of two languages would facilitate learning, whereas differences (such as those between Mandarin and English) would impede acquisitions (Chan, 2004). Late bilinguals may also be more prone to syntactic interference from their dominant language and so make more errors in syntactic tasks (Foursha et al., 2023).

6.1.5 Assessing morphological and syntactic awareness

Assessing morphological awareness

Various methods have been used to evaluate children's morphological and syntactic awareness. Tasks involving morphological segmentation, word reconstruction, inflection tasks, analogical reasoning, and word production tasks are prominent methods for assessing morphological awareness. One of the earliest examples of a test of morphological awareness comes from the classic Wug test (Berko, 1958), whereby children need to apply English morphological inflectional and derivational morphology to nonsense words. In morphological segmentation tests, participants are given a word and asked to identify its root word and any prefixes and suffixes, therefore assessing their ability to recognise and identify morphemes in words. For example, in the word '*disrespectful*,' children might indicate that the word consists of the root '*respect,*' the prefix '*dis-*' (meaning '*not*' or '*opposite*' of) and the suffix '*-ful* (which means '*full of*' or '*having the qualities of*'). This would show their capacity to recognise and identify morphemes inside words, as well as their comprehension of how morphemes contribute to the overall meaning of a word.

Word reconstruction challenges present participants with a word that has been broken down into its component morphemes; the task is to reassemble the morphemes into the original word. This method assists researchers in determining the participants' capacity to apply morphological information to decompose the structure of words. For example, for the word '*rearrangeable,* the component morphemes are *'re-', 'arrange,'* and *'-able.'* Participants would need to correctly identify that the prefix *'re-'* means *'again'* or *'back,'* the root word is *'arrange,'* and the suffix *'-able'* means *'able to be.'* By correctly reassembling the morphemes into *'rearrangeable,'* participants would demonstrate their ability to identify and manipulate morphemes in words.

In inflection tasks, participants are given a root word and directed to create inflected forms of the word. (e.g., adding *-s* to make a plural form. This allows researchers to understand the participants' capacity to apply morphological knowledge to generate various word forms. In analogical reasoning tasks participants are given a pair of words that share a morpheme (e.g., *farmer* and *gardener*) and asked to construct a third term with the same morpheme (e.g., *painter*). This strategy assists researchers in evaluating participants' capacity to apply morphological knowledge to create semantic relationships between words.

Lastly, for word generation tasks, participants are given a stem word (e.g., *paint*) and encouraged to develop as many related terms as they can (e.g., *painter, painting, paintbrush*). This evaluates participants' ability to produce related terms using morphological knowledge. Even though lexical compounding is one of the first morphological skills to develop (Clark, 1993), for example combining the words '*sun´* and '*flower´* to make the new word '*sunflower´*. Few tests of morphological awareness include compounding (Marks et al., 2022).

Assessing syntactic awareness

A number of tests are used to evaluate and quantify syntactic awareness, but measuring this skill can be challenging due to the many forms that syntactic awareness tasks can take (Simard et al., 2013). The representational redescription model proposed by Karmiloff-Smith (1994) attempts to provide an explanation for how children's representations of linguistic knowledge become increasingly manipulable and flexible over time, as well as for the development of conscious access to linguistic knowledge i.e., metalinguistic awareness. According to this paradigm, representational redescription is a process through which implicit information in the mind eventually becomes explicit knowledge to the mind. Torregrossa et al. (2022) builds on this theory and concludes that there are normally three distinct activities that tap into varying degrees of explicit syntactic awareness: error identification, error correction, and error explanation. Each of these requires a different degree of awareness and depth of processing, with error identification being the lowest level of awareness through to error explanation (Leow & Mercer, 2015).

A commonly used test is a grammaticality judgment task where participants are provided with statements that are either grammatically correct or contain a syntactic error and asked to rate each sentence as correct or incorrect. This task assesses their ability to detect grammatical errors. In these tasks, only low levels of knowledge analysis and attentional control are needed (Bialystok, 2001; Davidson et al., 2019). Children aged 3-6 years are able to distinguish between grammatically correct and incorrect sentences in spoken language, although they cannot correct this error (Davidson et al., 2010). Correcting syntactic errors and explaining the reason for the errors require further depth of metalinguistic awareness (Simard et al., 2013), with grammatical-oriented explanations increasing in complexity between five and seven years (Galambos & Goldin-Meadow, 1990).

Lastly, word-reordering tasks, such as those used by Nation and Snowling (2000) require children to produce grammatical sentences (either orally or in writing) from a set of scrambled words. Participants use morpho-syntactic cues in order to overcome any semantic ambiguity in the sentence, such as the appropriate word order for subject-verb-object sentences in English, as well as the use of articles, adjectives, and prepositions to signal the relationships between words. For example, for the sentence '*she ate the delicious pizza for dinner,*' children would be given the words '*she,*' '*ate,*' '*the,*'

'*delicious*,' '*pizza*,' '*for*,' and '*dinner*' in a scrambled order, and asked to rearrange them into a grammatically correct sentence. Participants would need to use their knowledge of morpho-syntactic cues, . Word-reordering tasks become more complex as the sentences become longer or more difficult to parse. The sentence, '*after the party, the tired guests slowly walked home in the rain*' for example, requires more advanced morpho-syntactic awareness as knowledge of adverbial placement is required. Overall, depending on the sort of measurement used, the performance of monolingual and bilingual children on syntactic awareness tests may differ (Simard & Gutiérrez, 2017).

6.1.6 Metalinguistic awareness and vocabulary

The relationship between metalinguistic awareness and vocabulary

Vocabulary is a vital component in language learning, and has strong connections to metalinguistic abilities, with vocabulary and metalinguistic awareness supporting each other in a reciprocal relationship (Dawson et al., 2021). As children learn more words, they are better able to use metalinguistic skills to understand and produce language. Similarly, as children develop stronger metalinguistic skills, they are more effective at learning and using new words (Altman et al., 2018). With respect to vocabulary, it is important to make two distinctions: one between receptive and expressive vocabulary, and one between breadth and depth of vocabulary. Using receptive vocabulary entails recognising a word's form when reading or listening and recalling its meaning, whereas expression through speech or writing requires the retrieval and production of the appropriate word form. The breadth of vocabulary knowledge is the number of words known. The depth of vocabulary knowledge refers to how well those words are known (Anderson & Freebody, 1981). Breadth of vocabulary knowledge is relatively straightforward to estimate in comparison to depth, as it is basically counting known lexical items within a vocabulary test and inferring an overall vocabulary size from performance (Read, 2004). Nevertheless, this only represents the child's accessible knowledge at the time of the test and their understanding of the specific vocabulary used in that test and as Bogaards (2001) points out, this presents a challenge when attempting to account for the polysemous nature of the vast majority of words. In contrast, depth has a number of overlapping ways in which it can be conceptualised. Depth in vocabulary acquisition is argued by Read (2004) to have three ways of developing; precision of meaning, comprehensive word knowledge and network knowledge. Precision of meaning can be tested through providing multiple choice options for the correct definition of the target word. Comprehensive word knowledge would be very time-consuming to test thoroughly (Read, 2004), especially if adopting Nation's (2001) notion of what is involved in knowing a word. For each target word, this would involve assessing what is known about its form (spoken, written and morphemes), its meaning (including the concepts, referents and associations such as synonyms and antonyms) and its use (grammatical functions, collocations, and constraints on use such as register and

frequency) (Nation, 2001). The third way is the lexical network that the word activates such as through word association tasks. An alternative perspective on conceptualising vocabulary depth comes from Schmitt (2014), where depth can be viewed in several ways such as knowing multiple word knowledge aspects, knowledge of multiple meanings of polysemous words, knowledge of the various derivative members of a word family, mastery of collocations, and lexical fluency and organisation (Schmitt, 2014). Overall, how word knowledge is conceptualised will influence the format of the assessment, with the relationship between breadth and depth of vocabulary knowledge dependent on how it conceptualised and measured (Schmitt, 2014). Regardless of the conceptualisation and measurement, a vocabulary assessment will only ever assess certain aspects of the total level of comprehension of a lexical item (Read, 2004).

One way in which metalinguistic awareness relates to vocabulary is through the process of word learning. A large amount of lexical growth in the primary school years is children's developed understanding of derived words and morphological problem solving (Anglin, 1993). When children encounter new words, they must be able to use metalinguistic skills to infer the meaning of the word based on context and other linguistic cues. For example, a child may use their knowledge of the structure of language, such as morphemes and prefixes, to determine that the word '*unhappy'* means '*not happy.'* Or, upon encountering an unfamiliar word such as *unbelievable*, a child may recognise, albeit implicitly, that the prefix and suffix (*un-* and *-able*) indicate that the word is an adjective. The child may then guess the approximate meaning for the word by combining the meanings of the affixes with the stem (*believe*), which helps the child better comprehend a sentence such as, '*for the mother, her daughter's behaviour was unbelievable*.'

Children with weaker metalinguistic skills may experience challenges with vocabulary development. For example, a study conducted by Scarborough et al. (1991) found that preschool children who had difficulty with tasks that involved manipulating phonemes were at greater risk of having difficulties in vocabulary development and reading. Similarly, Farnia and Geva (2011) found in their longitudinal study of bilingual children through the primary school years that phonological awareness correlated positively and significantly with receptive vocabulary. Most of the research literature concerning metalinguistic awareness is in relation to reading comprehension in monolingual children, with vocabulary measures included only as a covariate. Fewer studies have examined the effect of metalinguistic awareness on early vocabulary and grammatical abilities among young bilingual learners. One study that did look at this was by Altman et al. (2018) who found that the metalinguistic awareness of Russian-Hebrew bilingual children aged 5-6 years was a predictor of both receptive and expressive vocabulary size.

Supporting these findings is a longitudinal study by Kieseier et al. (2022). A detailed account of this study is warranted given the scarcity of studies on metalinguistic awareness in bilingual children, and it also provides valuable insights into the relationship between metalinguistic awareness and vocabulary. From the premise that metalinguistic awareness comprises an analysis and a control component (Bialystok, 2001), they calculated a metalinguistic awareness analysis (MLA) score from the complexity of the responses to questions in a metalinguistic interview, and a metalinguistic awareness control score (MLC) from phoneme manipulation in English and letter fluency tasks in English and German. The 11 questions in the interview addressed several linguistic topics (phonology, lexicon, morphology, syntactic structure, and pragmatics), as well as cross-linguistic variations between English and German. Cards containing images and phrases or words were used as visual aids throughout the interview. Eighty-one children aged 7 to 11 years with German as their home language were compared to 112 children who had a home language different from German. The language of instruction at school was German, with both groups learning English as a foreign language. The minority language children had been exposed to German since birth and therefore had high proficiency in German. Vocabulary was assessed in English, German and the home language, with grammatical knowledge of English tested using the Test for Reception of Grammar (TROG-2; (Bishop, 2003). Several outcomes were observed. Overall, MLA and MLC control positively correlated with English vocabulary and grammar. For MLC, correlations were stronger with grammar than with vocabulary and for MLA, the correlation was stronger for vocabulary. Further, MLA was a significant proportion of the variance in English vocabulary scores and MLC was a significant predictor of performance in English grammar Kieseier et al. (2022). It was concluded that MLA had a positive effect on both vocabulary and grammar in a foreign language, metalinguistic analysis helps develop vocabulary, and metalinguistic awareness is helpful for constructing (cross-linguistic) inferences to learn new words in a foreign language (Kieseier et al., 2022)

6.1.7 The relationship between morphological awareness and vocabulary

Learning new words is a complicated process that involves interactions between word features (such as morphological complexity), learner features (such as language proficiency), and instructional settings (Elleman et al., 2017). About 60% of the new words that school-aged children learn are morphologically complex and have a clear internal structure (Nagy & Anderson, 1984). As children advance through primary school, they encounter an increasing amount of words that are lengthy, rare, morphologically complex, and beyond their oral lexicon (Green et al., 2003). Using the meanings of known base words, prefixes, and suffixes to deduce the meanings of novel words is therefore a viable strategy to expand one's vocabulary (Anglin, 1993; Carlisle, 2000). This strategy, however, must be supplemented with reading for children's vocabulary to expand at the observed pace throughout the

course of their school years (Nagy & Anderson, 1984). There is a wealth of evidence pointing to the significance of morphological awareness for vocabulary acquisition in monolingual English children and for different languages. Research indicates that morphological awareness facilitates word recognition, the acquisition of new words, and reading comprehension in English speaking children (Kraut, 2015; McCutchen & Logan, 2011) and in Chinese speaking children (Pan et al., 2023; Wang et al., 2022). Research by Anglin (1993), concentrating on monolingual children, demonstrated the importance of familiar morphemes in the acquisition and application of new words, showing that children ages 6 to 10 years use morphological structures to infer the meanings of words. Further research corroborated this conclusion and demonstrated the value of morphological awareness in monolingual children's vocabulary acquisition (e.g., (Kieffer & Lesaux, 2012; McBride-Chang et al., 2008; Nagy et al., 2003). McBride-Chang et al. (2005) found that in English monolingual children aged 5-8 years, the majority of the variance (48%) in vocabulary knowledge was predicted by phonological processing and reading, with morphological awareness predicting an additional 10% of the variance in vocabulary knowledge. Based on these findings, children make use of words' morphological structures to identify the meaning of unknown words, even when they have not been specifically instructed to do so. These findings highlight the importance of morphological awareness for understanding variability in vocabulary acquisition in young children. In bilingual populations, where the process of developing morphological awareness may be at various stages in each language of the bilingual speaker, the relationship between morphological awareness and vocabulary are under researched (Altman et al., 2018). There are also inconsistent findings in how bilinguals differ from native English speakers in their sensitivity to the morphemic structure of words (Kieffer & Lesaux, 2012).

Looking at Chinese-English bilingual children aged 8-9 years, and their performance in word reading, vocabulary, phonological awareness, morphological awareness and speech perception in both of their languages, Cheung et al. (2010) found that phonological and morphological awareness in either language positively correlated with reading and vocabulary in both languages. Work by Pan et al. (2023) into Chinese-English bilingual children corroborated the correlation between morphological awareness and vocabulary across both languages and extended this work by finding morphological awareness facilitated both vocabulary breadth and depth across languages. Moreover, metalinguistic awareness predicted reading and vocabulary across languages. Altman et al. (2018) investigated the effect of morphological awareness on vocabulary in three groups of children aged 5-6 years: Russian-Hebrew bilinguals dominant in Hebrew (SL), Russian-Hebrew bilinguals dominant in Russian (HL), and Hebrew monolinguals. They operationalised morphological awareness using measures of root awareness and compound awareness. The findings revealed that the monolinguals outperformed the HL bilinguals in the morphological awareness task, but this difference was not found between the

monolinguals and SL bilinguals. It is worth noting that morphological awareness was only measured in Hebrew and so the HL bilinguals may have had a higher score in morphological awareness if it had been measured their dominant language of Russian. This study emphasises the importance of taking dominance and relative proficiency in each language in each modality (expressive and receptive) into account when studying metalinguistic awareness in bilinguals. Bialystok and Barac (2012) suggest that morphological awareness is sensitive to language-specific knowledge, which requires a higher level of proficiency in the target language, and so relationships with vocabulary size are more evident in the later stages of acquisition, or in the dominant language. Supporting this position is Zhang et al. (2023) who found that in native and non-native English speaking children aged 9 to 11 years, those with higher English proficiency were better able to employ morphological clues to recall the meaning of previously taught novel words than those with lower English proficiency.

Overall, the associations between morphological awareness and vocabulary outcomes in bilingual children differ depending on the type of awareness task that was used, the language of the task, and proficiency in each language. The relationships also vary depending on whether morphological awareness is being correlated with the dominant or non-dominant languages vocabulary.

6.1.8 The relationship between syntactic awareness and vocabulary

The role of syntactic awareness in reading comprehension is supported by research showing that syntactic awareness helps children to manipulate complex sentences by breaking them down into smaller, more manageable constituents (Deacon & Kieffer, 2018; MacKay et al., 2021; Nation & Snowling, 2000; Tong et al., 2014). However, the relationship between vocabulary and syntactic knowledge alone is less explored (Xie & Yeung, 2022). Vocabulary lays the groundwork for the development of syntax as knowledge of syntax entails understanding of the vocabulary used in sentences (Hoff et al., 2018). Moreover, the growth of vocabulary may be reliant on the development via syntactic bootstrapping (Bates & Goodman, 1997; Gleitman, 1990; Landau et al., 2009). According to research, knowledge of grammatical structures makes learning new words easier (Restrepo Ramos, 2015), and learners utilise their sentence-level grammatical knowledge to infer the meaning of unfamiliar words in reading settings (Paribakht & Wesche, 1999). Through analysing the relations among words within a sentence, children can predict the meanings of unknown words. Syntactic abilities interact with other language abilities, particularly morphology, within the larger linguistic system. These two grammar components are closely related to one another, with subject-verb agreement acting as the link between morphology and syntax (MacKay et al., 2021).

Xie and Yeung (2022) tested 9–10-year-old Cantonese-English bilinguals on vocabulary, syntactic awareness (as measured by a sentence correction task) and reading comprehension one year

apart. All three variables correlated positively with each other, with syntactic awareness predicting the growth of vocabulary and reading comprehension, and vocabulary predicting the growth of syntactic awareness and reading comprehension. Additional evidence for this relationship comes from Davidson et al. (2019) who observed that among bilingual children, the ability to detect correct word order sentences was only significantly predicted by their English receptive vocabulary. This study compared monolingual English children with English-Spanish bilinguals and English-Urdu children aged 5 and 6 years. The performance on the grammaticality judgement test was consistently predicted by English receptive vocabulary skills. Furthermore, when the sample was divided into children with high and low receptive vocabulary, the children in the high vocabulary group correctly identified incorrect word order constructions 90% of the time, while the children in the lowest range correctly identified these incorrect word order constructions only 49% of the time. Nevertheless, receptive vocabulary ability in bilingual children's heritage language did not predict grammaticality judgement test performance, suggesting that the link between receptive vocabulary ability and syntactic awareness ability may be language specific. These findings show that receptive vocabulary capacity in the language of assessment may be more significant for bilingual children than for monolingual children. However, this hypothesis does not align with the findings of Sohail et al. (2022) who found that syntactic awareness and vocabulary positively correlated with each other in English, in French, and across languages in French-English bilinguals aged 8-9 years.

In a study by Huang (2018), Chinese-English bilinguals and Chinese-Southern Min bilinguals, with an average of 9 years old, were tested on morphology and syntactic awareness in Japanese, an unknown language to both groups. The structure of Japanese sentences was demonstrated to both groups by the presentation of six sample sentences. The participants relied on their metalinguistic awareness to infer the rules, as they had not been taught them explicitly. They were then tested on their judgment and correction of grammatically incorrect sentences. As predicted, the Chinese-English bilinguals performed better in identifying and correcting past tense inflectional suffix mistakes in Japanese, given that Chinese and English differ on this feature, but Chinese and Southern Min do not have inflectional suffixes. There was no discernible difference between the two bilingual groups on word order and negation suffix detection tasks in Japanese as Chinese, English and Southern Min all-share SVO sentence structure. This study found that bilingual children who spoke languages with high typological distance performed better on certain metalinguistic awareness tests than their peers who spoke languages with comparable features.

The exact link between vocabulary and syntactic awareness in monolingual and bilingual children is difficult to determine. This lack of consistency in outcomes may be attributable to the two languages of the bilingual child. When two languages have comparable syntax and a low typological

distance, it may be simple for bilingual speakers to acquire and adopt the syntax of the other language, or to transfer their native syntax to the other language. Contrastingly, when two languages have different syntax and high typological distance, this process may be more difficult. For instance, if one language with a subject-verb-object (SVO) word order, such as English, and the other has a verb-final (VF) word order, such as Japanese, bilingual speakers may have difficulty transferring the syntax of one language to the other. The relationship between vocabulary and syntactic awareness in bilingual speakers is further confounded by the few studies explicitly looking at this relationship without the inclusion of reading comprehension.

6.1.9 Interventions

Grammar has always been an important component of the National Curriculum for English, as it plays a crucial role in helping students to communicate effectively and clearly. From the earliest stages of their education, students should be taught the basics of grammar, such as parts of speech and sentence structure. However, the extent of this varies depending on the school. As they progress through their education, they are introduced to more complex grammatical concepts, such as verb tenses, clauses, and voice. This focus on the metalanguage used for naming parts of speech and the emphasis on syntax and morphology brings metalinguistic awareness to the forefront of classrooms.

Providing explicit instruction on morphological and syntactic structures of language can be highly beneficial for children's language development. By teaching children about morphological elements of language, practitioners can help them become more skilled at identifying and using words in a variety of contexts. Similarly, teaching children about sentence structure, grammar, and syntax can help to increase their syntactic awareness. By providing explicit instruction on these aspects of language, educators can help children to develop a deeper understanding of how language works, and to become more skilled at using language to communicate effectively. This being said, there will be great variation in how schools approach the national curriculum and vast differences between teachers in exactly what is taught and how.

6.1.10 Increasing syntactic awareness

Several studies have demonstrated that syntactic awareness is connected to reading comprehension (Muter et al., 2004) since it enables the identification of constituent structure, which in turn facilitates a phrase's meaning via the mapping between syntactic and semantic roles. This relationship should be reciprocal because syntactic structures in written texts are typically more complex, and exposure to complex syntax should increase syntactic knowledge in readers (Deacon & Kieffer, 2018). There is also evidence for the role of syntactic awareness in the development of writing skills with Sun et al. (2018) finding that syntactic awareness was positively correlated with writing skills in bilingual English-Chinese primary school children. There is little empirical evidence looking

specifically at increasing syntactic awareness in isolation from other domains such as reading comprehension, vocabulary, and morphology, both in typically developing monolingual and bilingual children. One study that did include a measure of syntactic awareness comes from Xie and Yeung (2022). They investigated the longitudinal relationship between vocabulary, syntactic awareness, and reading comprehension in 8- to 10-year-old Chinese children learning English, who were tested one-year apart. Syntactic awareness was assessed using a sentence correction task, whereby a grammatically incorrect sentence was presented orally, and the children were asked to correct it. Six of the ten items contained an error in word order (e.g., *Peter goes sometimes to church)*, and the rest involved a grammatical error (e.g., *John gave the crayon for Mary)*. As none of the errors in the sentences were morphological, all items tapped into children's awareness of sentence structure. The authors found a significant improvement in scores from pre-test to post-test was found, demonstrating the developmental trajectory of these areas. Additionally, vocabulary, syntactic awareness and reading comprehension tests across the pre-test and post-test were significantly correlated with one another, with scores at time 1 predicting scores at time 2. Lastly, vocabulary scores at time 1 significantly predicted syntactic awareness and reading comprehension at time 2, and syntactic awareness at time 1 predicted vocabulary scores at time 2. This study provides important insights into the relationship between vocabulary, syntactic awareness, and reading comprehension in Chinese children learning English. The results suggest that there is a longitudinal developmental trajectory for these areas and that they are significantly correlated with one another. Furthermore, the study highlights the importance of vocabulary in predicting syntactic awareness and reading comprehension over time. Overall, this study contributes to our understanding of the complex interplay between language skills and how they develop in bilingual children, which has implications for educational practices and interventions.

It should be noted that many measures of syntactic awareness and thus methods to improve syntactic awareness also tap into morphological knowledge and so disentangling the two is problematic. From a review of literature, there is little research on interventions to increase syntactic awareness alone. There is abundant evidence for how children resolve syntactic ambiguity in sentences, for example by making use of their knowledge of word order and local and long-distance dependencies, however this has not transpired into many interventions targeting the development of syntactic awareness.

6.1.11 Developing morphological awareness

A distinction should be made between implicit and explicit instruction (Ellis, 2009). The purpose of implicit instruction is to enable learners to infer rules without awareness, whereas explicit instruction aims to make learners aware of the rule through increasing their metalinguistic awareness.

Here, the emphasis is on explicit teaching, which can improve explicit understanding of morphemes and, in turn, foster the acquisition of vocabulary. Familiarity with the meanings of the morphological components that make up a word should lead to a more stable and accurate mental representation of the word (Bowers & Kirby, 2010). This deeper knowledge of words improves lexical quality, which, as we know from the lexical quality hypothesis, is important (Perfetti & Hart, 2002). The vast majority of studies in this area are in the context of learning to read or spell, or in children with learning difficulties. Explicit instruction in morphological awareness has been investigated in several studies of second language learners in various languages, with instruction being successful in increasing vocabulary. However, these studies have mostly included adolescents and adult participants.

Kieffer and Lesaux (2007) outline several principles for high quality teaching of morphology. These are: 1) morphology should be taught as part of an extensive programme to improve vocabulary; 2) morphological units should be used to manipulate words and make hypotheses about the meaning of unknown words; 3) morphology instruction should be given explicitly using grammatical terms; and 4) any language cognates should be taught if appropriate between the two languages of a child. Morphology instruction should also contain the meanings of frequent prefixes and suffixes and make use of word families, in addition to common Latin and Greek roots of words (Kieffer & Lesaux, 2007). Examples for each of these elements include prefixes such as *re-* (meaning *again*) and *un-* (meaning *not*), suffixes such as *-ly* (meaning *characteristic of*), word families (such as *strategy*, *strategic, strategise*, and *strategically),* and knowledge of roots, such as the common Latin root *audi,* meaning *to hear*, present in words such as *audience, audition, auditorium* and Greek roots such as *hydro* meaning *water* such as d*ehydrated hydrant*. Incorporating all these elements, will help children to learn vocabulary.

Bowers and Kirby (2010) conducted a meta-analysis of 22 studies of morphological instruction in children up to fourteen years of age and reported that compared to control conditions, the children who received morphology instruction demonstrated improved knowledge of morpheme constituents and vocabulary outcomes. In addition, they determined that morphological training is most successful when combined with other literacy instruction and for less able and younger readers. This review showed that interventions typically focus on inflectional affixes and derivational affixes. An intervention study by Baumann et al. (2002) compared different types of instruction on the ability to infer meanings of new vocabulary. The three experimental groups were taught to either use the meanings of common prefixes, contextual analysis, or a combination of both strategies. The 10- to 11-year-old children in the two groups employing morphemic analysis were able to recall the meanings of the words used in the teaching more easily in comparison to the contextual analysis group and a control group, with the contextual analysis group scoring higher than the control group. Bowers and

Kirby (2010) examined how well monolingual English-speaking children aged 9 to 11 learnt to employ morphological analysis, including word roots, to deduce the meanings of unknown words. Taking into account the students' vocabulary knowledge before the intervention and comparing them to a control group, students who took part in the intervention were better able to recognise new words that included freestanding root words and bound roots (for example, *cred* in *incredible*) taught during the intervention. This study demonstrated that teaching morphological analysis aids students in learning vocabulary beyond the words taught. Children who can break down the meaning of words into their component pieces are better able to identify how words from the same families are connected in meaning and correctly infer meanings of unknown words that have familiar morphemes (McCutchen & Logan, 2011). More recently, Crosson et al. (2019) developed the 'EL RAVE' (English Learners' Robust Academic Vocabulary Encounters) for two populations of emergent bilingual adolescents in America. To note, emergent bilinguals growing up in an environment where multiple languages are present and are in the process of developing proficiency in those languages. This may include children who are learning both their home language and the language of the majority culture in their country. The participants were either American born English-Spanish bilinguals or recent immigrant populations with diverse first languages. This intervention added a novel dimension to morphological interventions by focusing on morphological analysis with Latin roots, which involved teaching connections between Latin roots and semantic clusters. This strategy was used because roots generally provide more essential information about the meaning of a word compared to affixes, which only modify the meaning of the root. For example, the word '*unhappiness*.' In the word, '*happiness'* is the root and '*un'* is the affix. While '*un*; changes the meaning of the root by indicating a negative or opposite meaning, it does not provide as much information about the meaning of the word compared to the root '*happiness'* itself. By focusing on the root '*happiness'* in vocabulary instruction, students can better understand the overall meaning of the word and its relationship to other related words, such as '*happy*", and '*unhappy.'* Three separate trials showed that this approach was more effective than vocabulary intervention without the inclusion of teaching roots, as demonstrated by increased scores post-intervention in knowledge of roots, knowledge of word meanings, and morphological awareness. The authors recommend teaching morphological problem-solving skills for generative word learning (Crosson et al., 2019). Overall, a growing body of research has shown that morphological awareness is amenable to improvement through intervention and has positive effects on vocabulary knowledge (Baumann et al., 2002; Harris et al., 2011; Katz, 2011), morphological awareness, (Bowers & Kirby, 2010; Crosson et al., 2019; Friedline, 2011) and reading comprehension in typically developing children (Bowers & Kirby, 2010; Carlisle, 2007, 2010), children with language and literacy disorders (Goodwin et al., 2012; Goodwin & Ahn, 2010; Lovett et al., 2000), EAL learners and emergent bilinguals (Crosson

et al., 2019; Friedline, 2011). Overall, teaching learners to focus on the morphological components of words can enhance their ability to acquire new words.

6.1.12 Developing vocabulary

Morphological analysis is not the only method to infer word meanings and acquire new vocabulary; children can gain information about words when they encounter them in meaningful and informative contexts (Nagy & Anderson, 1984). Syntactic knowledge can also facilitate the acquisition of vocabulary in reading contexts (Restrepo Ramos, 2015). Children with good syntactic awareness have also been found to be more able to decipher the meaning of difficult words in meaningful contexts (Browne Rego & Bryant, 1993). The literature is clear that interventions in increasing vocabulary have been effective (Crosson et al., 2019). Given the correlation between limited vocabulary and academic progress (Asaad et al., 2022), efforts to increase lexicons in children has received much attention. Traditional vocabulary teaching, which solely focuses on teaching the definition of a word or providing a list of words to be looked up in a dictionary, is an ineffective approach (McKeown & Beck, 2011). While using a dictionary is a simple method, it is crucial for children to understand the appropriate circumstances for doing so and how to effectively apply the information from the dictionary entry to develop a comprehensive understanding of a target word. By skilfully deciphering the elements of a definition, (part of speech, pronunciation, and primary and secondary definitions) children can acquire a functional understanding of the target word through enhancing their ability to retain it for later use (Stahl & Nagy, 2007).

Effective word learners can approach new words by gaining an understanding of word structure, which is mostly tied to morphological awareness. This is a valuable tool for students when they are confronted with new vocabulary (Kieffer & Lesaux, 2007). Approaching vocabulary teaching through the lens of enhancing morphological awareness is one commonly employed method. To briefly review, morphemic analysis of words is the process of deducing the meaning by analysing the clues provided by its individual word parts, i.e., morphemes. For the purpose of explicit education, this entails not only teaching pupils the definitions of the sub-components of individual words, but also instructing them on how to break apart and put back together words (Baumann et al., 2002). This process requires the use of the root word, prefixes, suffixes, and cognates for a particular word. Once these notions are understood, the meaning of unknown words may be deduced (Anglin, 1993), with the understanding of morphemes providing students with the tools necessary to become independent word learners (White et al., 1989). This is important to develop vocabulary breadth and depth. Individuals who possess a more extensive range of words generally exhibit a higher level of comprehension of morphology (Kieffer & Lesaux, 2007).

The above-described features align with strategies reported in studies documenting effective word learning through the promotion of word processing depth. For example, because the same affixes are utilised in a vast array of words, this method is particularly effective for generalising word knowledge (White et al., 1989). A meta-analysis by Bowers and Kirby (2010) revealed that children up to 14 years old who had received morphological instruction displayed stronger intervention effects in vocabulary outcomes compared to control groups. Crosson et al's (2019) vocabulary intervention described previously also found that teaching morphology supports word learning.

Other types of interventions for increasing vocabulary include using stories, and contextual cues. Numerous studies have found that reading stories to children helps them increase their vocabulary, and that children who read more have a wider vocabulary (Cain & Oakhill, 2011) with exposure to printed texts predicting vocabulary growth (Echols et al., 1996). To illustrate, Ricketts et al. (2011) looked at how children learned the meaning of novel words embedded in a story and found that these 7- to 8-year-olds showed reliable semantic learning when tested after the story. Further evidence comes from work with pre-schoolers, and school age children (Lonigan et al., 2008; Penno et al., 2002; Suggate et al., 2013; Swanborn & de Glopper, 2002). Indubitably, reading introduces individuals to a wide range of lexical elements, thereby enhancing their vocabulary in a manner less often attained through verbal exchanges in daily life (Suggate et al., 2013). However, compared to other strategies, the gains from solely reading are small (Beck et al., 2013). Contextual analysis is another word learning strategy used in vocabulary interventions, although it less studied compared to other strategies (Connor et al., 2019). An effective approach to promote word knowledge growth is teaching children to pay attention to contextual cues both preceding and following an unfamiliar word within a text. This strategy encourages children to use analytical skills to comprehend new words, contributing to their overall vocabulary development (Nagy et al., 1997). In a meta-analysis of research using context cues to enhance vocabulary, Fukkink and de Glopper (1998) found medium effect sizes for contextual analysis intervention, with other work also demonstrating the effectiveness of using surrounding context to understand unknown words (Beck et al., 2013; Graves, 2016; Kucan, 2012; Neuman & Roskos, 2012). However, this strategy alone is not as reliable as others (Baumann et al., 2003) and is demonstrated by Dickinson (1984) who found that children made greater vocabulary gains when they were given definitions of words compared to when they just heard new words in the context of a story.

Vocabulary interventions that teach students multiple strategies such as using morphology, context clues, and dictionary usage, are more effective in promoting vocabulary acquisition than interventions focusing on only one or two strategies (Wright & Cervetti, 2017). This finding highlights the importance of a comprehensive and adaptable approach to teaching vocabulary that enables

students to employ a variety of techniques to enhance their understanding of new words. Work by Graves et al. (2017) on their 'Word Learning Strategies' program, a four component program, demonstrates the effectiveness of a combined technique for vocabulary intervention. The primary aim of the single-term Word Learning Strategies (WLS) programme, which consisted of three 30-minute sessions per week, was to equip students with comprehensive training on using various techniques such as morphological analysis, contextual inference, and dictionary consultation—for the purpose of deciphering and understanding the meanings of unfamiliar lexical items they might have encountered in their reading. The program provided students with an understanding of these strategies, enabling them to decipher new vocabulary effectively and independently. The fundamental elements of this program centred on explaining and thinking about the significance of the word learning strategies, demonstrating the strategies through modelling, and giving students increased responsibility for autonomously using the strategies. Over three trials in different schools with children aged 9 to 11 years, the WLS program was effective for both monolingual, bilingual, and EAL children, with the gains post-test higher for EAL children (Graves et al., 2017).

Connor et al. (2019) conducted a comprehensive study to evaluate the efficacy of the Word Knowledge E-Book (WKe-Book) in enhancing children's lexical comprehension and strategic word learning. The e-book employed a triad of strategies: morphemic analysis, contextual analysis, and dictionary consultation. The study used a randomised controlled design involving children in the US aged 8 to 11. Participants were divided into two groups: one receiving explicit strategy instruction through a weekly book club (where strategies were explicitly taught to students) and the other reading the e-book independently. Assessments were conducted at three time-points—pre-intervention, immediately post-intervention, and during a delayed follow-up. The evaluations focused on paragraph comprehension, familiarity with target words in the e-book, and standardised measures of reading comprehension and vocabulary. The results demonstrated a substantial treatment impact of the WKe-Book, both immediately post-test and in the delayed follow up, on increasing students' word knowledge, word knowledge calibration, and strategy usage, which predicted student success on standard reading comprehension and vocabulary assessments. The effects were also greater for students in the book club condition.

According to Goodwin et al. (2012), a commonly employed approach in their meta-analysis was the use of affix and root instruction. This method trains students to become 'word detectives' by utilising word components to infer the meanings of unfamiliar words. This method involved students identifying and marking roots and affixes within complex words. In Connor et al's (2019) study, students were shown some text from a book and asked to identify words that they did not understand. The teacher then went through different strategies to help them to decipher the meaning, for example

explicitly saying, 'let's break the word down into parts and see if we can figure out the meaning.' This method is comparable to that advocated by Parsons and Branagan (2014) in their 'Word Aware' school-wide approach to vocabulary teaching and learning. Expanding on the research conducted by Beck et al. (2013), this approach offers a useful framework for educators in primary school and early years to structure the teaching of new vocabulary.

The 'Word Aware' approach presents a compelling argument for utilising books as an effective resource for vocabulary development, as books frequently contain language that is not commonly encountered in everyday spoken language. This approach offers ample support to educators in their efforts to establish a language-rich atmosphere by integrating interactive activities and multi-sensory stimuli, such as pictures, word walls, objects, videos, and songs. It also comprises several suggestions and illustrations on how to make vocabulary acquisition engaging for children. The Word Aware method for teaching words (which is based on four aspects: making words count, teaching vocabulary which is based on the 'select, teach, activate, and review' (STAR) process outlined by Blachowicz and Fisher (2010)), enables children to become 'Word Detectives' and have fun with words. The STAR process involves four steps. First, suitable words are chosen, and then these words are taught through organised instruction, which includes explaining their meanings in an accessible and child-friendly way by using relatable examples. Next, children are encouraged to use these words in different contexts to reinforce their learning. Finally, the words are regularly reviewed to ensure they are retained in long-term memory. The 'Word Detective' component involves teaching children the word learning skills of context, parts of speech, affixes, predictions, and dictionary use. The 'Word Detective' approach was used in the current study in the YI training and is described in more depth in the methodology chapter of this thesis.

The effectiveness of Word Aware methodology has only recently been explored in two studies. Moran and Moir (2018) employed books as a means of introducing and expanding the vocabulary of young children in three nursery schools. Early years practitioners were trained to implement this program, with each nursery choosing a children's book to be the central focus of learning over a four-week period, with four words from the story targeted. Across all three nurseries, each of which used a different story book and target words, children's word knowledge pre- and post-intervention improved. The additional qualitative component of the study revealed that staff felt positive about the approach and thought the methodology was easy to implement. Staff also continued to use the approach with a new book once the intervention was complete, demonstrating its efficacy. In Hopkins et al. (2022), they investigated the efficacy of the early years adaptation of the Word Aware program in promoting the comprehension of early word concepts in children aged 4 to 5 years. Following a 10-week intervention, the participants who underwent the Word Aware program were compared to a

control group who did not receive the intervention. The target words were those that the largest number of children in both groups did not know at pre-test. Although there was noticeable improvement in the targeted words for both groups, the informal and standardised assessments of their receptive vocabulary did not reveal any significant difference in the overall improvement between the two groups. The authors attribute this to the almost ceiling effects at the pre-test of all words, thus resulting in a lack of intervention effect. According to the qualitative aspect of the project, teachers expressed their satisfaction with how the resources could be practically utilised and were impressed with the valuable information they obtained regarding their students' vocabulary knowledge. The study conducted by Moran and Moir (2018) offers encouraging evidence that implementing the 'Word Aware' program in preschool environments results in enhancement of the vocabulary that is taught. Both studies also establish that the introduction of this method leads to more significant and well-planned learning opportunities for children, empowering teachers to think innovatively and collaboratively about the teaching and learning experiences they offer to children.

In conclusion, the three most prevalent and effective word learning strategies are dictionary use, morphemic analysis, and contextual analysis (Graves et al., 2017). The most effective vocabulary interventions use explicit instruction, similar to the approach used in the Word Aware program and teaching the meaning of words in context. This teaching method promotes students' existing knowledge, identifies similarities, and differences in word meanings, and encourages active manipulation of meanings and inferences. This approach enables students to better comprehend new vocabulary, form connections between words, and apply words in various contexts. (Graves & Sales, 2013).

6.1.13 The current study

The review of the literature provides an account of the development of metalinguistic awareness and vocabulary, and how this knowledge may differ between monolingual and bilingual children. It is known that metalinguistic awareness, particularly morphological awareness, correlates and predicts vocabulary knowledge (Anglin, 1993) and that children have the potential to acquire effective strategies for enhancing their vocabulary and their metalinguistic awareness. Therefore, this study wanted to investigate if adding a component of training in morphological awareness and strategies to deduce the meaning of novel words to the YI children was beneficial in helping children to deduce the meaning of novel words. This was done by implementing 'Word Detective' strategies from Word Aware methodology into the YI training. An additional rationale for embedding these strategies in a story was that in their interactions with their EAL peers, the YIs may be asked what a word means, or to correct and explain mistakes made by their EAL peers in using English, and this could present the opportunity to talk about English. If the YIs have increased metalinguistic awareness, they

may be better able to explain new words and how English morphologically more explicitly. The central aim of this chapter is to examine metalinguistic awareness in a sample of YIs in comparison to a control group of control children, with the longitudinal design providing an insight into how this may change over time as they work as YIs.

The two research questions are:

- Can adding training in morphological awareness enhance YIs morphological awareness?
- Can adding training in morphological awareness indirectly improve syntactic awareness?

6.2 Methodology

6.2.1 Participants

The full details of the recruitment methods and sample are in chapter 3. The demographics of the sample included for analysis in the word re-ordering task are shown in table 6.1. The demographics of the sample included for analysis in the explaining words task are shown in table 6.2.

Table 6.1 Demographics of final sample included in data analysis for word re-ordering task

Factor	Time 1		Time 2		Time 3	
	A	B	A	B	A	B
Gender						
N	12	11	21	19	21	19
Male	4	4	6	5	6	5
Female	8	7	15	14	15	14
Language status						
Monolingual	0	0	0	0	0	0
Bilingual	12	11	21	19	21	19
Age in years (time 1)						
7	1	0	5	0	5	0
8	1	1	4	7	4	7
9	3	4	3	5	3	5
10	7	6	9	7	9	7

Note. Children were matched based on age in months. A = YI children. B = Control children

Table 6.2 Demographics of final sample included in data analysis for explaining words task

Factor	Time 1		Time 2		Time 3	
	A	B	A	B	A	B
Gender						
N	30	30	30	30	30	29
Male	10	21	10	21	10	9
Female	20	9	20	9	20	20
Language status						
Monolingual	9	9	9	9	9	9
Bilingual	21	21	21	21	21	20

Age in years (time 1)						
7	6	1	6	1	6	1
8	5	9	5	9	5	9
9	5	8	5	8	5	8
10	14	12	14	12	14	11

Note. Children were matched based on age in months. A = YI children. B = Control children

6.2.2 Materials

Word re-ordering task

Syntactic awareness was assessed through a word re-ordering task based on a design by Finch (2020) and based on work with monolingual children by Nation and Snowling (2000). Eight different sentences structures were used as shown in table 6.3.

Table 6.3 Sentence structures in the word re-ordering task

Sentence structure	Example	Count
active reversible/singular verb	The girl/bird has followed the girl/bird.	3
active reversible/ plural verb	The lions/tigers have seen the lions/tigers.	3
active non reversible/plural verb	The boys have chased the dog.	3
active non reversible/singular verb	The girl has followed the kittens.	3
Non reversible filler	The girl ate the biscuit.	6
active with reflexive pronoun	The boy/girl and the boy/girl looked at themselves.	3
Double object dative	The girl/boy threw the boy/girl a ball.	3
passive with gendered possessive pronoun	The girl was helped by her brother.	3

Six sentences were semantically and syntactically reversible where the subject and object noun phrases were matched for number. Half of these sentences used a singular verb, (e.g., *The girl/bird has followed the girl/bird)* and the other half used a plural verb (e.g., *The lions/tigers have seen the lions/tigers*). Six items were syntactically non-reversible as the subject and object noun phrases were not matched for number and therefore the number on the auxiliary was the critical cue to subject-verb agreement (e.g., *The boys have chased the dog*). Six items were semantically non-reversible fillers using the same syntactic structure of subject, verb, and object (e.g., *The girl ate the biscuit*). Three items were active with a reflexive pronoun where the subject and object of the verb are the same (*The boy/girl and the boy/girl looked at themselves*). Three items had a double object dative structure (e.g., *The girl/boy threw the boy/girl a ball*). Three items were passive sentences with a gender-marked third person singular possessive pronoun (e.g., *The girl was helped by her brother*). The full list of the sentences for each time point are in appendix O.

Explaining words task

This task involved explaining 6 words (2 nouns, 2 adjective and 2 verbs) to the researcher. Each item was displayed individually on PowerPoint. The full instructions script can be found in chapter 3 of

this thesis. The words chosen were in line with the teaching of word-learning strategies through stories (TWLSS) delivered during the YI training. The main strategies for working out unknown vocabulary taught during the YI training were word context, part of speech, and morphological information and thus in this task, the target words could be explained using these tools.

Target word selection

The words were identified using SUBTLEX-UK (van Heuven, 2014), a corpus of subtitle-based word frequencies for British English. This corpus provides word frequencies based on the subtitles of British television channels including CBBC, which is specifically aimed at children. A total of around 13 ½ million tokens are used in the CBBC database to provide frequency counts based on 4848 broadcasts on the Zipf scale (Zipf, 1949), which is a logarithmic scale ranging from 1 (very low frequency words) to 6 (very high frequency content words) or 7 (function words and pronouns). At each timepoint, a different set of six words were used (see tables 6.4 – 6.6). The target words were embedded in a sentence that contained the definition of the word from the online Cambridge dictionary (Dictionary, 2022). The target words were chosen based on the following criteria:

1.   2 nouns, 2 verbs, 2 adjectives.

2..   6 words for each of the 3 time points matched on

- Part of speech
- A SUBTLEX-UK Zipf frequency between 1 and 3
- An age of acquisition between 9 and 11 years.
- Compound words that could be decomposed into individual words.

Table 6.4 Time 1 target words

Word	Length	Zipf frequency	Part of Speech	Age of acquisition	Notes	Example sentence
eyewitness	10	3.19	noun	9.3	Compound word containing *eye* and *witness*.	The **eyewitness** said that the robbers were men.
cheerleader	11	3.1	noun	6.0	Compound word containing *cheer* and *leader*.	She was **cheerleader** for the local football team.
noteworthy	10	2.09	adjective	9.9	Compound word containing *note* and *worthy.*	The boy said nothing **noteworthy** happened at school.
clueless	8	3.12	adjective	Not available	Compound word containing the root word *clue* and the suffix *-less*.	He was **clueless** about computers.
unknot	14	1.7	verb	Not available	Compound word containing the root word *knot* and the prefix *un-.*	The girl had to **unknot** her shoelaces.
deafen	9	2.96	verb	11	Compound word containing the root word *deaf* and the suffix *-en.*	The loud noise was going to **deafen** them all.

Table 6.5 Time 2 target words

Word	Length	Zipf frequency	Part of Speech	Age of acquisition	Notes	Example sentence
antifreeze	10	2.29	noun	10.1	Compound word containing the root word *freeze* and the prefix *anti-*	**Antifreeze** was needed to remove the ice from the car.
inkwell	7	3.4	noun	11.8	Compound word containing *ink* and *well*.	She dipped her pen into the **inkwell** before writing the card.
overcrowded	11	3.22	adjective	Not available	Compound word containing the root word *crowded* and the prefix *over-*.	The shops are always **overcrowded** at Christmas.
unnoticed	9	3.33	adjective	Not available	Compound word containing the root word *noticed* and the prefix *un-*	The boy snuck out of the house **unnoticed** by his mum.
distrust	13	1.3	verb	Not available	Compound word containing the root word *trust* and the prefix *dis-*.	I **distrust** my friend because she told my secret.
relive	6	1.17	verb	Not available	Compound word containing the root word *live* and the prefix *re-*.	The elderly couple like to **relive** their childhood memories.

Table 6.6 Time 3 target words

Word	Length	Zipf frequency	Part of Speech	Age of acquisition	Notes	Example sentence
sideboard	9	3.26	noun	10.2	Compound word containing *side* and *board.*	The only furniture the dining room had was an old **sideboard.**
afterlife	9	3.21	noun	Not available	Compound word containing *after* and *life.*	People of many religions believe in an **afterlife**.
feverish	8	2.59	adjective	12.3	Compound word containing the root word *fever* and suffix *-ish*.	The girl felt **feverish** and hoped it wasn't start of flu.
joyful	6	3.27	adjective	Not available	Compound word containing the root word *joy* and the suffix *-ful.*	Christmas is such a **joyful** time of year.
degrease	10	1.39	verb	Not available	Compound word containing the root word *grease* and the prefix *de-*.	The woman had to **degrease** the pan before cooking.
mistreat	12	1.47	verb	Not available	Compound word containing the root word *treat* and the prefix *mis-*.	The man was banned from keeping pets after he **mistreated** his dog.

6.2.3 Word re-ordering task - procedure

Each of the twenty-seven grammatical sentences were separated into words on individual tiles on PowerPoint. Each slide had one sentence with the words scrambled. The order of items was randomly generated at each time point using an online sequence generator https://www.random.org/sequences/. During testing, the PowerPoint was screenshared with the child over video call on Microsoft Teams. The child was first presented with a practice item consisting of a simple subject-verb-object sentence (The cat sat on the mat) and asked, "can you arrange these words to make a sentence that makes sense?" Figure 6.1 demonstrates an example of a stimulus sentence.

Figure 6.1 Example of stimulus in word re-ordering task

have

the

men

helped

girl

the
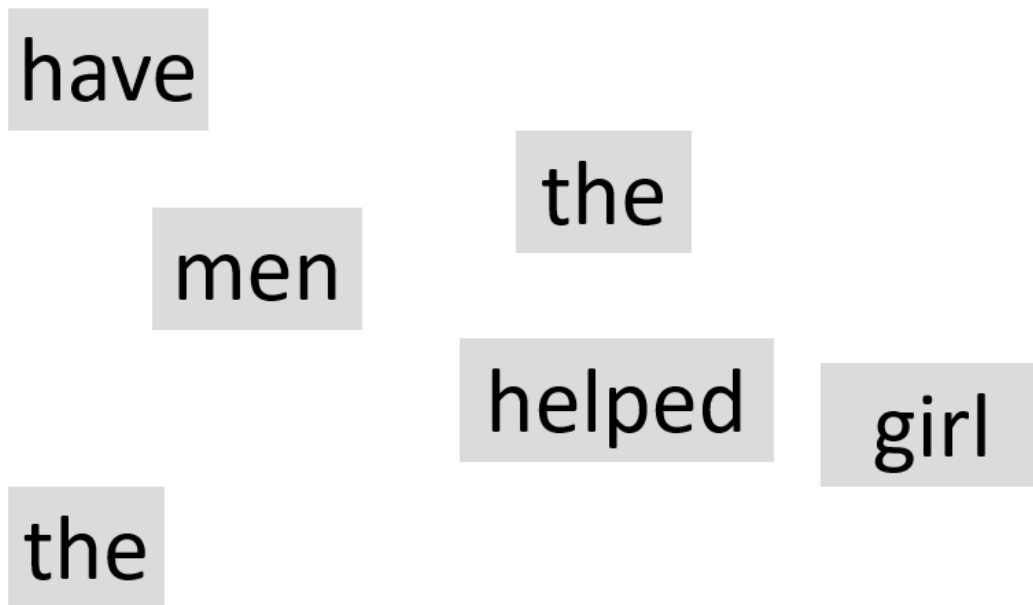
The researcher gave control of the mouse to the child who moved the tiles using their mouse into what they deemed the correct order to make a grammatical sentence. The child's response was recorded on a pre-made record form that had all of the correct sentences on. Any errors were noted on the record form. The researcher then moved the slideshow to the next item. This continued through all 27 items of the test. For eight items, one of each sentence type, the child was asked "why did you put the words in that order?" At the end of the stimuli presentation, the final slide stated that this was the end and thank you. The children's responses were audio recorded and later transcribed and scored.

6.2.4 Explaining words task - procedure

Each of the 6 target words were presented on a separate slide on PowerPoint. During testing, the PowerPoint show was screenshared with the child over video call on Microsoft Teams. Animation was used on each slide to stagger the appearance of each stage. First, the target word appeared and

was presented orally and in written form to the child. The child was asked "this word is *stimulus word*. Can you tell me what *stimulus word* means?" Irrespective of whether the correct definition was provided at the first stage, the child was then shown and read a sentence with the target word in before being asked "what do you think X means now?" When the test item and example sentence displayed on screen, the child was asked two questions; 1) "can you break the word down and find bits of meaning? and 2) What do each of those mean?" The researcher then moved the slideshow to the next item. All responses were audio-recorded and later transcribed and scored. This continued through all 6 items of the test. At the end of the stimuli presentation, the final slide stated that this was the end and thank you. Figure 6.2 demonstrates an example of a stimulus word.

Figure 6.2 Example of full stimulus in explaining words task

eyewitness

The eyewitness said the robbers were men.

Definition: noun
A person who actually saw an accident or crime.

6.2.5 Word re-ordering task - scoring

Responses to the sentences were scored as correct (1) or incorrect (0) based on whether the child arranged the words into the target grammatical sentence This resulted in a score out of 27 for arranging the words into the correct structure. If the child formed a question instead of a statement, or did not use all of the words, they were reminded not to do this. For the eight items where the child was asked the reason for their choice of word order, an explanation was coded as 0 if the child could not give a relevant reason; for example, if they made no specific comments on the grammatical properties and said, for example, "it sounds right", or "I don't know", or "it made sense"). Additionally, in the non-reversible filler sentences, although the sentences could plausibly be reversed grammatically, the semantic content meant that this was not feasible and as so the child needed to comment on the semantic features. For example, in the sentence '*the boy threw the ball*,' the child should justify the correct order of words by saying something like "balls can't throw boys").

Responses to explanations were coded as 1 if the child referred to the linguistic properties of the sentence using grammatical terminology such as plural and singular. For the six semantically reversible sentences, responses were coded as 1 if children acknowledged that the nouns could be in either order, or if they provided a semantically plausible explanation. For any sentences not put in the correct grammatical order, the child was still asked to justify their choice, but automatically received two scores of 0: one for the incorrect order and one for an incorrect explanation. Therefore, the overall maximum score was 35. The coding scheme was shared with a second independent coder and overall Cohen's Kappa (Cohen, 1960) across the three time points was 0.7, indicating substantial agreement between the two coders. The two coders then discussed the discrepancies to come to 100% agreement in assigning scores. Table 6.7 demonstrates example sentences for each structure and how the explanation was scored.

Table 6.7 Example sentences and scoring for word re-ordering task

Sentence Type	Example	Scoring
active non reversible/plural verb	The boys have chased the dog.	Subject-verb agreement. Identify one noun is plural so must be followed by have.
active non reversible/singular verb	The girl has followed the kittens.	Subject-verb agreement. Identify one noun is singular so must be followed by has.
active reversible/ plural verb	The lions/tigers have seen the lions/tigers.	Identify the nouns could be either way around and provide a semantically plausible explanation.
active reversible/singular verb	The girl/bird has followed the girl/bird.	Identify the nouns could be either way around and provide a semantically plausible explanation.
active with reflexive pronoun	The boy/girl and the boy/girl looked at themselves.	Nominal morphology. Identify that themselves is a plural so needs two nouns.
double object dative	The girl/boy threw the boy/girl a ball.	Identify the animate contrast that the ball can't throw the girl or boy.
non-reversible filler	The girl ate the biscuit.	Identify that not biscuits can't eat/ don't have mouths / aren't living.
passive with gendered possessive pronoun	The girl was helped by her brother.	Grammatical gender. Identify that the pronoun *her* is female so girl must be first.

6.2.6 Explaining words task – scoring

The responses were scored based on the criteria outlined in table 6.8. If the child explained the definition using the target word or morpheme, they were asked if they could explain the target word without using the word itself. For example, if the child explained the morpheme *'eye'* using the word *'eye.'* The maximum score for each word was 10 points, with an overall maximum score for the task 60. The child also received up to four bonus points for using grammatical terminology such as the

part of speech, using the term 'prefix' or 'suffix,' using the term 'compound word' and using the term 'root word.'

Table 6.8 Scoring system for explaining words task

Stage		Description	Answer type	Score	Bonus
1	Definition	SHOW - Word only. *INV: "This word is X." *INV: "What do you think X means?"	Correct definition	2	Identify part of speech = 1
2	Definition	*INV: "I'll show it in a sentence to see if that helps." Read and show sentence. *INV: "Can you guess what X means now using the context?" *INV: "How would you explain it someone who doesn't know what it means?"	Correct definition Incorrect definition or don't know	1 0	Use the term *prefix / suffix* = 1 Use the term *compound word* = 1
3	Decomposition	*INV: "Can you break the word down and find bits of meaning?"	Can identify morphemes	1 per morpheme Max =2	Use the term *root word* =1
4	Definition	*INV: "What do those words mean?" If child uses morpheme to explain, ask "Can you explain X without using x?"	Can identify meaning of each morpheme	1 per morpheme Max =2	Max = 4

*INV = Investigator

6.2.7 Data analysis

Data was analysed user Linear Mixed Effects Regression (LMER) models to explore predictors of explaining words total score at all three timepoints and were estimated using the *lmer* function from the *lme4* package (Bates, 2015) in R (version 1.3.1073, (R Development Core Team, 2020; RStudio, 2019)). LMER has the benefit of allowing participants and objects to be considered as random factors simultaneously in a single analysis and is robust in handling missing data. Additionally, it uses each individual response made by a participant for each item as a data point rather than aggregating replies to mean responses per condition.

The models were fitted using a top-down strategy, as recommended by Diggle et al. (2002) and Zuur et al. (2009). This was chosen as to include all variables of theoretical interest that could have affected the dependent variable of score on the task. The first model, which included all baseline measures and interactions, was the "beyond optimal" model (Zuur et al., 2009, p. 121). The models were fitted with restricted maximum likelihood (REML) as true. The significance of the following fixed elements was investigated since they are relevant to the theoretical subject under consideration. Ravens' percentile, BPVS raw score, TOWK Word Opposites raw score, and TOWK Synonyms raw score. Gender, age (in years), and language status were then added in turn as exploratory predictors. In each

of the models, participant and item were treated as random factors. The interaction of group and timepoint was tested in all models. Non-significant effects were dropped one by one until the optimal model was reached. Confidence intervals (95% CI) were calculated using the Wald method. Significant fixed effects were explored in post-hoc analysis using the *emmeans* function in R (Lenth, 2020).

Models were assessed by a reduction in AIC. The Akaike information criterion (AIC) was used to assist with selecting the appropriate statistical model. A lower AIC value indicates better quality of fit; thus, the model that demonstrated the minimum AIC was selected. Model comparison was compared using a log-likelihood ratio test using ANOVA.

Random slopes estimates were attempted but the model failed to converge, possibly due to the small sample size and complex model. All continuous baseline factors (Ravens percentile, BPVS raw score, TOWK Word Opposites raw score, and TOWK Synonyms raw score) were centred around the mean for analysis so that they have a mean of zero (centring) and standard deviation of one (scaling). This ensures that the estimated coefficients are all on the same scale, making it easier to compare effect sizes. Time 1 Age in years was also centred before analysis.

Due to the bi- and multi-lingual status of some of the participants, standard scores were not used for the vocabulary measures because assessments designed form, and normed on, monolingual speakers underestimate the linguistic knowledge of bilingual learners (McClain et al., 2021). Instead, raw scores were used. At Time 1 (baseline) a standard score was used to provide a general overview of the children's fluid intelligence, and all children performed within the normal range on a nonverbal reasoning test (Raven, 1978). Standard scores were acceptable because this was a non-verbal exercise and no specific proficiency in English was required. The R script for the word re-ordering analyses is in appendix S, and appendix T for the explaining words script.

6.3 Results

6.3.1 Baseline measures

Independent t-tests comparing the YI (A children) and control (B children) on each of their baseline assessments were conducted. No significant differences were found between the two groups on any of these measures.

6.3.2 Descriptive statistics – word re-ordering

The descriptive data for the word re-ordering task each of the three time points and split by group A (YI children, N=30) and group B (control children N = 29) are displayed in table 6.9. The mean word re-ordering total score for each group at each time point are shown in Figure 6.3. The mean word re-ordering explanation total score for each group at each time point are shown in Figure 6.4.

Table 6.9 Means for word re-ordering scores split by group at each timepoint

	Ordering Score		Explanation Score	
	A	B	A	B
Time 1 mean (SD)	21.75 (2.38)	20.18 (4.05)	0.50 (0.90)	1.64 (1.57)
Time 2 mean (SD)	18.95 (3.90)	19.47 (4.46)	0.29 (0.56)	0.89 (0.99)
Time 3 mean (SD)	22.67 (3.43)	21.89 (3.54)	0.67 (0.97)	1.27 (1.67)

A = YI children. B = non-YI children

Figure 6.3 Mean word re-ordering total score for each group at each time point
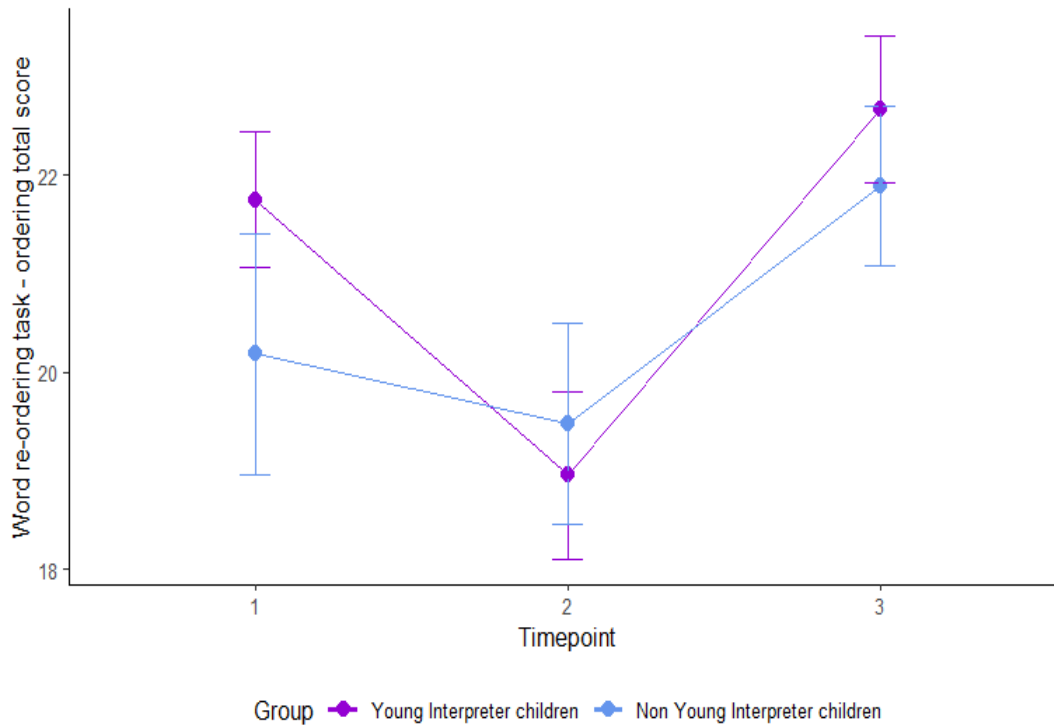
Figure 6.4 Mean word re-ordering explanation total score
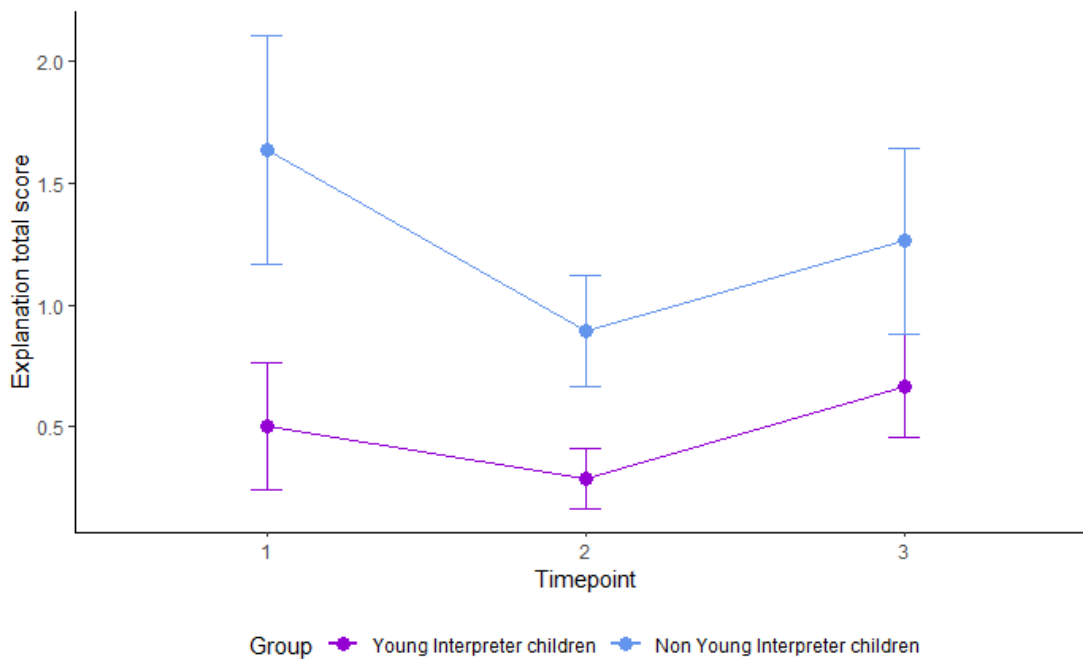
6.3.3 Inferential statistics - word re-ordering total scores

After the base model was fitted (containing the Group*Timepoint interaction, random effects of item and participant, and the four baseline measures as fixed effect) three subsequent models were produced. These tested whether each of the exploratory predictors (gender, age, and language status) added anything significant to the base model. These can be seen in table 6.10. Non-significant effects of the exploratory predictors were not retained. The final preferred model was the minimal model containing the base model and the fixed effects of Ravens standard score and TOWK synonyms raw score (see table 6.11).

At all three time points, there were no significant differences between the YI children and the control children in their word re-ordering total score. When taking into account the baselines score, the only predictor that was statistically significant was score on TOWK synonyms. The estimate for synonyms score indicates that higher scores on the synonyms test were significantly associated with higher scores on the word ordering total scores, and higher scores on the Ravens also had significantly positive effects on word re-ordering scores. This indicates that participants who have higher non-verbal intelligence and vocabulary depth performed better on the word ordering task. However, the model only accounted for a small amount of the variability in the word ordering total scores.

The results of the mixed-effects model indicated a significant effect of time point on the word ordering ability of the children. The coefficients for Timepoint 2 and Timepoint 3 were negative and positive, respectively, indicating that the children's performance decreased from Timepoint 1 to

Timepoint 2 and then increased from Timepoint 2 to Timepoint 3. The interaction effects between group and time point were not significant at alpha 0.05 (but were significant at alpha 0.1) for Group B, indicating that the control group did not show any significant changes in their word ordering ability over time. The post-hoc follow-up comparisons showed that the children's performance on the word ordering task was significantly different between some time points, but not others (see tables 6.12 and 6.13).

Table 6.10 Model comparisons and model building / selection for word ordering total scores

Sampling Units: .... N total obs = 2871 N Subjects = 60

Model name	Simpler model	Random-effects Participants	Fixed-effects-added Interaction	Fixed-effect	Model fit AIC	BIC	LogLik	Anova against simpler model df	x^2
Basemodel1		intercepts	Group x Timepoint	Ravens*+ BPVS**+ TOWK Word opposites**+ TOWK Synonyms*	2827.62	2892.85	-1402.81		
Basemodel2	Basemodel1	"	Group x Timepoint	Ravens*+ BPVS**+ TOWK Word opposites**+ TOWK Synonyms*+ Gender	2829.6	2900.8	-1402.8	1	0.89
Basemodel3	Basemodel2	"	Group x Timepoint	Ravens*+ BPVS+ TOWK Word opposites+ TOWK Synonyms*+ Age at time 1	2829.5	2900.7	-1402.8	0	0.07
Basemodel4	Basemodel2	"	Group x Timepoint	Ravens*+ TOWK Synonyms*	2827.4	2880.8	-1404.7	2	0.15

N.B AIC—Aikake Information Criterion, BIC—Bayesian Information Criterion, LogLik—LogLikelihood, df—degrees of freedom, X2—Chi-square. *=p<0.05 **=p<0.10

Table 6.11 Final model (basemodel4) for word ordering total scores

Fixed Effects

	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	1.45	0.19	3.37—0.69	1	8.44	**<.001**
Group B	-0.32	0.27	-0.86—0.21	1	-1.63	0.23
Timepoint 2	-0.50	0.18	-0.56—-0.14	2	-2.60	0.006
Timepoint 3	0.35	0.19	-0.03—0.73	1	1.81	0.07
Ravens' standard score	0.26	0.10	0.08—0.58	1	2.61	**0.009**
Synonyms	0.30	0.10	0.12—0.52	1	3.14	**0.002**
Group B X Timepoint 2	0.48	0.26	-0.02—0.99	2	1.88	0.06
Group B X Timepoint 3	0.19	0.27	-0.35—0.73	2	0.69	0.49

Random Effects

	Variance	S.D.
Participant (Intercept)	0.06	0.25
Residual	1	1

Model fit

	Marginal	Conditional
R^2	0.05	0.09

Table 6.12 Follow up comparisons for word ordering total scores - means

Timepoint	Group	lsmean	SE	df	lower.CL	upper.CL
1	A	1.46	0.190	Infinite	1.09	1.83
2	A	0.96	0.15		0.67	1.25
3	A	1.81	0.16		1.45	2.13
1	B	1.13	0.19		0.76	1.51
2	B	1.12	0.16		0.81	1.43
3	B	1.68	0.17		1.34	2.00

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 6.13 Follow up comparisons for word ordering total scores - contrasts

contrast	estimate	SE	df	t.ratio	p.value
1 A - 2 A	-0.50	0.181	Inf	2.74	0.06
1 A - 3 A	0.34	0.19		-1.81	0.46
1 A - 1 B	0.32	0.27		1.20	0.84
2 A - 3 A	0.85	0.15		-5.62	**<.001**
2 A - 2 B	0.16	0.21		-0.76	0.97
3 A - 3 B	0.13	0.23		0.58	0.99
1 B - 2 B	-0.01	0.18		0.06	1.00
1 B - 3 B	0.54	0.19		-2.80	0.06
2 B - 3 B	0.55	0.156		-3.53	**.005**

* P value adjustment: Tukey method for comparing a family of 6 estimate

6.3.4 Inferential statistics - word re-ordering explanation scores

After the base model was fitted containing the Group*Timepoint interaction, random effects of item and participant, and the four baseline measures as fixed effects, three subsequent models were produced. These tested whether each of the exploratory predictors (gender, age, and language status) added anything significant to the base model. These can be seen in table 6.14. Non-significant effects of the exploratory predictors were not retained. The final preferred model was the minimal model containing the base model and the fixed effect of TOWK synonyms raw score, indicating that the children's performance on the word ordering task in explaining their choice of word order was positively associated with their ability to recall synonyms (see table 6.15). The interaction effects between group and time point were significant for Group B. The post-hoc follow-up comparisons (see tables 6.16 and 6.17) showed that the children's performance on the word ordering task was significantly different between some time points, but not others. Specifically, at time 1, the B children significantly outperformed the YI children. This pattern continued at time 2 and 3, but the differences were not significant. The performance of the children in Group A was significantly lower at timepoint 2 compared to timepoint 1, but not significantly different between timepoint 1 and timepoint 3 or between timepoint 2 and timepoint 3. This finding suggests that the intervention program may have

had a delayed effect on the children's language abilities. For the B children, their performance significantly decreased between time 1 and time 2, then increased between time 2 and time 3, but not to the level of time 1 scores.

Table 6.14 Model comparisons and model building for word ordering explanation scores

Model comparisons and model building / selection for word ordering explanation scores.

Sampling Model name	Units Simpler model	N total obs = 2871 N Subjects = 40			Model fit			Anova against simpler model	
		Random effects	Fixed effects added						
		Participants	Interaction	Fixed effect	AIC	BIC	LogLik	df	x2
expmodel1		intercepts	Group* x Timepoint* Interaction*	Ravens + BPVS + TOWK Word opposites + TOWK Synonyms	5477.6	5815.8	-2860.3		
Expmodel2	expmodel1	"	Group* x Timepoint* Interaction*	Ravens + BPVS + TOWK Word opposites + TOWK Synonyms** + Gender	5476.1	5823.2	-2860.1	1	0.49
Expmodel3	Expmodel1	"	Group* x Timepoint* Interaction*	Ravens + BPVS + TOWK Word opposites + TOWK Synonyms** + Age at time 1	5476.3	5823.4	-2860.1	1	0.56
Expmodel4	Expmodel1	"	Group* x Timepoint* Interaction*	+ TOWK Synonyms*	5739.9	5793.2	2860.3	3	0.74

N.B AIC – Aikake Information Criterion, BIC – Bayesian Information Criterion, **LogLik** – LogLikelihood, **df** – degrees of freedom, **X2** – Chi-square.

* = $p<0.05$ ** = $p<0.10$

Table 6.15 Final model (expmodel4) for word ordering explanation total scores

Fixed Effects

	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	0.56	0.20	0.17—0.95	39.45	2.81	0.003
Group B	1.28	0.29	0.72—1.84	39.43	4.39	<.001
Timepoint 2	-0.27	0.05	-0.37—-0.18	2742.44	-5.60	<.001
Timepoint 3	0.11	0.05	0.01—0.20	2742.44	2.24	0.02
Synonyms	0.32	0.14	0.06—0.62	37.02	2.35	0.02
Group B X Timepoint 2	-0.64	0.07	-0.77—-050.	2742.92	-9.07	<.001
Group B X Timepoint 3	-0.65	0.07	-0.78—-0.51	2740.92	-9.25	<.001

Random Effects

	Variance	S.D.
Participant (Intercept)	0.008	0.09
Residual	0.43	0.65

Model fit

	Marginal	Conditional
R^2	0.20	0.73

Table 6.16 Follow up comparisons for word ordering explanation scores – means

Timepoint	Group	lsmean	SE	df	lower.CL	upper.CL
1	A	0.56	0.20	39.5	0.16	0.97
2	A	0.29	0.20	37.9	-0.11	0.70
3	A	0.67	0.20	37.9	0.27	1.04
1	B	1.84	0.21	39.4	1.42	2.27
2	B	0.94	0.21	37.9	0.51	1.36
3	B	1.30	0.21	37.9	0.88	1.73

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 6.17 Follow up comparisons for word ordering explanation scores - contrasts

contrast	estimate	SE	df	t.ratio	p.value
1 A - 2 A	-0.27	0.05	2742.5	5.60	**<.001**
1 A - 3 A	0.11	0.05	2742.5	-2.24	0.22
1 A - 1 B	-1.28	0.29	39.5	-4.39	**.001**
2 A - 3 A	0.38	0.04	2737.0	-9.80	**<.001**
2 A - 2 B	-0.64	0.29	37.9	-2.23.	0.25
3 A - 3 B	-0.63	0.29	37.9	-2.12	0.27
1 B - 2 B	-0.91	0.05	2742.8	17.91	**<.001**
1 B - 3 B	-0.54	0.05	2742.8	10.65	**<.001**
2 B - 3 B	0.37	0.04	2737.0	-9.02	**<.001**

* P value adjustment: Tukey method for comparing a family of 6 estimate

6.3.5 Descriptive statistics – explaining words

Table 6.18 displays the descriptive statistics for the results of the explaining words test for the YI group (A) and the control group (B), organised by timepoint. The table shows the overall total and a total for each sub-component of the test. It should be noted that the scales for each score differ. Figure 6.5 shows the mean explaining words total score for each group at each time point, with figures 6.6 – 6.9 showing the sub-scores. No significant differences existed between the two groups at any of the time points.

Table 6.18 Means for each word explaining words scores split by group at each timepoint

Explaining words scores

	Total Score		Definition Score		Decomposition Score		Morpheme Meaning Score		Bonus Score	
	(max = 60)		(max = 12)		(max = 12)		(max = 12)		(max = 24)	
	A	B	A	B	A	B	A	B	A	B
Time 1 mean (SD)	24.13 (8.10)	20.37 (9.57)	7.31 (2.58)	6.33 (2.94)	10.83 (1.63)	10.26 (2.60)	6.45 (3.15)	5.44 (2.50)	0.38 (0.90)	0.59 (0.97)
Time 2 mean (SD)	26.43 (7.45)	23.83 (7.02)	7.83 (1.77)	6.93 (2.21)	11.52 (1.12)	10.50 (2.11)	7.31 (3.27)	6.07 (3.43)	0.69 (1.34)	0.33 (0.80)
Time 3 mean (SD)	25.43 (4.61)	23.24 (6.53)	7.97 (1.83)	7.93 (2.55)	11.37 (1.10)	10.24 (2.03)	5.50 (2.49)	4.55 (2.31)	0.60 (1.16)	0.52 (1.24)

Note. A = Young Interpreters, B = non- Young Interpreters.

Figure 6.5 Mean explaining words total score for each group at each time point
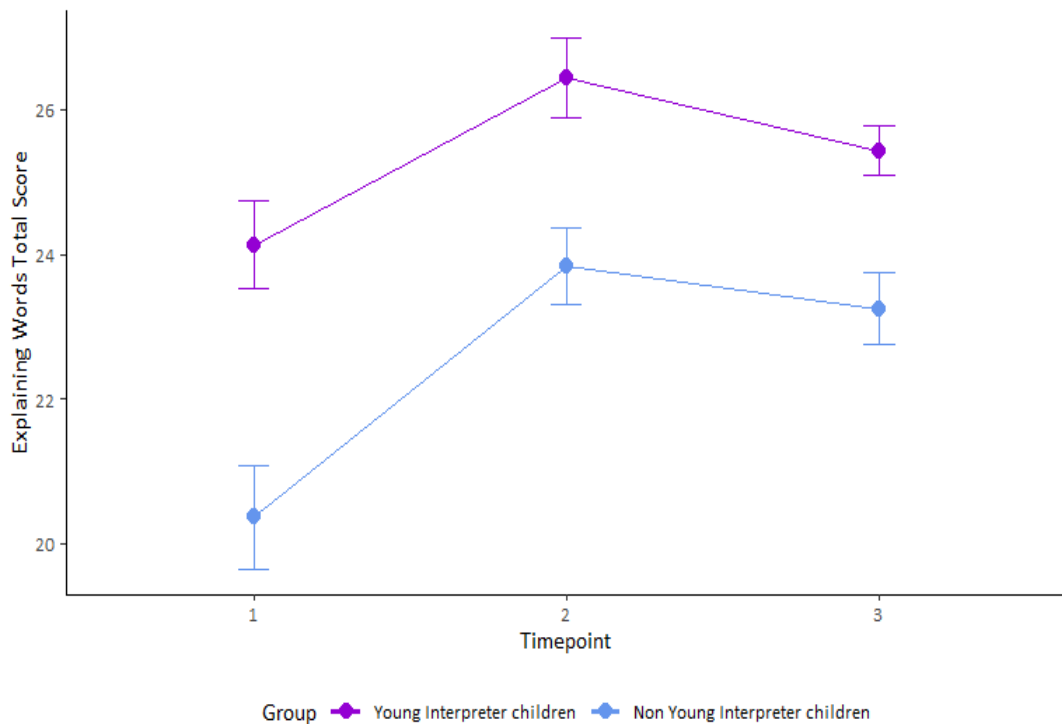
6.3.6 Inferential statistics – explaining words

After the base model was fitted containing the Group*Timepoint interaction, random effects of item and participant, and the four baseline measures as fixed effects, four subsequent models were produced. These tested whether each of the exploratory predictors (gender, age, and language status) added anything significant to the base model. These can be seen in table 6.19. Non-significant effects of the exploratory predictors were not retained. The final preferred model was the minimal model containing the base model and the significant fixed effects of Group, Timepoint, and Test of Word Knowledge Synonyms raw score (centred). The model fit as computed by conditional R^2 was 44% (see table 6.20). Post-hoc analyses detailed in tables 6.21 and 6.22 revealed that the notable variation in the total scores for word explanation did not arise from differences between the groups at any of the evaluated timepoints. Rather, the marked decline in performance was observed within both Group A and Group B, specifically between the first and second timepoints.

Table 6.19 Model comparisons and model building / selection for explaining words scores

Sampling: Units: N total obs = 1074 N Subjects = 60; N items = 6

Model name	Simpler model	Random-effects		Fixed-effects-added		Model-fit			Anova against simpler model	
		Participants intercepts	Items intercepts	Fixed-effect	Interaction	AIC	BIC	LogLik	df	x2
Base		intercepts	intercepts	Ravens + BPVS + TOWK-Word-opposites + TOWK-Synonyms +	Group* x Timepoint*	3698.8	3763.5	-1836.4		
Base1	Base	"	"	Ravens + BPVS + TOWK-Word-opposites + TOWK-Synonyms* + Gender	Group* x Timepoint*	3697.8	3767.5	-1834.9	1	3.05
Base2	Base	"	"	Ravens + BPVS + TOWK-Word-opposites + TOWK-Synonyms* + Age-at-time-1	Group* x Timepoint*	3700.4	3770.1	-1836.2	1	0.51
Base3	Base	"	"	Ravens + BPVS + TOWK-Word-opposites + TOWK-Synonyms* + Language-status	Group* x Timepoint*	3700.2	3769.9	-1836.1	1	0.45
Base4	Base	"	"	TOWK-Synonyms*--	Group* x Timepoint*	3694.8	3744.6	-1837.4	3	0.56

Table 6.20 Final model (base4) for explaining words scores

Fixed Effects

	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	3.98	0.25	3.47—4.49	12.61	15.67	**p<.001**
Group B	-0.55	0.23	-0.9—-0.11	95.21	-2.42	**0.02**
Timepoint 2	0.38	0.13	0.12—0.64	1005.12	2.88	**0.004**
Timepoint 3	0.22	0.13	-0.04—0.48	1005.12	1.63	0.10
Synonyms	0.68	0.10	0.48—0.87	56.99	6.725	**p<.001**
Group B X Timepoint 2	0.19	0.19	-0.17—0.56	1005.12	1.03	0.30
Group B X Timepoint 3	0.26	0.19	-0.11—0.63	1006.76	1.39	0.16

Random Effects

	Variance	S.D.
Participant (Intercept)	0.08	0.28
Item (Intercept)	0.02	0.12
Residual	1.59	1.26

Model fit

	Marginal	Conditional
R^2	0.19	0.44

* R model equation: Score ~ Group * Timepoint + TOWKSynRSCEN + (1 | Item) + (1 | ID), data = expwordslong
* p-values for fixed effects calculated using Satterthwaites approximations. ─── Confidence intervals calculated with confint.merMod() function in lme4

Table 6.21 Follow up comparisons for explaining words scores - means

Timepoint	Group	lsmean	SE	df	lower.CL	upper.CL
1	A	3.98	0.25	12.6	3.43	4.53
2	A	4.37	0.25	12.6	3.81	4.92
3	A	4.20	0.25	12.6	3.65	4.75
1	B	3.43	0.25	12.6	2.88	3.98
2	B	4.01	0.25	12.6	3.46	4.56
3	B	3.91	0.26	12.8	3.36	4.46

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 6.22 Follow up comparisons for explaining words scores - contrasts

contrast	estimate	SE	df	t.ratio	p.value
1 A - 2 A	0.38	0.13	1005	-2.879	**0.04**
1 A - 3 A	0.22	0.13	1005	-1.627	0.58
1 A - 1 B	0.55	0.23	95	2.419	0.16
2 A - 3 A	-0.17	0.13	1005	1.252	0.81
2 A - 2 B	0.36	0.22	95	1.564	0.62
3 A - 3 B	0.29	0.23	96.4	1.256	0.81
1 B - 2 B	0.58	0.13	1005	-4.339	**p<.001**
1 B - 3 B	0.48	0.14	1008.2	-3.563	**p<.001**
2 B - 3 B	-0.09	0.14	1008.2	0.725	0.98

* P value adjustment: tukey method for comparing a family of 6 estimate

6.3.7 Explaining words sub-scores

Further analyses investigated potential differences between the two groups over time for the four sub-scores from the explaining words task: definition score (max 12 points), decomposition score (max 12 points), morpheme meaning score (max 12 points) and bonus score (max 24 points). Visual inspection of the data revealed no group*timepoint interactions in definition score (figure 6.6), decomposition score (figure 6.7), or morpheme meaning score (figure 6.8). Mixed effects models were run for all of the sub-scores. For each sub-score, a consistent fixed effect in predicting sub-scores was from the TOWK synonyms score (see tables 6.23, 6.24 and 6.25).

Figure 6.6 Mean explaining words definition score
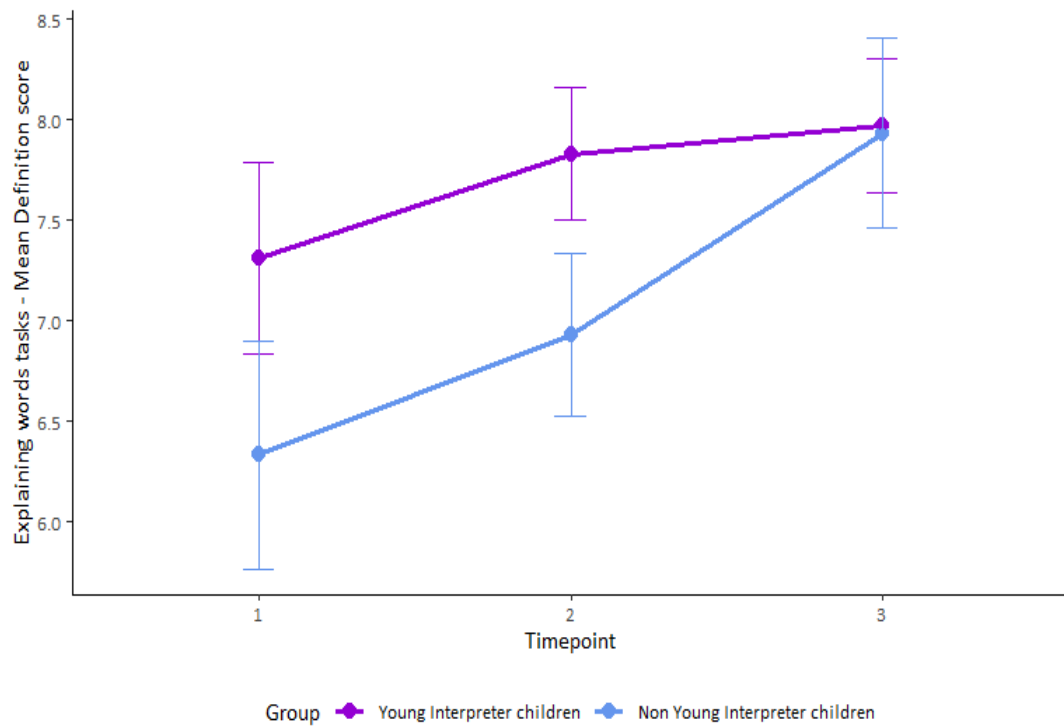
Figure 6.7 Mean explaining words decomposition score
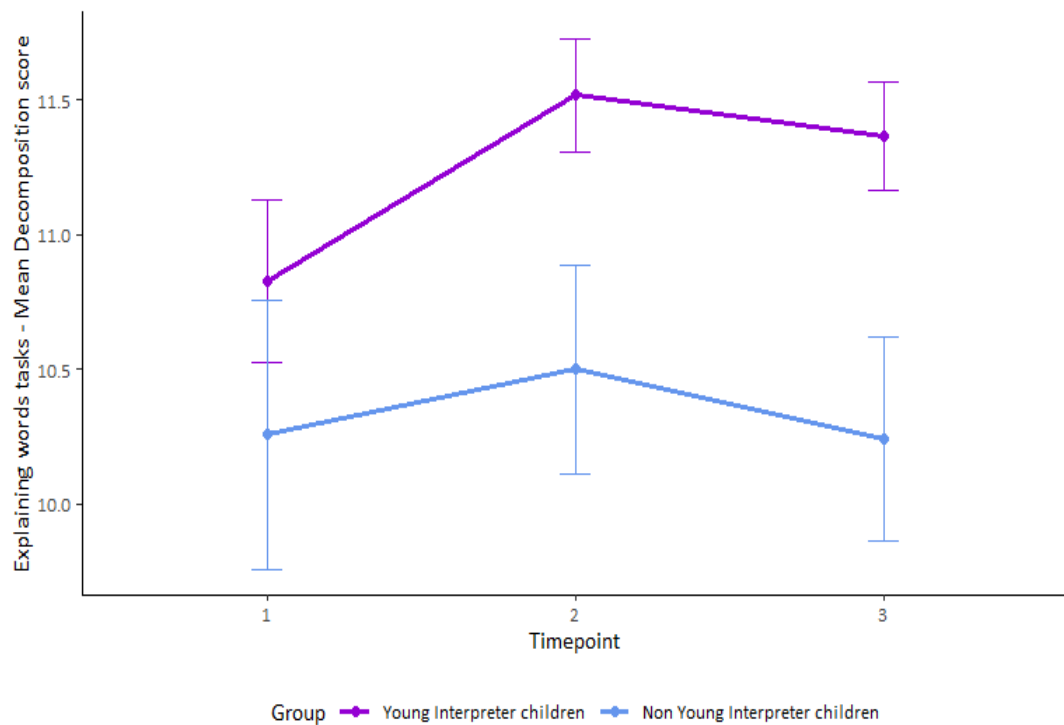
Figure 6.8 Mean explaining words morpheme meaning

Table 6.23 Model comparisons /building / selection for explaining words definition scores

Sampling Units: N total obs = 1044; N Subjects = 60; N items = 6

Model name	Simpler model	Random effects: Participants	Random effects: Items	Fixed effects added: Interaction	Fixed effects added: Fixed effect	Model fit: AIC	Model fit: BIC	Model fit: LogLik	Anova against simpler model: df	Anova against simpler model: $x2$
def.base		intercepts	intercepts	Group* x Timepoint	Ravens + BPVS + TOWK Word-opposites** + TOWK Synonyms* + LanguageStatus** + Time1AgeYears + Gender	2165.7	2244.9	-1066.8	4	2.72
def.base1	def.base	"	"	Group* x Timepoint	TOWK Word-opposites* + TOWK Synonyms* + LanguageStatus**	2160.4	2219.8	-1068.2		

N.B AIC—Aikake Information Criterion, BIC—Bayesian Information Criterion, LogLik—LogLikelihood, df—degrees of freedom, X2—Chi-square.   *=p<0.05 **=p<0.10

Table 6.24 Model comparisons /building / selection for explaining words decomposition scores

Sampling Units: N total obs = 1044; N Subjects = 60; N items = 6

Model name	Simpler model	Random effects		Fixed effects added		Model fit			Anova against simpler model	
		Participants	Items	Interaction	Fixed effect	AIC	BIC	LogLik	df	x2
dec.base		intercepts	intercepts	Group x Timepoint*	Ravens+ BPVS+ TOWK Word opposites+ TOWK Synonyms*+ LanguageStatus+ Time1AgeYears+ Gender	1124.0	1203.3	-546.02	6	6.69
dec.base1	dec.base	"	"	Group x Timepoint*	TOWK Synonyms*	1118.7	1168.2	-549.36		

N.B AIC—Aikake Information Criterion, BIC—Bayesian Information Criterion, LogLik—LogLikelihood, df—degrees of freedom, X2—Chi-square. *=p<0.05—**=p<0.10

Table 6.25 Model comparisons /building / selection for morpheme meaning scores

Sampling Units	N total obs = 1044; N Subjects = 60; N items = 6									
		Random effects		Fixed effects added		Model fit			Anova against simpler model	
Model name	Simpler model	Participants	Items	Interaction	Fixed effect	AIC	BIC	LogLik	df	x2
morph.base		intercepts	intercepts	Group x Timepoint*	Ravens+ BPVS**+ TOWK Word opposites+ TOWK Synonyms*+ LanguageStatus+ Time1AgeYears+ Gender*	2023.0	2102.2	-955.50	4	5.87
morph.base1	morph.base	"	"	Group x Timepoint*	TOWK Synonyms*+ Gender*	2020.9	2080.3	-998.44		

N.B AIC—Aikake Information Criterion, BIC—Bayesian Information Criterion, LogLik—LogLikelihood, df—degrees of freedom, X2—Chi-square. *=$p<0.05$·**=$p<0.10$

When looking at the bonus total scores however, there was an interaction as shown in (figure 6.9).

Figure 6.9 Mean explaining words bonus score for each group at each time point
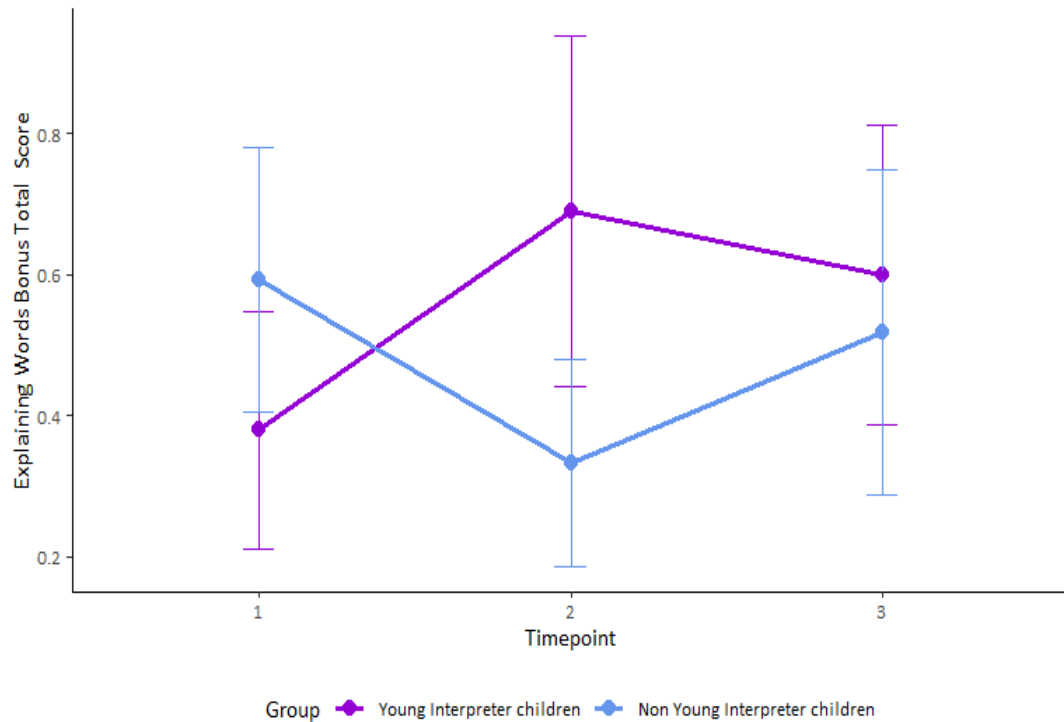
This interaction in bonus scores was explored through mixed effects models, following the same process as for the overall total score models to explore predictors of bonus total score at all three timepoints. After the base model was fitted containing the Group*Timepoint interaction, random effects of item and participant, and the four baseline measures as fixed effects, four subsequent models were produced. These tested whether each of the exploratory predictors (gender, age, and language status) added anything significant to the base model. These can be seen in table 6.26. Non-significant effects of the exploratory predictors were not retained. The final preferred model was the minimal model containing the base model and the significant fixed effects of a GroupB*Timepoint2 interaction and TOWK synonyms score. The model fit as computed by conditional R^2 was 25% (see table 6.26). Post-hoc analyses (see tables 6.27 and 6.28) showed no significant differences in explaining words bonus total scores between the groups at any of the three timepoints. The interaction effect detected in the model was not detected in the post-hoc tests, possibly due to the small sample size and violation of normality.

Table 6.26 Model comparisons and model building / selection for explaining words bonus scores

Sampling Units	N total obs = 1044; N Subjects = 60; N items = 6									
Model name	Simpler model	Random effects		Fixed effects added		Model fit			Anova against simpler model	
		Participants	Items	Interaction	Fixed effect	AIC	BIC	LogLik	df	x2
bonus.base		intercepts	intercepts	Group x Timepoint** Interaction*	Ravens* + BPVS + TOWK Word opposites + TOWK Synonyms	275.99	339.95	-124.79		
bonus.base1	Base. bonus.base	"	"	Group x Timepoint** Interaction*	Ravens* + BPVS + TOWK Word opposites + TOWK Synonyms + Gender	276.89	346.20	-124.44	1	0.67
bonus.base2	bonus.base	"	"	Group x Timepoint** Interaction*	Ravens* + BPVS + TOWK Word opposites + TOWK Synonyms + Age at time 1	276.37	345.68	-124.18	1	1.22
bonus.base3	bonus.base	"	"	Group x Timepoint** Interaction*	Ravens* + BPVS + TOWK Word opposites + TOWK Synonyms + Language status	275.23	334.54	-123.62	1	2.35
bonus.base4	bonus.base	"	"	Group x Timepoint** Interaction*	Ravens*	274.03	323.54	-127.02	3	4.44

N.B AIC—Aikake Information Criterion, BIC—Bayesian Information Criterion, **LogLik**—LogLikelihood, **df**—degrees of freedom, **X2**—Chi-square.

*=p<0.05; **=p<0.10

Table 6.27 Final model (bonus.base 4) for explaining words bonus scores

Fixed Effects

|	Est/Beta	SE	Wald 95% CI	df	t	p
Intercept	0.05	0.04	-0.02–0.12	42.61	1.47	0.15
Group B	0.06	0.04	-0.03–0.15	111.78	1.37	0.17
Timepoint 2	0.05	0.03	-0.003–0.11	983.08	1.87	0.06
Timepoint 3	0.04	0.03	-0.01–0.09	979.12	1.44	0.15
Ravens SS	0.06	0.02	0.02–0.09	58.22	3.07	**<.001**
Group:Timepoint 2	-0.10	0.04	-0.18–-0.02	984.61	-2.58	**0.01**
Group:Timepoint 3	-0.06	0.04	-0.14–0.02	984.67	-1.56	0.12

Random Effects

	Variance	S.D.
Participant (Intercept)	0.003	0.06
Item (Intercept)	0.004	0.02
Residual	0.07	0.26

Model fit

	Marginal	Conditional
R^2	0.04	0.25

R model equation: bonus.base4 <- lmer(BonusScore ~ Group * Timepoint + RavensSSCEN + (1|Item) + (1|ID), data=expwordssub, REML=TRUE).
* p-values for fixed effects calculated using Satterthwaites approximations.
* Confidence intervals calculated with confint.merMod() function in lme4

Table 6.28 Follow up comparisons for explaining words bonus scores - means

Timepoint	Group	lsmean	SE	df	lower.CL	upper.CL
1	A	0.05	0.04	42.5	-0.02	0.13
2	A	0.10	0.04	42.5	0.03	0.18
3	A	0.09	0.04	41.4	0.02	0.16
1	B	0.11	0.04	45.2	0.04	0.19
2	B	0.06	0.04	41.4	-0.009	0.14
3	B	0.09	0.04	42.5	0.02	0.16

*Degrees-of-freedom method: kenward-roger
*Confidence level used: 0.95

Table 6.29 Follow up comparisons for explaining words bonus scores - contrasts

contrast	estimate	SE	df	t.ratio	p.value
1 A - 2 A	0.05	0.03	983	-1.87	0.42
1 A - 3 A	0.04	0.03	979	-1.44	0.70
1 A - 1 B	0.06	0.04	111	-1.37	0.75
2 A - 3 A	-0.01	0.03	979	0.45	0.1
2 A - 2 B	0.04	0.04	105	0.97	0.93
3 A - 3 B	0.002	0.43	105	0.04	1.00
1 B - 2 B	-0.05	0.03	986	1.78	0.48
1 B - 3 B	-0.02	0.03	990	0.78	0.97
2 B - 3 B	0.03	0.03	979	-1.02	0.91

* P value adjustment: tukey method for comparing a family of 6 estimate

6.4 Discussion

The current study aimed to investigate the effect of adding a component of training in meta-linguistic awareness and word learning strategies to the YI training on the word re-ordering ability of young children, and the deduction of meanings of novel words. To assess this, two metalinguistic tasks (word re-ordering and explaining words) were used. The three predictors of non-verbal reasoning (Matrix Reasoning subset of WISC IV (Wechsler, 1991)), English vocabulary breadth (BPVS III (Dunn & Dunn, 2009)) and English vocabulary depth (Test of Word Knowledge (Wiig & Secord, 1992)), as well as the two metalinguistic tasks, offered insight into the usefulness of the added meta-linguistic training. The collection of data at three time points, before YI training, immediately after and at a 6-month follow up, allows this study to address whether development of these skills differs between the YI children and the control children longitudinally as a function of immediate training and of functioning as a YI. The results of the study were analysed using a mixed-effects generalised linear models, and post-hoc follow-up comparisons were conducted to examine the differences between the groups and time points. In this discussion, each of the two metalinguistic domains will be discussed in turn, with any differences between the tasks, groups and over time further discussed, as well as the implications of these findings.

6.4.1 Syntactic awareness

Word ordering total scores

The results of the mixed-effects model did not show a significant effect of the metalinguistic training on the word re-ordering total scores over time for the YI children. These findings are in contrast with previous research that has shown positive effects of metalinguistic instruction intervention on language outcomes such as syntax (Xie & Yeung, 2022). However, the model did show that higher scores on the word re-ordering task were predicted by higher scores on the test of non-verbal reasoning and knowledge of synonyms..

One finding from the current study similar to that of previous research is that vocabulary scores, specifically scores on the Test of Word Knowledge synonyms, predicted scores on the word re-ordering task. Xie and Yeung (2022) looked at syntactic awareness as measured by a sentence correction task in 9–10-year-old Cantonese-English bilinguals and found reciprocal development between vocabulary and syntactic awareness. Although the current study's findings did not find a significant increase in syntactic awareness scores over the course of the study, both groups of children did increase their ability to successfully arrange words into a grammatically correct sentence between time 1 and time 3, suggesting a development growth akin to that found by Xie and Yeung (2022). Vocabulary serves as the foundation for the development of syntax, given that mastery of syntax is contingent upon comprehension of the vocabulary within sentences (Hoff et al., 2018). Davidson et al. (2019) for example provided further confirmation of this association, as they found that in bilingual children, the capacity to identify accurately ordered sentences was significantly predicted by their proficiency in English receptive vocabulary.

One possible explanation for why the added component to the YI training did not have a significant impact on syntactic awareness could be that the metalinguistic training did not directly target syntactic awareness. The study aimed to improve syntactic awareness through teaching word learning strategies, which involved metalinguistic processing, sentence parsing, assigning thematic and syntactic roles to constituents, and utilising context cues. Despite these efforts, no distal improvements in syntactic awareness were observed. However, it is possible that the YI children still used their knowledge of syntax to help their EAL counterparts with English, for instance by explaining word order when reading with their buddy. Unfortunately, although the study aimed to capture how the YI children were helping others through the inclusion of a YI diary where the children recorded what they had been doing, these were haphazardly completed by the children and did not provide much specific detail about their interactions. For example, children recorded that they had been "reading with [their buddy]" and "read a book to him [buddy]" and that "she needs a bit of help with reading" but did not provide any further detail. The YIC's also confirmed that the YIs had been "doing joint reading with

[their] buddy" and "helping a child to read," but that the diaries "did not really reflect what the children had been doing, not to the depth [that] it could have been." Therefore, the possibility that children used their knowledge of syntax in their interactions cannot be confirmed. Further research is warranted to include a more systematic way of recording how the YIs were helping their buddies.

Another explanation could be that as the detection of improvement is dependent on the sensitivity of the outcome measures used (Hopkins et al., 2022), and it is possible in the current study the word re-ordering task was not suited to detect any improvements. The choice of sentence structures, and words used within these sentences, despite careful consideration, may not have been appropriate in detecting syntactic awareness. It is important to consider task type and the use of other metalinguistic skills when conducting research on syntactic awareness. As noted earlier, many measures of syntactic awareness and thus methods to improve syntactic awareness also tap into morphological knowledge and so disentangling the two is problematic. In the current study, some of the target sentences were syntactically non-reversible and involved subject and object noun phrases with number mismatches, for example *'The boys have chased the dog.'* The critical cue to determine the correct word order was the number agreement morphology on the auxiliary in the verb phrase. Success on parts of this re-ordering task were therefore dependent on knowledge of morphology, particularly the singular and plural forms of the auxiliary verb, and syntactic relationships such as subject-verb agreement. As half of the sentences were semantically reversible, the correct word order could only be achieved through knowledge of relevant morpho-syntactic cues and this reliance on morphological cues could have confounded the results. Two sentence structures, (active with reflexive pronoun (e.g., '*the boy/girl and the boy/girl looked at themselves*') and double object dative sentences (e.g., '*the girl/boy threw the boy/girl a ball*')) were very difficult for the current sample. Further, although reaction time was not measured, impressionistically it is the case that these two structures took longer for children to solve, especially for the double object dative sentences where many children failed to provide a grammatical answer. By including these two structures, which many children failed to solve, the overall total achieved by each child achieved by each child was reduced. This also likely confounded results by introducing unwarranted variability into the study, making it more challenging to draw clear conclusions regarding the relationship between vocabulary and grammar skills.

The final sample included for analysis in this task did not contain any monolingual children. This was due to all children from schools 3 to 5 being bilingual. Only school 2 had monolingual children and were not included in the final sample due to an earlier shorter version of the test being used with these children, therefore comparisons between monolingual and bilingual children were not able to be evaluated and compared to previous work in this area. Earlier studies, including the research

conducted by Galambos and Goldin-Meadow (1990) have demonstrated that Spanish-English bilingual children exhibit stronger abilities to correct grammatical mistakes within sentences. However, in contrast, alternative investigations propose that the bilingual children do not have increased syntactic awareness (Lesaux & Siegel, 2003; Simard et al., 2013). For future studies, comparing the abilities of monolingual and bilingual children on word re-ordering tasks would be beneficial in adding to the scarce literature in this area. The bi- and multi-lingual participants were a heterogeneous group with diverse home languages and varying levels of proficiency in English, which reflects the composition of EAL students in classrooms in England according to the Department for Education (DfE, 2023). However, information regarding the pupils' first exposure to English, their use of English outside of school, and their proficiency in their first language were not obtained in this study, and subsequently factored into the analyses, which is a limitation. Additional inquiry is necessary to ascertain the potential impact of language exposure and proficiency on syntactic awareness. Isolating the effects of language exposure and proficiency on syntactic awareness could provide a more thorough understanding of the extent to which bilingual children and EAL learners rely on their heightened metalinguistic competencies. In order to determine the extent of any bilingual advantage in metalinguistic awareness, the syntactic similarities, and differences of the bilingual's two languages must be considered.

Contrary to expectations, age was not found to be a significant predictor in the children's scores on the eight sentences for which they had to detail why they had put the words in the order that they had. Previous research has demonstrated that increased metalinguistic awareness continues throughout childhood (Melogno et al., 2022), with a progression to a higher level of metalinguistic awareness at around the age of eight years old (Edwards & Kirkpatrick, 1999). The children in the current sample ranged from ages 7 to 10 years old at their first assessment, however, the number of children in each of these age ranges was unbalanced, with most children being aged 10 years. This may have caused no significant age differences in performance to be detected despite the average performance score increasing across our age range. Alternatively, as the children could be deemed to have reached a high level of metalinguistic awareness given that all but one of our children were aged eight-years and above.

Word ordering explanation scores

The results of the mixed-effects model did not show a significant effect of the metalinguistic training on the word re-ordering explanation scores over time of the YI children. This additional element to the task involved asking the participant, for eight items, why they had chosen that order of words for the sentence. The child only scored on this question if they answered using relevant linguistic terminology (e.g., singular vs. plural, noun, verb, subject, object), which should have been covered in

school under the National Curriculum, and had arranged the words into the correct order. The model did show that higher scores on the word re-ordering explanation task were predicted by higher scores on the test of knowledge of synonyms. One possible reason for this could be that the two tasks are related to each other in terms of the cognitive skills and knowledge they require. For instance, competence in using synonyms might imply a stronger comprehension of the meanings and subtleties of words, which in turn could enhance the capacity to rearrange words to produce meaningful sentences. This activity may also have had a 'floor effect' for our age group because neither group performed well on explaining why they had put the words together into a grammatically correct sentence. In addition, effective performance on this part of the task required the participants to use metalanguage to provide explanations for their choices. The difficulty on this task correlates with the work of Galambos and Goldin-Meadow (1990) who found that young children struggled to explain grammaticality judgments by referring to grammatical knowledge. Regarding the justifications given by children for their selection of word order, only a small number were able to provide coherent and grammatical reasoning. The majority simply stated, "because it made sense" or "I don't know" or offered an anecdote related to the content of the sentence. In the example sentence *'the boys have chased the dog'*, a child might have provided a narrative about how dogs like to chase boys, even though it does not necessarily explain why the word order was chosen. These anecdotes may be a way for children to make sense of the sentence or to provide some context, but they often do not offer a clear or grammatical rationale for their word order choice. This is in line with findings by Davidson et al. (2019) who report that when children aged five and six years old were asked to explain why a sentence was grammatically correct or incorrect, very few could offer a reasonable explanation. Most children in Davidson et al's (2019) study simply said, "… because you said it right" or "… because you said it wrong" without going into any further detail regarding the grammatical properties of the sentence.

The results of this study indicate that the level of cognitive demand required by the task could be beyond the capacity of young students, as explaining errors requires the highest level of syntactic awareness (Leow & Mercer, 2015) and our children may not have reached this developmental stage. The older children in the sample (9 and 10 years old) fared no better on this task compared to the younger children (7 and 8 years old). It is possible that these children lacked enough explicit instruction in grammar, which resulted in a lack of grammatical understanding and language-specific vocabulary required to provide relevant linguistic explanations. This is also true for many adults who may struggle with providing such explanations. There was a small observed improvement in the scores at the third time point, compared to time 1 and time 2, which could be due to maturation effects. Additionally, by the third time point, all the children had moved up a school year, with most moving into Year 6. The

prominent inclusion of metalanguage in the Key Stage 2 curriculum may be a contributing factor to the noticeable progress in this particular aspect of the task. Through the regular use of discipline-specific terminology, teachers and students are trained to name various grammatical forms and parts of speech in readiness for the Key Stage 2 tests at the conclusion of Year 6.

As we only had bilingual children in our sample, we could not investigate any monolingual-bilingual group differences and determine whether monolinguals and bilinguals scored similarly on their ability to provide grammatical explanations for their corrections as found by Galambos and Goldin-Meadow (1990) with 8-year-old Spanish-English bilingual children.

6.4.2 Morphological awareness

Explaining words total scores

The results of the mixed effects model found that the fixed effects of Group, Timepoint, and Test of Word Knowledge Synonyms raw score were all predictive of total scores on the explaining words tasks. Overall, for both groups the total score between time 1 and time 2 increased significantly then reverted to the time 1 baseline, with no significant differences found between the groups at any timepoint. It is probable that at time 2, which was approximately only four weeks after time 1, all children exhibited a practice effect, meaning that the children improved simply because they had taken the test before and were more familiar with it. This effect may have been particularly strong because the test was focused on metalinguistic awareness, which means that the children may have improved simply by becoming more familiar with the concepts being tested, rather than as a direct result of the YI training. Thus, increases for the YI children between time 1 and time 2 cannot solely be attributed to an effect of the YI training. It must be considered however that the addition of the Word Aware strategies to the YI training was implemented as a one-off session and not as the school-wide program advocated by the authors (Parsons & Branagan, 2014). It is also possible that the YI training had some effect that was not captured in the study, for example when the YIs were helping their buddies, they could have used some of the strategies taught in the training to help their peer decipher unknown vocabulary. The research aimed to document how YI children were assisting others by having them keep a diary of their activities. However, the children completed the diary inconsistently and did not provide specific information about their interactions. For example, children recorded that they had "played a phonics game," "helped her spell a word out," and "she managed to read some tricky words" but provided no further details of any word learning strategies that they may have used. Therefore, further investigation is necessary to establish a more systematic approach to documenting how the YIs are aiding their peers.

This research contributes to the existing body of literature on the significance of vocabulary knowledge in morphological awareness and the connection between the two (Anglin, 1993; Nagy et

al., 2014). The findings revealed that higher levels of vocabulary depth were linked to better performance, thus reinforcing the idea that there is an important association between an individual's vocabulary knowledge and their morphological awareness in the same language, as established in prior studies in English (Kraut, 2015; McBride-Chang et al., 2005; McCutchen & Logan, 2011) .The relationship between vocabulary knowledge and morphological knowledge also holds cross linguistically (McBride-Chang et al., 2005) for example in Chinese (Pan et al., 2023; Tong et al., 2017), Iranian (Tabatabaei & Yakhabi, 2011), French (Lam & Chen, 2018) and Spanish (Kieffer & Lesaux, 2012) to name a few.

When comparing the performance of monolingual and bilingual children, the language status of our sample was not predictive of performance on the explaining words task. This is in contrast to several previous works who found enhanced morphological awareness in bilingual children (Kuo et al., 2017) (Rodríguez-Ortiz et al., 2021). However, the current findings do align with work by Reder et al. (2013) who did not find differences between monolingual and bilingual six-year-olds on tasks involving morphological awareness. The current findings also add to the inconsistent findings in the literature on how bilinguals differ from native English speakers in their sensitivity to the morphemic structure of words (Kieffer & Lesaux, 2012). One potential explanation for the inconsistent findings is the age of the children, given morphological awareness increases with age (Carlisle, 2000), yet the current study did not find any evidence for age being predictive of morphological awareness. Another explanation is the heterogeneity of the languages of the current sample, with nineteen different home languages spoken. Children from diverse linguistic backgrounds will have diverse experiences with morphological structures, therefore the ability for a child to utilise their knowledge of morphology in one of their languages, and apply it to the morphology of their other languages is contingent on the similarity in linguistic structure between the two languages and their knowledge of those languages (Marks et al., 2022). Due to the limited sample size, it was not possible to conduct analyses based on the participants' home language, and the absence of background information on their proficiency and usage of their different languages, as well as their initial exposure to English, restricted the examination of the influence of these factors on morphological skills. Hence, future studies could explore this area in more depth as differences in morphological performance were found by Ramirez et al. (2011) when looking at unbalanced bilinguals, with the results of Altman's (2018) study also empathising the importance of taking dominance and relative proficiency in each language into account when studying any domain of metalinguistic awareness in bilinguals.

Research has increasingly demonstrated that interventions in morphology can enhance morphological awareness, leading to improved vocabulary knowledge. Several studies, such as those conducted by Baumann et al. (2002), Harris et al. (2011) and Katz (2011) have contributed to this

growing body of evidence. Additionally, other researchers, including Bowers and Kirby (2010), Crosson et al. (2019) and Friedline (2011), have also found support for the positive effects of such interventions on morphological awareness. Despite our word learning strategies positioning with the recommendations provided by Kieffer and Lesaux (2007), and including several strategies advocated by Wright and Cervetti (2017), no effects of the word learning strategies were observed in the YI children's performance on the explaining words task. This is in contrast to work by Graves et al. (2017) and Connor et al. (2019) who both demonstrated the effectiveness of such a combined technique on increasing students' word knowledge, word knowledge calibration, and strategy usage. Only two studies to date have evaluated the effectiveness of the Word Aware programme (Parsons & Branagan, 2014). Moran and Moir (2018) employed books as a means of introducing and expanding the vocabulary of young children in three nursery schools using strategies form the Word Aware book and found children's word knowledge pre- and post-intervention improved. Their study did not include a control group however, and this was addressed in Hopkins et al's (2022) study. While both groups demonstrated improvement in the specific words targeted for instruction, there was no statistically significant difference in the overall improvement of their receptive vocabulary as measured by informal and standardised assessments (Hopkins et al., 2022). Overall, the effectiveness of implementing Word Aware strategies on increasing children's vocabulary and morphological awareness is inconclusive.

The main explanation for the lack of intervention effect in the current study is attributed to the one-off nature of the word learning strategies taught. While the initial instruction provided a foundation for teaching students how to become independent word learners, it is important to note that this alone is not enough to guarantee mastery of all necessary skills. In order to become truly independent learners, students require ongoing reinforcement and reminders to use the strategies that they have learned (Graves et al., 2017). Unfortunately, the current study did not include such a comprehensive program, which is necessary for maximum effectiveness in word-learning strategies. However, it is expected that this teaching will support word learning (Crosson et al., 2019) beyond the words taught in the current study (Bowers & Kirby, 2010). It would be interesting for future work to investigate if the YI children use the taught word learning strategies in their everyday classroom environment, and if they use some of the concepts taught in their interactions with their buddies when helping them to understand unknown vocabulary as this was not measured in the current study.

Explaining words sub scores

The results of the mixed effects models for each of the sub-scores computed on the explaining words tasks - definition scores, decomposition score, morpheme meaning score and bonus score –

found the only consistent fixed effect in predicting scores across all four domains was scores on the synonym task at baseline. These findings, as with the overall score on the explaining words task, reveal that higher levels of vocabulary depth were linked to better performance.

6.4.3 Strengths

Despite not findings significant effects of the word-learning strategies or on the syntactic awareness task, the current study contributes to the growing body of literature on the effectiveness of language interventions for monolingual and bilingual children. The focus on form throughout the three testing sessions provided a learning opportunity for both groups in different methods for dealing with unfamiliar vocabulary, which they may take with them beyond the testing environment. The testing sessions also gave the children practice opportunities for syntactic awareness. The current study also highlights the usefulness of vocabulary depth in predicting morphological awareness as scores on the synonym test predicted performance on all areas of the explaining words task.

The current study also provided evidence on using Word Aware strategies in an educational context, which is useful given the lack of research into this. Numerous studies have found that reading stories to children helps them increase their vocabulary (Cain & Oakhill, 2011). Through embedding word learning strategies into a story, we were able to see in the training session children engaging with the task. Teaching words in the context of a meaningful task, such as the understanding of a narrative, results in greater ecological validity than learning single words in decontextualised ways. By presenting words in a meaningful and pertinent context, children may be more likely to remember and employ them in natural situations. This method can also help children develop a deeper understanding of how words are used in context, as opposed to simply memorisation. Consequently, the findings of this study can have practical implications for educators and students who wish to develop effective and meaningful language and literacy instruction. Informal comments from the developers of the YIS, provided positive feedback about the additional training. This is in line with the work of Moran and Moir (2018) and Hopkins et al. (2022) who reported staff feeling positive about the Word Aware approach, satisfied with how the resources could be practically utilised in their educational setting and valuing the programme in its ability to engage children in activities to support word learning. It should be noted that Word Aware was used in a limited way in the current study, as opposed to the whole school approach it was originally designed for. An overarching aim of this whole thesis was to evaluate the YIS, and through providing an additional component to the YI training, it is possible that the training will be amended to continue to include this in the future as a useful strategy for the YI children to use when helping their buddies with English. As part of this additional training, the children were provided with a bookmark that reminded them of the word learning strategies and this bookmark formed part of their YI kit that they received on completion of their training. This was articulated by the custodians

of the scheme that highlighted the usefulness of the 'Word Detective' strategies for children and that the story with the embedded strategies is likely to be incorporated into the YI training in the future.

Finally, the use of mixed-effects models was a sophisticated analytic technique and allowed individual differences across participants and items – in the case of the explaining words task – to be taken into account. The variance across time and trials was not collapsed as in traditional analytic techniques such as *t*-test and ANOVAS and allowed for the focal sources of variance to be more precisely quantified as the random variance was taken into account.

6.4.4 Limitations

It is important to consider the limitations of the current study. By far the largest limitation came from school closures. Firstly, between time 2 and time 3, all schools were closed due to the summer holidays. This is a significant amount of time that the YIs could not practice their skills, and also six weeks without formal education. Studies suggest even short disruptions in a child's schooling, such as the summer holidays, can have a negative impact on their learning (Patrinos et al., 2022), especially in maths and English (Alexander et al., 2007) and for children from low SES backgrounds (Engzell et al., 2021). The most prominent limitation, and probable largest effect on the current study's results is that resulting from the COVID-19 pandemic. The pandemic led to school closures around the world. The impact of school closures on student learning is substantial, long-lasting, and disproportionately affects different groups of students, likely resulting in a negative effect on students' academic achievement, which in turn would affect performance in our tests. Due to the initial wave of COVID-19 lockdowns and school closures that started in March 2020, the average student has experienced a loss of approximately one-third to one-half years' worth of learning (Patrinos et al., 2022). Even when schools were open, the pandemic resulted in staff shortages and children being placed in class and year group bubbles, which restricted both the overseeing of the scheme and the children being able to engage as YIs. The children in the sample had very limited opportunity to engage in the typical tasks of a YI and practice their skills between time 2 and time 3 of the current study. This lack of full engagement with how the scheme typically operates in schools undoubtedly had a negative impact on our results, thus reducing the reliability and validity of our findings. Now schools are full re-open, further research would be able to evaluate the YI's and the scheme operating at full capacity to draw more accurate conclusions.

Word Aware is a language intervention program for the entire school, designed to reduce the discrepancy in language achievement between children from low and high socio-economic backgrounds, with socio-economic status being a strong predictor of language development in children (Hart & Risley, 1992; Hoff, 2003). The socio-economic status of the regions where the children resided was not taken into account as a contributing factor in our analyses. Some evidence reports that

vocabulary interventions have greater effect sizes for children of higher socio-economic status (Marulis & Neuman, 2010; Mol et al., 2008). This can be attributed to several factors: children from higher SES backgrounds generally have access to more diverse linguistic resources, experience a wider range of language interactions at home, and receive more consistent educational support outside of formal schooling. These advantages enhance their baseline language skills and make them more receptive to vocabulary interventions. All four of the schools involved in the current research were well above the national average of 25% for pupils eligible for free school meals (DfE, 2023) a widely used proxy measure of SES (Ilie et al., 2017). The range for our schools was from 34% to 48%, with an average across the four schools of 40%. If it is the case that vocabulary interventions are more beneficial for children of higher SES, then this could explain the null results of the current study. The potential influence of socioeconomic status (SES) on the observed absence of intervention effects based on the present study's findings cannot be definitively determined. However, investigating the potential role of SES as a contributing factor represents an intriguing avenue for future research in this domain.

One limitation is the relatively small sample size, which may have limited the statistical power of the analysis. A larger sample size may have increased the chances of detecting significant effects of the metalinguistic training. Furthermore, the sample for analysis on the syntactic awareness task only included bilingual children, which may limit the generalisability of the findings to monolingual children. Due to the COVID-19 pandemic causing practical constraints on testing, one of the original schools involved in this study at time 1, and partly at time 2, could no longer participate at time 3. This resulted in a loss of twenty-two children in total, eleven from each group, including monolingual children and naturally this reduced the power in the current analyses and the ability to compare for language status differences in the word re-ordering task.

Although the word re-ordering task was based on previous work by Nation and Snowling (2000), it is conceivable that the researcher-created tests utilised in our study were not fully effective in evaluating the variables of interest precisely. The tests may not have captured the whole complexity of the researched phenomena or may not have been sensitive enough to identify minute changes or variations across groups. The two metalinguistic tasks were not standardised and therefore do not provide the same reliability as standardised tests, thus making it more difficult to compare results with other studies and to generalise findings. Additionally, when studying a construct such as metalinguistic awareness, it is useful to have multiple measures to tap into it to increase reliability and validity of findings (Havron, 2022). Future research should include different measures of the same construct to provide more comprehensive understanding (Cronbach, 1951). This will also allow more researcher degrees of freedom to conduct analyses such as structural equation modelling, or a principal components analysis to pinpoint the most reliable measure of syntactic awareness for example.

Ultimately, it is essential to review the design and implementation of research tests rigorously in order to ensure that they effectively capture the phenomenon being investigated and offer insightful answers to the research issue at hand.

In their research, Hopkins et al. (2022) emphasised the importance of having a control group in intervention studies to reduce any potential discrepancies in staff motivation that may arise when schools purchase intervention programs. To control for potential variation in how the YICs could have delivered the Word Aware methodology, the same researcher delivered the training to control this. Although the current study included a control group, and all of the schools used were new to the YIS, with four different schools, from different areas of England, many individual and organisational differences could not be controlled. This large amount of variability inevitably will have had an impact on the performance on the tests used in the current study.

6.5 Conclusions

The current study did not find a significant effect of the YI training on syntactic awareness in bilingual children, or on morphological awareness in monolingual and bilingual children. As children advance through primary school, they encounter an increasing amount of words that are lengthy, rare, morphologically complex, and beyond their oral lexicon (Green et al., 2003). Using the meanings of known base words, prefixes, and suffixes to deduce the meanings of novel words is a viable strategy to expand one's vocabulary (Anglin, 1993; Carlisle, 2000). An understanding of word structure, which is largely tied to morphological awareness, is a valuable tool for children, despite the lack of effects found in this study. The individual differences between the children in the study, and variations in school approaches, all play a role in children's abilities in vocabulary, morphological awareness, and syntactic awareness. These factors, coupled with the unmeasurable impact of the COVID-19 pandemic on the YIs opportunities to practice their skills, are all likely to have impacted on the current results. Overall, teaching children word learning strategies as part of their YI training could be an interesting way forward in updating the YI training, enhancing children's vocabulary, and giving YIs additional strategies in their tool kit for helping their buddies.

6.6 References

Adams, M. J. (1994). *Beginning to read: Thinking and learning about print*. The MIT Press.

Adesope, O. O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research*, *80*(2), 207-245. https://doi.org/https://doi.org/10.3102/0034654310368803

Alexander, K., Entwisle, D., & Olson, L. (2007). Lasting Consequences of the Summer Learning Gap. *American Sociological Review - AMER SOCIOL REV*, *72*, 167-180. https://doi.org/10.1177/000312240707200202

Allen, A. A., & Lembke, E. S. (2022). The effect of a morphological awareness intervention on early writing outcomes. *Learning Disability Quarterly*, *45*(2), 72-84. https://doi.org/https://doi.org/10.1177/0731948720912414

Altman, C., Goldstein, T., & Armon-Lotem, S. (2018). Vocabulary, Metalinguistic Awareness and Language Dominance Among Bilingual Preschool Children. *Front Psychol*, *9*, 1953. https://doi.org/10.3389/fpsyg.2018.01953

Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. In J. T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp. 77-117). International Reading Association.

Anglin, J. M. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development*, *58*, v-165. https://doi.org/10.2307/1166112

Asaad, H., Hasan, M., Alidoust, N., Shabdin, A., Ounissi, A., & Hossain, M. D. (2022). The Impact of Morphological Awareness Intervention in Enhancing L2 Postgraduate Students' Productive Vocabulary Breadth. *Education Research International*, *2022*, 1-11. https://doi.org/10.1155/2022/5930822

Asaad, H. Q. M., & Shabdin, A. A. (2021). The predictive role of morphological awareness and productive vocabulary knowledge in L2 postgraduate students' academic writing. *Eurasian Journal of Applied Linguistics*, *7*(1), 24-44. https://doi.org/10.32601/ejal.911149

Bates, D. M., M. Bolker, B. Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software.*, *67(1).* 1-48. https://doi.org/10.18637/jss.v067.i01

Bates, E. A., & Goodman, J. C. (1997). On the inseparability of grammar and the lexicon: Evidence from acquisition.

Baumann, J. F., Edwards, E. C., Boland, E. M., Olejnik, S., & Kame'enui, E. J. (2003). Vocabulary Tricks: Effects of Instruction in Morphology and Context on Fifth-Grade Students' Ability to Derive and Infer Word Meanings. *American Educational Research Journal*, *40*, 447-494. https://doi.org/10.3102/00028312040002447

Baumann, J. F., Edwards, E. C., Font, G., Tereshinski, C. A., Kame'enui, E. J., & Olejnik, S. (2002). Teaching morphemic and contextual analysis to fifth-grade students. *Reading research quarterly*, *37*(2), 150-176. https://doi.org/https://doi.org/10.1598/RRQ.37.2.3

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing Words to Life: Robust Vocabulary Instruction.* (2nd. ed.). Guilford Press.

Berko, J. (1958). The child's learning of English morphology. *Word*, *14*(2-3), 150-177. https://doi.org/https://doi.org/10.1080/00437956.1958.11659661

Bialystok, E. (1986). Factors in the growth of linguistic awareness. *Child Development*, 498-510. https://doi.org/https://psycnet.apa.org/doi/10.2307/1130604

Bialystok, E. (1988). Levels of bilingualism and levels of linguistic awareness. *Developmental psychology*, *24*(4), 560. https://doi.org/https://doi.org/10.1037/0012-1649.24.4.560

Bialystok, E. (2001). Metalinguistic aspects of bilingual processing. *Annual review of applied linguistics*, *21*, 169-181. https://doi.org/10.1017/S0267190501000101

Bialystok, E., & Barac, R. (2012). Emerging bilingualism: Dissociating advantages for metalinguistic awareness and executive control. *Cognition*, *122*(1), 67-73. https://doi.org/https://doi.org/10.1016/j.cognition.2011.08.003

Bialystok, E., McBride-Chang, C., & Luk, G. (2005). Bilingualism, Language Proficiency, and Learning to Read in Two Writing Systems. *Journal of educational psychology*, *97*, 580-590. https://doi.org/10.1037/0022-0663.97.4.580

Bialystok, E., Peets, K. F., & Moreno, S. (2014). Producing bilinguals through immersion education: Development of metalinguistic awareness. *Applied Psycholinguistics*, *35*(1), 177-191. https://doi.org/https://doi.org/10.1017/s0142716412000288

Bishop, D. (2003). *Test for Reception of Grammar version 2 (TROG-2)*. Harcourt Assessment.

Blachowicz, C., & Fisher, P. (2010). *Teaching vocabulary in all classrooms.* (4th ed. ed.). Pearson-Merrill Prentice Hall.

Bogaards, P. (2001). Lexical units and the learning of foreign language vocabulary. . *Studies in Second Language Acquisition*, *23*(3), 321-343. http://www.jstor.org/stable/44486545

Bowers, P. N., & Kirby, J. R. (2010). Effects of morphological instruction on vocabulary acquisition. *Reading and Writing: An Interdisciplinary Journal*, *23*, 515-537. https://doi.org/https://doi.org/10.3102/0034654309359353

Browne Rego, L. L., & Bryant, P. E. (1993). The connection between phonological, syntactic and semantic skills and children's reading and spelling. *European Journal of Psychology of Education*, *8*, 235-246. https://doi.org/http://www.jstor.org/stable/23420166

Bruck, M., & Genesee, F. (1995). Phonological awareness in young second language learners. *Journal of Child Language*, *22*, 307-324. https://doi.org/10.1017/S0305000900009806

Cain, K., & Oakhill, J. (2011). Matthew effects in young readers: Reading comprehension and reading experience aid vocabulary development. *Journal of Learning Disabilities*, *44*(5), 431-443. https://doi.org/https://doi.org/10.1177/0022219411410042

Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and writing*, *12*(3), 169-190. https://doi.org/https://doi.org/10.1023/A:1008131926604

Carlisle, J. F. (2003). *Morphology matters in learning to read: A commentary* (Vol. 24). Taylor & Francis. https://doi.org/10.1080/02702710390227369

Carlisle, J. F. (2007). Fostering morphological processing, vocabulary development, and reading comprehension. In R. K. Wagner, A. E. Muse, & K. R. Tannenbaum (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* (pp. 78-103). The Guilford Press.

Carlisle, J. F. (2010). Effects of Instruction in Morphological Awareness on Literacy Achievement: An Integrative Review. *Reading research quarterly*, *45*(4), 464-487. https://doi.org/https://doi.org/10.1598/RRQ.45.4.5

Carlisle, J. F., & Feldman, L. B. (1995). Morphological awareness and early reading achievement. In L. B. Feldman (Ed.), *Morphological aspects of language processing* (Vol. 189209, pp. 189-209). Lawrence Erlbaum Associates, Inc.

Chan, A. (2004). Syntactic Transfer: Evidence from the Interlanguage of Hong Kong Chinese ESL Learners. *The Modern Language Journal*, *88*, 56-74. https://doi.org/10.1111/j.0026-7902.2004.00218.x

Cheung, H., Chung, K., Wong, S., McBride-Chang, C., Penney, T., & Ho, C. (2010). Speech Perception, Metalinguistic Awareness, Reading, and Vocabulary in Chinese-English Bilingual Children. *Journal of educational psychology*, *102*, 367-380. https://doi.org/10.1037/a0017850

Chung, S. C., Chen, X., & Deacon, S. H. (2018). The relation between orthographic processing and spelling in grade 1 French immersion children. *Journal of research in reading*, *41*, 290-311. https://doi.org/10.1111/1467-9817.12104

Clark, E. V. (1993). *The Proceedings of the 25th Annual Child Language Research Forum* (Vol. 25). Center for the Study of Language (CSLI).

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and psychological measurement*, *20*(1), 37-46. https://doi.org/https://doi.org/10.1177/001316446002000104

Connor, C. M., Day, S. L., Zargar, E., Wood, T. S., Taylor, K. S., Jones, M. R., & Hwang, J. K. (2019). Building Word Knowledge, Learning Strategies, and Metacognition with the Word-Knowledge E-Book. *Comput Educ*, *128*, 284-311. https://doi.org/10.1016/j.compedu.2018.09.016

Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish–English bilinguals. *Applied Psycholinguistics*, *20*(1), 1-20. https://doi.org/undefined

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297-334. https://doi.org/10.1007/BF02310555

Crosson, A. C., McKeown, M. G., Robbins, K. P., & Brown, K. J. (2019). Key Elements of Robust Vocabulary Instruction for Emergent Bilingual Adolescents. *Lang Speech Hear Serv Sch*, *50*(4), 493-505. https://doi.org/10.1044/2019_lshss-voia-18-0127

Davidson, D., Raschke, V. R., & Pervez, J. (2010). Syntactic awareness in young monolingual and bilingual (Urdu–English) children. *Cognitive Development*, *25*(2), 166-182. https://doi.org/https://doi.org/10.1016/j.cogdev.2009.07.003

Davidson, D., Vanegas, S. B., Hilvert, E., & Misiunaite, I. (2017). "I Readed the Book Last Week." The Role of Dominant Language, Receptive Vocabulary and Language Structure on Morphosyntactic Awareness in Monolingual and Heritage Language Children. *Bilingualism: Language and Cognition*, *20*(5), 1045-1062. https://doi.org/https://doi.org/10.1017/S136672891600078X

Davidson, D., Vanegas, S. B., Hilvert, E., Rainey, V. R., & Misiunaite, I. (2019). Examination of monolingual (English) and bilingual (English/Spanish; English/Urdu) children's syntactic awareness. *Journal of Child Language*, *46*(4), 682-706. https://doi.org/10.1017/S0305000919000059

Dawson, N., Rastle, K., & Ricketts, J. (2021). Bridging form and meaning: support from derivational suffixes in word learning. *Journal of research in reading*, *44*(1), 27-50. https://doi.org/https://doi.org/10.1111/1467-9817.12338

Deacon, H., Kieffer, M., & Laroche, A. (2014). The Relation Between Morphological Awareness and Reading Comprehension: Evidence From Mediation and Longitudinal Models. *Scientific Studies of Reading*, *18*. https://doi.org/10.1080/10888438.2014.926907

Deacon, S. H., & Kieffer, M. (2018). Understanding how syntactic awareness contributes to reading comprehension: Evidence from mediation and longitudinal models. *Journal of educational psychology*, *110*(1), 72. https://doi.org/https://doi.org/10.1037/edu0000198

Deacon, S. H., Wade-Woolley, L., & Kirby, J. (2007). Crossover: The role of morphological awareness in French immersion children's reading. *Developmental psychology*, *43*, 732-746. https://doi.org/10.1037/0012-1649.43.3.732

DfE. (2023). *Schools, pupils and their characteristics*. London: Department for Education. Retrieved from https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics

Dickinson, D. K. (1984). First impressions: Children's knowledge of words gained from a single exposure. *Applied Psycholinguistics*, *5*, 359-373. https://doi.org/10.1017/S0142716400005233

Dictionary, C. (2022). *English dictionary, translations & thesaurus.* https://dictionary.cambridge.org/

Diggle, P., Diggle, P. J., Heagerty, P., Liang, K.-Y., & Zeger, S. (2002). *Analysis of longitudinal data*. Oxford university press.

Duncan, L. G., Casalis, S., & Colé, P. (2009). Early metalinguistic awareness of derivational morphology: Observations from a comparison of English and French. *Applied Psycholinguistics*, *30*(3), 405-440. https://doi.org/https://doi.org/10.1017/S0142716409090213

Dunn, L. M., & Dunn, D. M. (2009). *The British picture vocabulary scale*. GL Assessment Limited.

Echols, L. D., West, R. F., Stanovich, K. E., & Zehr, K. S. (1996). Using children's literacy activities to predict growth in verbal cognitive skills: A longitudinal investigation. *Journal of educational psychology*, *88*(2), 296. https://doi.org/https://doi.org/10.1037/0022-0663.88.2.296

Edwards, H. T., & Kirkpatrick, A. G. (1999). Metalinguistic awareness in children: a developmental progression. *J Psycholinguist Res*, *28*(4), 313-329. https://doi.org/10.1023/a:1023275214000

Elleman, A. M., Steacy, L. M., Olinghouse, N. G., & Compton, D. L. (2017). Examining Child and Word Characteristics in Vocabulary Learning of Struggling Readers. *Scientific Studies of Reading*, *21*(2), 133-145. https://doi.org/10.1080/10888438.2016.1265970

Ellis, R. (2009). Implicit and explicit learning, knowledge and instruction. In R. Ellis, S. Loewen, C. Elder, H. Reinders, R. Erlam, & J. Philp (Eds.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 3-26). Multilingual Matters.

Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proc Natl Acad Sci U S A*, *118*(17). https://doi.org/10.1073/pnas.2022376118

Farnia, F., & Geva, E. (2011). Cognitive correlates of vocabulary growth in English language learners. *Applied Psycholinguistics*, *32*(4), 711-738. https://doi.org/https://doi.org/10.1017/S0142716411000038

Finch, K. (2020). *The impact of statutory Modern Foreign Language (MFL) teaching in multilingual Key Stage 2 classrooms. [Unpublished doctoral thesis].* University of Manchester.

Foursha-Stevenson, C., & Nicoladis, E. (2011). Early emergence of syntactic awareness and cross-linguistic influence in bilingual children's judgments. *International Journal of Bilingualism*, *15*(4), 521-534. https://doi.org/10.1177/1367006911425818

Foursha, C., Austin, J., & Walle, G. (2023, 03/11). Is language processing identical in monolinguals and early, balanced bilinguals? Proceedings Supplement of the 30th Boston University Conference on Language Development, Boston, MA

Friedline, B. E. (2011). *Challenges in the second language acquistion of derivational morphology: from theory to practice.* [Doctoral dissertation., University of Pittsburgh.]. http://d-scholarship.pitt.edu/8351/1/Friedline_ETD_8-15-2011_FINAL.pdf

Frost, R. (2005). Orthographic systems and skilled word recognition processes in reading. In M. Snowling & C. Hulme (Eds.), *The science of reading: A handbook.* (pp. 272-295). Blackwell Publishing. https://doi.org/https://doi.org/10.1002/9780470757642.ch15

Fukkink, R. G., & de Glopper, K. (1998). Effects of instruction in deriving word meaning from context: A meta-analysis. *Review of Educational Research*, *68*(4), 450-469. https://doi.org/https://doi.org/10.2307/1170735

Galambos, S. J., & Goldin-Meadow, S. (1990). The effects of learning two languages on levels of metalinguistic awareness. *Cognition*, *34*(1), 1-56. https://doi.org/https://doi.org/10.1016/0010-0277(90)90030-N

Gleitman, L. (1990). The structural sources of verb meanings. *Language Acquisition: A Journal of Developmental Linguistics*, *1*, 3-55. https://doi.org/10.1207/s15327817la0101_2

Goldstein, B. A., Fabiano, L., & Washington, P. S. (2005). Phonological skills in predominantly English-speaking, predominantly Spanish-speaking, and Spanish-English bilingual children. *Language, speech, and hearing services in schools.* , *36*(3), 201-218. https://doi.org/10.1044/0161-1461(2005/021)

Goodwin, A., Lipsky, M., & Ahn, S. (2012). Word Detectives: Using Units of Meaning to Support Literacy. *The Reading Teacher*, *65*. https://doi.org/10.1002/TRTR.01069

Goodwin, A. P., & Ahn, S. (2010). A meta-analysis of morphological interventions: effects on literacy achievement of children with literacy difficulties. *Ann Dyslexia*, *60*(2), 183-208. https://doi.org/10.1007/s11881-010-0041-x

Goodwin, A. P., Petscher, Y., Carlisle, J. F., & Mitchell, A. M. (2017). Exploring the dimensionality of morphological knowledge for adolescent readers. *Journal of research in reading*, *40*(1), 91-117. https://doi.org/https://doi.org/10.1111/1467-9817.12064

Graves, M., & Sales, G. (2013). *Teaching 50,000 words: Meeting and exceeding the Common Core State Standards for vocabulary* https://www.literacyworldwide.org/docs/default-source/member-benefits/e-ssentials/ila-e-ssentials-8035.pdf

Graves, M. F. (2016). *The Vocabulary Book: Learning and Instruction*. Teachers College Press. https://books.google.co.uk/books?id=OSTrDAAAQBAJ

Graves, M. F., Schneider, S., & Ringstaff, C. (2017). Empowering Students With Word-Learning Strategies: Teach a Child to Fish. *The Reading Teacher*, *71*(5), 533-543. https://doi.org/https://doi.org/10.1002/trtr.1644

Green, L., McCutchen, D., Schwiebert, C., Quinlan, T., Eva, A., & Juelis, J. (2003). Morphological Development in Children's Writing. *Journal of educational psychology*, *95*, 752-761. https://doi.org/http://dx.doi.org/10.1037/0022-0663.95.4.752

Harris, M. L., Schumaker, J. B., & Deshler, D. D. (2011). The Effects of Strategic Morphological Analysis Instruction on the Vocabulary Performance of Secondary Students with and without Disabilities. *Learning Disability Quarterly*, *34*(1), 17-33. https://doi.org/10.1177/073194871103400102

Hart, B., & Risley, T. R. (1992). American parenting of language-learning children: Persisting differences in family-child interactions observed in natural home environments. *Developmental psychology*, *28*, 1096-1105. https://doi.org/10.1037/0012-1649.28.6.1096

Havron, N. (2022). Why not both? Using multiple measures to improve reliability in infant studies. *Infant and Child Development*, *31*(5), e2336. https://doi.org/https://doi.org/10.1002/icd.2336

Herriman, M. L. (1994). Jean Émile Gombert, Metalinguistic development . Hemel Hempstead, Herts: Harvester Wheatsheaf, Transl, by Pownall Tim, 1992. 238 pp. *Journal of Child Language*, *21*, 504 - 509. https://doi.org/10.1017/S0305000900009399

Hoff, E. (2003). The specificity of environmental influence: socioeconomic status affects early vocabulary development via maternal speech. *Child Dev*, *74*(5), 1368-1378. https://doi.org/10.1111/1467-8624.00612

Hoff, E., Quinn, J. M., & Giguere, D. (2018). What explains the correlation between growth in vocabulary and grammar? New evidence from latent change score analyses of simultaneous bilingual development. *Developmental science*, *21*(2), e12536. https://doi.org/https://doi.org/10.1111/desc.12536

Hopkins, T., Harrison, E., Coyne-Umfreville, E., & Packer, M. (2022). A pilot study exploring the effectiveness of a whole-school intervention targeting receptive vocabulary in the early years: Findings from a mixed method study involving students as part of a practice-based research placement. *Child Language Teaching and Therapy*, *38*(2), 212-229. https://doi.org/https://doi.org/10.1177/02656590221088210

Huang, K.-J. (2018). On bilinguals' development of metalinguistic awareness and its transfer to L3 learning: The role of language characteristics. *International Journal of Bilingualism*, *22*(3), 330-349. https://doi.org/10.1177/1367006916681081

Hulk, A., & Müller, N. (2000). Bilingual first language acquisition at the interface between syntax and pragmatics. *Bilingualism: Language and Cognition*, *3*(3), 227-244. https://doi.org/10.1017/S1366728900000353

Ilie, S., Sutherland, A., & Vignoles, A. (2017). Revisiting free school meal eligibility as a proxy for pupil socio-economic deprivation. *British Educational Research Journal*, *43*(2), 253-274. https://doi.org/https://doi.org/10.1002/berj.3260

Karmiloff-Smith, A. (1994). Beyond Modularity: A Developmental Perspective on Cognitive Science*. *International Journal of Language & Communication Disorders*, *29*(1), 95-105. https://doi.org/https://doi.org/10.3109/13682829409041485

Katz, V. S. (2011). *Children being seen and heard: how youth contribute to their migrant families' adaptation.* Aresta Publications.

Kieffer, M. J. (2014). Morphological awareness and reading difficulties in adolescent Spanish-speaking language minority learners and their classmates. *Journal of Learning Disabilities*, *47*(1), 44-53. https://doi.org/https://doi.org/10.1177/0022219413509968

Kieffer, M. J., & Lesaux, N. K. (2007). Breaking Down Words to Build Meaning: Morphology, Vocabulary, and Reading Comprehension in the Urban Classroom. *The Reading Teacher*, *61*(2), 134-144. https://doi.org/https://doi.org/10.1598/RT.61.2.3

Kieffer, M. J., & Lesaux, N. K. (2012). Development of morphological awareness and vocabulary knowledge in Spanish-speaking language minority learners: A parallel process latent growth curve model. *Applied Psycholinguistics*, *33*(1), 23-54. https://doi.org/https://doi.org/10.1017/S0142716411000099

Kieseier, T., Thoma, D., Vogelbacher, M., & Holger, H. (2022). Differential effects of metalinguistic awareness components in early foreign language acquisition of English vocabulary and grammar. *Language awareness*, *31*(4), 495-514. https://doi.org/https://doi.org/10.1080/09658416.2022.2093888

Kraut, R. (2015). The relationship between morphological awareness and morphological decomposition among English language learners. *Reading and writing*, *28*, 873-890. https://doi.org/http://dx.doi.org/10.1007/s11145-015-9553-4

Kucan, L. (2012). What Is Most Important to Know About Vocabulary? *The Reading Teacher*, *65*(6), 360-366. https://doi.org/https://doi.org/10.1002/TRTR.01054

Kuo, L.-J., & Anderson, R. C. (2010). Beyond Cross-Language Transfer: Reconceptualizing the Impact of Early Bilingualism on Phonological Awareness. *Scientific Studies of Reading*, *14*(4), 365-385. https://doi.org/10.1080/10888431003623470

Kuo, L.-J., & Anderson, R. C. (2012). Effects of early bilingualism on learning phonological regularities in a new language. *Journal of Experimantal Child Psychology*, *111*(3), 455-467. https://doi.org/https://doi.org/10.1016/j.jecp.2011.08.013

Kuo, L.-J., Ramirez, G., de Marin, S., Kim, T.-J., & Unal-Gezer, M. (2017). Bilingualism and morphological awareness: a study with children from general education and Spanish-English dual language programs. *Educational Psychology*, *37*(2), 94-111. https://doi.org/http://dx.doi.org/10.1080/01443410.2015.1049586

Kuo, L., J., & Anderson, R. C. (2006). Morphological Awareness and Learning to Read: A Cross-Language Perspective. *Educational Psychologist*, *41*, 161-180. https://doi.org/10.1207/s15326985ep4103_3

Lado, R. (1957). *Linguistics across cultures. Applied Linguistics for Language Teachers.* University of Michigan Press.

Lam, K., & Chen, X. (2018). The crossover effects of morphological awareness on vocabulary development among children in French immersion. *Reading and writing*, *31*, 1893-1921. https://doi.org/https://doi.org/10.1177/0022022113493138

Landau, B., Gleitman, L. R., & Landau, B. (2009). *Language and experience: Evidence from the blind child* (Vol. 8). Harvard University Press.

Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.5.0.* In https://CRAN.R-project.org/package=emmeans

Leow, R. P., & Mercer, J. D. (2015). Depth of processing in L2 learning: theory, research, and pedagogy. *Journal of Spanish Language Teaching*, *2*(1), 69-82. https://doi.org/10.1080/23247797.2015.1026644

Lesaux, N. K., & Siegel, L. S. (2003). The development of reading in children who speak English as a second language. *Developmental psychology*, *39*(6), 1005. https://doi.org/https://doi.org/10.1037/0012-1649.39.6.1005

Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2019). Inferring Meaning From Meaningful Parts: The Contributions of Morphological Skills to the Development of Children's Reading Comprehension. *Reading research quarterly*, *54*(1), 63-80. https://doi.org/https://doi.org/10.1002/rrq.219

Lin, C. Y., Cheng, C., & Wang, M. (2018). The contribution of phonological and morphological awareness in Chinese–English bilingual reading acquisition. *Reading and writing*, *31*(1), 99-132. https://doi.org/10.1007/s11145-017-9775-8

Lonigan, C. J., Shanahan, T., & Cunningham, A. (2008). Impact of shared-reading interventions on young children's early literacy skills. *Developing early literacy: Report of the National Early Literacy Panel.* , 153-171. https://doi.org/https://doi.org/10.1016/j.edurev.2019.100290

Lovett, M. W., Lacerenza, L., & Borden, S. L. (2000). Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes. *Journal of Learning Disabilities*, *33*(5), 458-476. https://doi.org/https://doi.org/10.1177/002221940003300507

MacKay, E., Lynch, E., Sorenson Duncan, T., & Deacon, S. H. (2021). Informing the Science of Reading: Students' Awareness of Sentence-Level Information Is Important for Reading Comprehension. *Reading research quarterly*, *56*(S1), S221-S230. https://doi.org/https://doi.org/10.1002/rrq.397

Marks, R. A., Labotka, D., Sun, X., Nickerson, N., Zhang, K., Eggleston, R. L., Yu, C.-L., Uchikoshi, Y., Hoeft, F., & Kovelman, I. (2022). Morphological awareness and its role in early word reading in English monolinguals, Spanish–English, and Chinese–English simultaneous bilinguals. *Bilingualism: Language and Cognition*, 1-16. https://doi.org/10.1017/S1366728922000517

Marulis, L. M., & Neuman, S. B. (2010). The Effects of Vocabulary Intervention on Young Children's Word Learning:A Meta-Analysis. *Review of Educational Research*, *80*(3), 300-335. https://doi.org/10.3102/0034654310377087

McBride-Chang, C., Cho, J. R., Liu, H., Wagner, R. K., Shu, H., Zhou, A., Cheuk, C. S., & Muse, A. (2005). Changing models across cultures: associations of phonological awareness and morphological structure awareness with vocabulary and word recognition in second graders from Beijing, Hong Kong, Korea, and the United States. *J Exp Child Psychol*, *92*(2), 140-160. https://doi.org/10.1016/j.jecp.2005.03.009

McBride-Chang, C., Tardif, T., Cho, J.-R., Shu, H., Fletcher, P., Stokes, S. F., Wong, A., & Leung, K. (2008). What's in a word? Morphological awareness and vocabulary knowledge in three languages. *Applied Psycholinguistics*, *29*(3), 437-462. https://doi.org/https://doi.org/10.1017/S014271640808020X

McClain, J. B., Mancilla-Martinez, J., Flores, I., & Buckley, L. (2021). Translanguaging to support emergent bilingual students in English dominant preschools: An explanatory sequential mixed-method study. *Bilingual Research Journal*, *44*(2), 158-173. https://doi.org/https://doi.org/10.1080/15235882.2021.1963014

McCutchen, D., & Logan, B. (2011). Inside Incidental Word Learning: Children's Strategic Use of Morphological Information to Infer Word Meanings. *Reading research quarterly*, *46*(4), 334-349. https://doi.org/https://doi.org/10.1002/RRQ.003

McKeown, M. G., & Beck, I. L. (2011). Making vocabulary interventions engaging and effective. In R. E. O'Connor & P. F. Vadasy (Eds.), *Handbook of Reading Interventions.* (pp. 138-168). Guilford Press.

Melogno, S., Pinto, M. A., & Lauriola, M. (2022). Becoming the Metalinguistic Mind: The Development of Metalinguistic Abilities in Children from 5 to 7. *Children (Basel)*, *9*(4). https://doi.org/10.3390/children9040550

Mol, S. E., Bus, A. G., de Jong, M. T., & Smeets, D. J. H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development*, *19*(1), 7-26. https://doi.org/10.1080/10409280701838603

Moran, E., & Moir, J. (2018). Closing the vocabulary gap in early years: Is 'Word Aware' a possible approach? *Educational and Child Psychology*, *35*, 51-64. https://doi.org/10.53841/bpsecp.2018.35.1.51

Muter, V., Hulme, C., Snowling, M. J., & Stevenson, J. (2004). Phonemes, Rimes, Vocabulary, and Grammatical Skills as Foundations of Early Reading Development: Evidence From a

Longitudinal Study. *Developmental psychology*, *40*, 665-681. https://doi.org/10.1037/0012-1649.40.5.665

Nagy, W., & Anderson, R. C. (1984). How Many Words are There in Printed School English. *Reading research quarterly*, *19*, 304-330. https://doi.org/https://doi.org/10.2307/747823

Nagy, W., Berninger, V., Abbott, R., Vaughan, K., & Vermeulen, K. (2003). Relationship of Morphology and Other Language Skills to Literacy Skills in At-Risk Second-Grade Readers and At-Risk Fourth-Grade Writers. *Journal of educational psychology*, *95*, 730-742. https://doi.org/10.1037/0022-0663.95.4.730

Nagy, W. E., Carlisle, J. F., & Goodwin, A. P. (2014). Morphological Knowledge and Literacy Acquisition. *Journal of Learning Disabilities*, *47*(1), 3-12. https://doi.org/10.1177/0022219413509967

Nagy, W. E., McClure, E. F., & Mir, M. (1997). Linguistic transfer and the use of context by Spanish-English bilinguals. *Applied Psycholinguistics*, *18*(4), 431-452. https://doi.org/https://doi.org/10.1017/S0142716400010924

Nation, I. S. P. (2001). *Learning vocabulary in another language.* (Vol. 10). Cambridge university press. https://doi.org/https://doi.org/10.1017/CBO9781139524759

Nation, K., & Snowling, M. J. (2000). Factors influencing syntactic awareness skills in normal readers and poor comprehenders. *Applied Psycholinguistics*, *21*(2), 229-241. https://doi.org/10.1017/S0142716400002046

Nation, K., & Snowling, M. J. (2004). Beyond phonological skills: Broader language skills contribute to the development of reading. *Journal of research in reading*, *27*(4), 342-356. https://doi.org/https://doi.org/10.1111/j.1467-9817.2004.00238.x

Neuman, S. B., & Roskos, K. (2012). More Than Teachable Moments: Enhancing Oral Vocabulary Instruction in Your Classroom. *The Reading Teacher*, *66*(1), 63-67. https://doi.org/https://doi.org/10.1002/TRTR.01104

Pan, D. J., Nakayama, M., McBride, C., Cheah, Z. R. E., Zheng, M., & Yeung, C. C. L. (2023). Cognitive-linguistic skills and vocabulary knowledge breadth and depth in children's L1 Chinese and L2 English. *Applied Psycholinguistics*, *44*(1), 77-99. https://doi.org/https://doi.org/10.1017/S0142716422000480

Paradis, J., Emmerzael, K., & Duncan, T. S. (2010). Assessment of English language learners: Using parent report on first language development. *Journal of Communication Disorders*, *43*, 474-497. https://doi.org/https://doi.org/10.1016/j.jcomdis.2010.01.002

Paribakht, T. S., & Wesche, M. (1999). Reading and incidental L2 vocabulary acquisition: An Introspective Study of Lexical Inferencing. *Studies in Second Language Acquisition*, *21*(2), 195-224. http://www.jstor.org/stable/44486436

Parsons, S., & Branagan, A. (2014). *Word Aware: Teaching Vocabulary across the day, across the curriculum*. Routledge.

Patrinos, H. A., Vegas, E., & Carter-Rau, R. (2022). An analysis of COVID-19 student learning loss. https://doi.org/http://hdl.handle.net/10986/37400

Penno, J. F., Wilkinson, I. A., & Moore, D. W. (2002). Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect? *Journal of educational psychology*, *94*(1), 23. https://doi.org/https://doi.org/10.1037/0022-0663.94.1.23

Perfetti, C. A., & Hart, L. (2002). The lexical quality hypothesis. *Precursors of functional literacy.*, *11.*, 67-86. https://doi.org/https://doi.org/10.1075/swll.11.14per

R Development Core Team. (2020). *R: A language and environment for statistical computing.* In R Foundation for Statistical Computing. https://www.R-project.org/.

Ramirez, G., Chen, X. I., Geva, E., & Luo, Y. (2011). Morphological awareness and word reading in English language learners: Evidence from Spanish- and Chinese-speaking children. *Applied Psycholinguistics*, *32*(3), 601-618. https://doi.org/10.1017/S0142716411000233

Raven, J. C. (1978). *Manual for Raven's progressive matrices and vocabulary scales*. Revised. London : H. K. Lewis ; Los Angeles, Calif. : Western Psychological Services, 1978, c1977. https://search.library.wisc.edu/catalog/999608145802121

Read, J. (2004). Plumbing the Depths: How Should the Construct of Vocabulary Knowledge Be Defined. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in a Second Language* (pp. 209-227.). John Benjamin. https://doi.org/http://dx.doi.org/10.1075/lllt.10.15rea

Reder, F., Marec-Breton, N., Gombert, J. E., & Demont, E. (2013). Second-language learners' advantage in metalinguistic awareness: A question of languages' characteristics. *British Journal of Educational Psychology*, *83*(4), 686-702. https://doi.org/https://doi.org/10.1111/bjep.12003

Restrepo Ramos, F. D. (2015). Incidental vocabulary learning in second language acquisition: A literature review. *Profil.*, *17*(1), 157-166. https://doi.org/https://doi.org/10.15446/profile.v17n1.43957

Ricketts, J., Bishop, D. V. M., Pimperton, H., & Nation, K. (2011). The Role of Self-Teaching in Learning Orthographic and Semantic Aspects of New Words. *Scientific Studies of Reading*, *15*(1), 47-70. https://doi.org/10.1080/10888438.2011.536129

Rodríguez-Ortiz, I. R., Moreno-Pérez, F. J., Simpson, I. C., Valdés-Coronel, M., & Saldaña, D. (2021). The influence of syntactic knowledge on reading comprehension varies as a function of oral vocabulary in Spanish-speaking children. *Journal of research in reading*, *44*(3), 695-714. https://doi.org/https://doi.org/10.1111/1467-9817.12363

Roehr, K. (2008). Metalinguistic Knowledge and Language Ability in University-Level L2 Learners. *Applied Linguistics*, *29*(2), 173-199. https://doi.org/10.1093/applin/amm037

RStudio, I. (2019). *RStudio: Integrated Development for R.* In http://www.rstudio.com/

Saiegh-Haddad, E., & Geva, E. (2008). Morphological awareness, phonological awareness, and reading in English–Arabic bilingual children. *Reading and writing*, *21*, 481-504. https://doi.org/https://doi.org/10.1007/s11145-007-9074-x

Scarborough, H. S., Rescorla, L., Tager-Flusberg, H., Fowler, A. E., & Sudhalter, V. (1991). The relation of utterance length to grammatical complexity in normal and language-disordered groups. *Applied Psycholinguistics*, *12*(1), 23-46. https://doi.org/https://psycnet.apa.org/doi/10.1017/S014271640000936X

Schmitt, N. (2014). Size and Depth of Vocabulary Knowledge: What the Research Shows. *Language Learning*, *64*(4), 913-951. https://doi.org/https://doi.org/10.1111/lang.12077

Schneider, C., & Arnot, M. (2018). An exploration of school communication approaches for newly arrived EAL students: applying three dimensions of organisational communication theory. *Cambridge Journal of Education*, *48*(2), 245-262. https://doi.org/10.1080/0305764X.2017.1329399

Serratrice, L. (2013). The Bilingual Child. In T. K. Bhatia & W. C. Ritchie (Eds.), *The handbook of bilingualism and multilingualism* (2nd ed ed., pp. 85-108). Wiley-Blackwell. https://doi.org/10.1002/9781118332382.ch4

Shen, Y., & Crosson, A. (2022). Chinese adolescents learning to read in English: How do different types of morphological awareness contribute to vocabulary knowledge and comprehension? *Reading and writing*, *36*. https://doi.org/10.1007/s11145-022-10292-4

Simard, D., Fortier, V., & Foucambert, D. (2013). Measuring metasyntactic ability among heritage language children. *Bilingualism: Language and Cognition*, *16*(1), 19-31. https://doi.org/10.1017/S1366728911000071

Simard, D., & Gutiérrez, X. (2017). The study of metalinguistic constructs in second language acquisition research. In *The Routledge handbook of language awareness* (pp. 205-221). Routledge.

Singson, M., Mahony, D., & Mann, V. (2000). The relation between reading ability and morphological skills: Evidence from derivational suffixes. *Reading and writing*, *12*, 219-252. https://doi.org/https://doi.org/10.1023/A:1008196330239

Sohail, J., Hipfner-Boucher, K., Deacon, H., & Chen, X. (2022). Reading Comprehension in French L2/L3 Learners: Does Syntactic Awareness Matter? *Languages (Basel)*, *7*(3), 211. https://doi.org/10.3390/languages7030211

Stahl, S. A., & Nagy, W. E. (2007). *Teaching word meanings*. Routledge.

Suggate, S. P., Lenhard, W., Neudecker, E., & Schneider, W. (2013). Incidental vocabulary acquisition from stories: Second and fourth graders learn more from listening than reading. *First Language*, *33*(6), 551-571. https://doi.org/10.1177/0142723713503144

Sun, B., Hu, G., & Curdt-Christiansen, X. L. (2018). Metalinguistic contribution to writing competence: a study of monolingual children in China and bilingual children in Singapore. *Reading and writing*, *31*, 1499-1523. https://doi.org/https://doi.org/10.1007/s11145-018-9846-5

Swanborn, M., & de Glopper, K. (2002). Impact of reading purpose on incidental word learning from context. *Language Learning*, *52*(1), 95-117. https://doi.org/https://doi.org/10.1111/1467-9922.00178

Tabatabaei, O., & Yakhabi, M. (2011). The Relationship between Morphological Awareness and Vocabulary Size of EFL Learners. *English Language Teaching*, *4*, 262-273. https://doi.org/http://dx.doi.org/10.5539/elt.v4n4p262

Ter Kuile, H., Veldhuis, M., Van Veen, S. C., & Wicherts, J. M. (2011). Bilingual education, metalinguistic awareness, and the understanding of an unknown language. *Bilingualism: Language and Cognition*, *14*(2), 233-242. https://doi.org/http://dx.doi.org/10.1017/S1366728910000258

Tong, X., Deacon, S. H., & Cain, K. (2014). Morphological and Syntactic Awareness in Poor Comprehenders: Another Piece of the Puzzle. *Journal of Learning Disabilities*, *47*(1), 22-33. https://doi.org/10.1177/0022219413509971

Tong, X., Tong, X., & McBride, C. (2017). Unpacking the relation between morphological awareness and Chinese word reading: Levels of morphological awareness and vocabulary. *Contemporary Educational Psychology*, *48*, 167-178. https://doi.org/https://doi.org/10.1016/j.cedpsych.2016.07.003

Torregrossa, J., Eisenbeiß, S., & Bongartz, C. (2022). Boosting Bilingual Metalinguistic Awareness Under Dual Language Activation: Some Implications for Bilingual Education. *Language Learning*, *n/a*(n/a). https://doi.org/https://doi.org/10.1111/lang.12552

Wang, Z., Xie, R., Xia, Y., Nguyen, T. P., & Wu, X. (2022). A golden triangle? Reciprocal effects among morphological awareness, vocabulary knowledge, and reading comprehension in Chinese children. *Contemporary Educational Psychology*, *70*, 102089. https://doi.org/https://doi.org/10.1016/j.cedpsych.2022.102089

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children,3rd edn*. Psychological Corporation.

White, T. G., Sowell, J., & Yanagihara, A. (1989). Teaching elementary students to use word-part clues. *The Reading Teacher*, *42*(4), 302-308. https://doi.org/https://www.jstor.org/stable/20200115

Wiig, E. H., & Secord, W. (1992). *TOWK: Test of Word Knowledge*. The Psychological Cooperation.

Wright, T. S., & Cervetti, G. N. (2017). A Systematic Review of the Research on Vocabulary Instruction That Impacts Text Comprehension. *Reading research quarterly*, *52*(2), 203-226. https://doi.org/https://doi.org/10.1002/rrq.163

Xie, Q., & Yeung, S. S.-s. (2022). Do vocabulary, syntactic awareness, and reading comprehension in second language facilitate the development of each other in young children? *Learning and instruction*, *82*, 101682. https://doi.org/10.1016/j.learninstruc.2022.101682

Zhang, J., Lo, M.-T., & Lin, T.-J. (2023). Word and child characteristics in vocabulary learning of native English speakers and bilingual learners. *Reading and writing*, *36*(1), 147-173. https://doi.org/10.1007/s11145-022-10293-3

Zhang, X., & Zhou, M. (2019). Interventions to promote learners' intercultural competence: A meta-analysis. *International Journal of Intercultural Relations*, *71*, 31-47. https://doi.org/https://doi.org/10.1016/j.ijintrel.2019.04.006

Zhao, Y., Wu, X., Sun, P., Xie, R., Feng, J., & Chen, H. (2019). The relationship between morphological awareness and reading comprehension among Chinese children: evidence from multiple mediation models. *Learning and Individual Differences*, *72*, 59-68. https://doi.org/https://doi.org/10.1016/j.lindif.2019.04.005

Zipf, G. K. (1949). *Human behavior and the principle of least effort*. Addison-Wesley Press.

Zuur, A. F., Ieno, E. N., Walker, N. J., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology with R* (Vol. 574). Springer.

Chapter 7: <u>Thesis discussion</u>

Outline of the chapter

This chapter presents the empirical findings concerning empathy, intercultural competence, and metalinguistic awareness. Subsequently, it explores the implications of these findings for the Young Interpreter Scheme and extends the discussion to the utility of buddy schemes in supporting EAL learners. The broader educational ramifications are also addressed. Finally, the chapter assesses the strengths and limitations of the current study and proposes avenues for future research.

7.1 Overview of findings

7.1.1 Empathy Findings

The longitudinal quantitative data indicated a rising trajectory in total empathy scores among the YIs from time 2 to time 3. Despite this upward trend, the analysis yielded no statistically significant differences between the YI children and the control group at any of the time points. This outcome is incongruent with findings from Lagunas' (2020) systematic review, which indicated significant long-term gains in empathy from various interventions (Baumsteiger, 2019; Dubow et al., 1987; Ornaghi et al., 2015; Piek et al., 2015). A likely explanation for the study's null results lies in MacLean et al.'s (2020) observation that the efficacy of empathy programmes is contingent upon the frequency of post-training practice and repetition of acquired skills. Given that government restrictions due to the Covid pandemic curtailed the scope for YI training practice, this limitation may account for the observed lack of significant change over time in total empathy scores.

Affective Empathy

Initial observations revealed no discernible difference between the YI children and the control group in affective empathy at the first two time points. It is conceivable that the brief four-week gap between time 1 and time 2 was insufficient for the YI children to fully integrate their learnings and affect behavioural change. It was only by time 3, potentially allowing for sufficient post-training practice as suggested by Trivedi-Bateman and Crook (2021), that the YI children significantly outperformed the control group in affective empathy. This lends support to the hypothesis that increases in empathy would be maintained by time 3, even though no such change was evident at time 2.

Gender significantly influenced affective empathy, with girls consistently scoring higher than boys at all time points in both groups. This finding aligns with previous work (Davis, 1983; Jolliffe & Farrington, 2006a; Lennon & Eisenberg, 1987; Volbrecht et al., 2007). However, the item 'if my mother is happy, I also feel happy' elicited uniform responses from both genders, suggesting a universal emotional connection with primary caregivers irrespective of gender Volbrecht et al. (2007).

Cognitive Empathy

The trendline for cognitive empathy scores among YI children showed an increase from time 2 to time 3. Nevertheless, this upward trend did not attain statistical significance at any of the examined time points. A plausible explanation for the null results concerning group and time point may reside in the children's stage of psychological development. Given that the sample ranged from eight to eleven years old, and foundational cognitive empathy skills develop by age eight (Simon & Nader-Grosbois, 2021), it is likely that these skills were already established. This is corroborated by the work of Siegler (2006) and Choudhury et al. (2006), who argue that cognitive regulation at this age is more a matter of refinement rather than foundational development. This notion aligns with Van der Graaff et al. (2014) who observed that substantial growth in cognitive empathy occurs during adolescence. Therefore, the lack of significant variation in cognitive empathy scores may well be attributed to the participants' existing developmental stage, rather than the efficacy of the YI training.

Age was a predictor of cognitive empathy, corroborating previous work such as Litvack-Miller et al. (1997) and Villadangos et al. (2016). Older children (10 years) consistently outperformed younger ones (7 years) in cognitive empathy across both groups and all time points. This aligns with parental observations of increasing prosocial behaviour with age (Klein et al., 2015) and additional research indicating age-dependent increases in empathy (Lucas-Molina et al., 2018; Rieffe et al., 2010).

Prosocial Motivation

Prosocial motivation scores for children in the YI training exhibited an increase between time 2 and time 3. However, this increment failed to yield statistically significant differences when compared with the control group and there were no significant differences in scores over the three timepoints. A potential explanation for these null results may lie in the nuanced interplay of individual differences in empathy levels, which have been shown to moderate the influence of external stimuli on prosocial behaviour (Guo & Wu, 2021). While the data does not demonstrate statistically significant differences between YIs and their peers in terms of prosocial motivation, the formalised nature of the YI programme presents an additional dimension to consider. Qualitative findings from the chapter on intercultural competence revealed that both groups could identify ways to support a new EAL pupil, suggesting a foundational level of prosocial tendencies exists within the entire school community. However, it is the active, formalised engagement of the YIs in prosocial activities that sets them apart as role models. This engagement serves to channel these pre-existing tendencies into structured actions, thereby elevating the YIs to the status of role models within the educational setting. Such role-modelling may have the potential to subtly alter behavioural standards among their peers towards enhanced empathy and cooperation, even if these effects are not immediately quantifiable. Consequently, the YIs may contribute to a more nurturing educational atmosphere, through the power of example if not through measurable statistical impact.

7.1.2 Intercultural Competence

This longitudinal qualitative study addressed a notable gap in research into children's intercultural competence and yielded several key themes. In 'Exploring Cultural Contrasts,' post-training YIs demonstrated heightened cultural awareness, with bilingual children showing the most nuanced understanding. Younger participants concentrated on language, while older ones considered broader, abstract aspects like educational systems. In 'Exploring Cultural Similarities,' children in both groups consistently recognised similarities such as attending school and family life between England and the new child's home country. This recognition generally increased over the study's duration, albeit less noticeably among the youngest participants. In the 'Emotional Awareness' theme, both groups demonstrated a nuanced understanding of the emotional complexities faced by newcomers, articulating a range of emotions with 'nervous' most frequently identified. Minor demographic variations did not significantly affect this general awareness, indicating a stable emotional understanding among participants over time. In the 'Fostering a Supportive Environment' theme, both groups commonly cited showing newcomers around, assisting with English, and offering friendship as main strategies for inclusion. Notable differences emerged between YIs and the control group; YIs employed a broader set of strategies and showed increased focus on non-verbal communication, likely influenced by their training. Additionally, a shift from social to more pragmatic support, especially in language assistance, was observed among bi/multi-lingual participants over time. Within the 'Curiosity about Different Cultures' theme, children demonstrated broad interests in the home country's lifestyle, schooling, and a wide variety of topics about the new child's background. This consistent curiosity was observed across different demographics and time periods. After undergoing YI training, participants displayed increased curiosity in a variety of topics. Monolingual children concentrated more on language, and boys in all groups consistently gravitated towards questions about games and leisure activities. The data consistently show high acknowledgment of peers who did not originate from England or English-speaking countries in both groups. By the third timepoint however, the YI children reported having more international peers, while Group B remained unchanged. These early cross-cultural interactions support children's intercultural development (Kim et al., 2006). Additionally, interacting with peers from difference cultures can promote intercultural competence (Díaz-Lefebvre, 2004; Galinsky & Ku, 2004; Tadmor & Tetlock, 2006) in addition to attending a multicultural school (Gudykunst, 2005; Hayden & Thompson, 2006).

Contrary to the findings of Takeuchi (2015), who questioned the appropriateness of applying models such as Byram's (1997) in evaluating primary school children's intercultural competence, the current study suggests that children, despite their young age, can grasp concepts related to

intercultural competence. Overall it suggests that peer-mentoring schemes like the YIS can enhance children's positive orientations to diversity (Santos et al., 2014).

7.1.3 Metalinguistic Awareness

Syntactic awareness - Word re-ordering task

The study's quantitative approach guided the assessment of YIS metalinguistic training's impact on word re-ordering scores and the quality of participant's explanations. The findings indicated no statistically significant effects resulting from the YIS metalinguistic training on these aspects. It is important to contextualise these findings by noting that the intervention was not intensive; it consisted of a single session using only one story. This limited scope might explain the lack of substantial effects observed in the study. Moreover, the restricted opportunities for participants to function as YIs could have constrained the practical application of any metalinguistic awareness gained. Such limitations are particularly relevant when comparing the outcomes of this study to those of Xie and Yeung (2022), who noted a natural developmental increase in syntactic awareness over time. Our findings are, however, in alignment with previous studies indicating that young children struggle to articulate grammaticality judgments through reference to explicit grammatical knowledge(Galambos & Goldin-Meadow, 1990), especially as this necessitates a high level of syntactic awareness(Leow & Mercer, 2015).

Morphological awareness - explaining words task

Both groups exhibited a slight but non-significant quantitative increase in explaining words scores from Time 1 to Time 2. This marginal improvement may not necessarily reflect the efficacy of the YIS training. Instead, it could be attributed to a practice effect, arising from participants' growing familiarity with the test format. Given the non-significant nature of the increase, caution is advised in attributing these gains exclusively to the YIS intervention. Further quantitative study is needed to clarify the precise factors contributing to this modest rise in performance.

Vocabulary Depth

In this study, vocabulary depth was significantly associated with performance on the explaining words task. High scores on the synonym baseline test correlated positively with improved performance on the explaining words task. This supports previous findings that vocabulary and metalinguistic awareness are interconnected (Dawson et al., 2021). Additionally, scores on the Test of Word Knowledge synonyms were found to be predictive of performance in the word re-ordering task. This finding is in alignment with previous research, such as the study by Xie and Yeung (2022), which similarly demonstrated the role of vocabulary scores in predicting metalinguistic task performance. Such consistency across studies highlights the integral role that depth of vocabulary plays in metalinguistic awareness.

7.2 The study's contribution

One of the main contributions of the present study lies in its role as a bridge between existing literature and unexplored areas, particularly concerning structured interpreter initiatives and peer support systems for new EAL students in educational settings. This investigation provides empirical evidence on the impact of these initiatives in terms of empathy, intercultural competence, and metalinguistic awareness among young interpreters, thus contributing to ongoing theoretical discussions in the field.

A further strength of this study is its comprehensive examination of peer-driven support, specifically in the context of the YIS model and EAL learners. While prior research has acknowledged the benefits of peer-assisted mechanisms, this study responds to a call-to-action issued by Cunningham (2012) by offering an in-depth, expansive research focus on EAL settings. In doing so, it unveils the operational intricacies of the YIS, providing a multi-dimensional view of peer-support mechanisms.

In addition to advancing theoretical discussions, this study provides tangible real-world implications. For example, peer support systems can lead to enhanced empathy among children who actively engage in supporting their peers. This finding not only provides practical insights but also substantiates the empirical validity of earlier theoretical constructs proposed by Ang et al. (2007), who identified different types of empathy The research aligns with Ang's proposals, illustrating the multidimensional nature of empathy in children. Distinct outcomes were measured in each of the four empathy dimensions, confirming that empathy encompasses a spectrum of facets in children. Furthermore, the findings support Hoffman's (1987) stages of empathy, particularly the fourth stage related to empathy for another's life conditions. The results from the empathy questionnaire demonstrate that the children in our study indeed exhibited empathy, confirming the presence of this aspect of empathy among them. This is further supported by the qualitative intercultural data, which demonstrates their ability to identify and understand how new EAL students might feel and effectively put themselves in their perspective, reinforcing their empathy development. Moreover, this study breaks new ground by demonstrating the practical applicability of Rieffe et al's (2007) empathy questionnaire (EmQue-CA) within the specified age range (7-11 years). This tool effectively measured empathy levels among children in the specified age range, including younger children beyond the questionnaire's original design. As a result, it offers educators and researchers a valuable instrument for assessing and nurturing empathy development in this age group. Furthermore, the current research reveals that children in this age range are capable of self-reporting their levels of empathy, in contrast to the predominant approach in previous studies, which relied on external evaluators to assess the child's empathy.

In summary, this study not only builds upon the foundational work of earlier research intro empathy in children, but also contributes novel perspectives and insights to the academic discourse. It thereby enriches the collective understanding of the field, particularly regarding peer support and adaptability in educational settings.

7.3 Implications for the Young Interpreter Scheme

This research has shown the benefits of the YIS, a finding of particular importance for Hampshire's EMTAS, the project partner - whose objectives align with fostering an inclusive environment for EAL students and newcomers. As the originators of the YIS, these data equip them with evidentiary support for the scheme's core principles, particularly in terms of promoting empathy and intercultural competence. Such validation underscores the scheme's significance in creating an inclusive educational environment and cultivating these essential skills among students. Additionally, Hampshire EMTAS have actionable insights to further enhance the scheme. A notable avenue for development lies in the two new resources developed for this research: the 'Word Detective Strategies' and the YI diaries. Despite finding no effect on metalinguistic awareness through the measures used in this study, the trialled 'Word Detective Strategies' within the YI training could potentially be integrated as they reinforce knowledge taught in English lessons and give YIs ideas that could be used when helping their buddies with English. Although inconsistently completed, the diaries were well-received by both Hampshire EMTAS, teachers, and YIs as a useful addition to the YI kit, indicates another promising direction for scheme development. Thus, as educational landscapes evolve, such findings will likely inform both the current and future iterations of the YIS, steering us closer to more inclusive and nuanced educational settings.

7.4 Implications for using buddy schemes to support EAL learners

With the rise in classroom diversity as observed by government data (DfE, 2023), it is necessary to ensure equitable access to education, to accommodate diverse learning needs, and to foster environments where every student feels valued. The YIS scheme appears to offer a promising model in the field of EAL support, highlighting the potential benefits of well-organised support systems. These systems cater not just to academic demands but also attend to the socio-emotional aspects of student experience (Collier & Thomas, 2007; Osterman, 2000). This aligns with the YIS program's broader philosophy of holistic education, which goes beyond language development to include emotional and social well-being. Such an integrated approach may effectively mitigate feelings of isolation among learners while fostering a sense of communal belonging (Heikamp et al., 2020).

Adding to the efficacy of structured support systems, the study corroborates previous findings, such as Gibbon's (1991) research, on the value of peer support in EAL education. The YIS framework highlights that peer interactions, when strategically designed, can serve as a powerful tool for cultural

and linguistic assimilation. These guided interactions contribute to an inclusive and enriching learning community, allowing students to navigate linguistic and social barriers effectively.

The YIS exemplifies a multifaceted pedagogical approach in EAL instruction, resonating with Hutchinson's (2018) insights. Beyond focusing solely on language development, the program integrates elements of empathy and cultural awareness to address socio-cultural challenges. This comprehensive strategy enhances the efficacy of the YIS by providing a more rounded educational experience that tackles both linguistic and socio-cultural barriers.

The empirical data from this study reveals that the YIS programme encouraged multicultural friendships among students. In line with Perry and Southwell's (2011) framework on the cultivation of intercultural competence in diverse educational settings, the qualitative data at the third time point revealed that students participating in the YIS programme reported a higher number of peers from diverse backgrounds compared to those in the control group, thereby substantiating the program's efficacy in fostering cross-cultural interactions. This finding not only substantiates the efficacy of the programme in fostering cross-cultural interactions but also corroborates Hayden and Wong's (1997) argument that cultural diversity in schools may serve as a primary mechanism to develop students' intercultural competence. The data further indicate that these cross-cultural interactions not only bolster inclusivity but also enhance understanding of diverse norms and values, as aligned with Gudykunst (2005). These interactions serve as crucial sources of influence and socialisation, impacting children's intercultural attitudes and behaviours (Killen et al., 2002) and provide spaces for the development of cultural sensitivity, empathy, and respect for differences (Scarino, 2009).

In summation, the YIS programme offers promising contributions to both scholarly and practical conversations surrounding EAL education. While the structured systems, peer interactions, and comprehensive pedagogical strategies suggest a potential for long-term linguistic and cultural integration of EAL students, it is important to note that the empirical evidence to substantiate these claims is not exhaustive, largely due to limitations imposed by the Covid-19 pandemic.

7.5 Broader Educational Implications

The core principles of the YIS program, including empathy, mutual respect, and cultural understanding, have potential relevance extending beyond EAL learners. While further empirical research is needed, initial indications suggest that implementation of similar frameworks could contribute to an educational environment where students from diverse backgrounds feel acknowledged and respected. Such an environment aligns with culturally responsive practices where teachers actively embrace, respond to, and validate the unique cultural heritages of their students (Gay, 2018; Moll & González, 2012). These elements collectively foster a sense of belonging for students from diverse backgrounds (Heineke & Vera, 2022).

Structured peer-support schemes create a favourable environment for the development of soft skills. Such mentorship roles not only enrich the mentees but also contribute to the personal growth of the mentors. They enhance key soft skills including effective communication, analytical problem-solving, social competence, and a sense of responsibility (Herrera & Karcher, 2013). Furthermore, these schemes have been shown to positively impact the emotional well-being of children and adolescents, while also bolstering their self-esteem and self-confidence (Crafter et al., 2017; DfE, 2020). Within this context, the YIS has been identified as a "source of pride" for Young Interpreters themselves (Flynn, 2019, p. 77). Complementing these findings, Page (2019) reports that teachers who have experience running the YIS report observable improvements in children's self-esteem and confidence. These enhanced soft skills and emotional well-being may have broader educational implications, potentially aiding in classroom engagement, collaborative learning, and long-term academic achievement.

The current research indicates an enhancement in YI children's cultural awareness through the implementation of the YIS. This observation is in accord with survey findings by Page (2019), based on teachers' views regarding EAL, which indicate a tenfold increase in opportunities for developing intercultural awareness in schools that have implemented the YIS. Furthermore, the empirical data from this study suggest that the YIS serves as a practical model for fostering cultural awareness more broadly in educational settings. Students participating in the YIS displayed increased levels of cultural awareness, thereby corroborating the programme's real-world applicability. The positive views towards diversity, as evidenced by the YI children's curiosity about new EAL peers, align with Aldridge's (2018) systematic review, which associates such positive attitudes with enhanced psychosocial well-being and pro-social behaviours in adolescents. Moreover, the focus on mutual understanding and respect within the YIS model has broader social implications. Schools adopting similar initiatives can contribute to mitigating social conflicts and biases, thereby fostering an environment of social cohesion and friendship beyond linguistic or cultural boundaries. While primarily tailored for EAL students, the structure of the YIS can also be harnessed to promote multilingualism more broadly. In line with Lucas et al.'s (2008) assertions, the YIS celebrates linguistic diversity, not merely tolerating multiple languages but also valuing the cultural narratives they represent. This offers students a richer understanding of the world, enabling them to transcend linguistic barriers and appreciate the complexity of cultural narratives.

Such a comprehensive outlook is increasingly pivotal in a globalised world that demands more than mere academic knowledge and skills. As global interconnectedness intensifies, educational frameworks must adapt to produce global citizens. The assertion that a comprehensive outlook is crucial in an increasingly globalised world is supported by various academic works. For instance,

Nussbaum (2002) argues for the importance of cultivating global citizenship through education, asserting that students need more than just vocational training to navigate the complexities of the global landscape. Similarly, Ameli (2020) stress the importance of educating for global competency and suggest that educational systems must evolve to equip students with the necessary skills and perspectives for international cooperation and understanding. Oxfam (2006) also underscores the need for a curriculum for global citizenship, advocating for the incorporation of global issues and perspectives within educational frameworks.

In summary, the YIS model serves not only as a testament to the benefits of multilingual classrooms but also as a roadmap for maximising their potential benefits. It promotes an inclusive, empathetic, and holistic approach to education, emphasising mutual respect, understanding, and comprehensive learning.

7.6 Limitations

The current study, while robust in its findings, is not without limitations. The most significant constraints were those introduced by the COVID-19 pandemic, particularly the restrictions on socialising and face-to-face interactions in school. The nature of the YIS, which relies on direct engagement and interactions among students, faced significant hurdles, especially due to the limited socialising opportunities within the school environment. Moreover, disruptions to data collection methodologies posed an additional challenge. It is crucial to acknowledge that the pandemic unequivocally influenced the functioning of the YIS, specifically in terms of YIs interactions with their peers and their ability to move around the school to assist others. Consequently, findings must be interpreted with caution, as the pandemic significantly restricted these aspects of the YIS. Without the pandemic, results and conclusions may have differed, and stronger effects of the YI training might have been observed. Another limitation concerns the absence of pre-pandemic comparative data, which limits the contextualisation of the study's findings. Without a benchmark, it becomes challenging to evaluate the study's outcomes solely within the framework of pandemic-induced educational settings. Lastly, the study did not consider the perspectives of the recipients of the YIS model, i.e., the EAL learners, thereby lacking a more comprehensive portrayal of its impact or effectiveness from the user viewpoint.

In conclusion, despite successfully navigating the complexities of research within a pandemic context, the study reveals areas for future inquiry and refinement. These limitations, shaped by the unprecedented circumstances of the pandemic, offer valuable lessons that will undoubtedly influence the trajectory of future research, as well as the continued evolution of the YIS.

7.7 Future directions

One of the most pressing avenues for future research involves the post-pandemic assessment of the YIS. As society transitions back to some semblance of normality, it becomes vital to reevaluate the impact of the YIS in a context that is not distorted by pandemic-induced constraints. Further empirical investigation into the long-term effects of both YI training and sustained operation as a YI on empathy, intercultural awareness, and metalinguistic awareness, particularly in a post-pandemic context, is crucial for a deeper understanding of these areas. Additionally, the inconsistent use of YI diaries as a measure in the present study necessitates a more standardised approach to evaluating the frequency and nature of YI activities. In periods unaffected by a pandemic, when YICs have more time for overseeing program activities, the monitoring of diaries could offer more reliable and insightful data.

Future research could refine the EmQue-CA questionnaire to enhance its ability to discern nuanced differences in empathy levels and include multi-source evaluations, such as teacher and parent assessments, for a more comprehensive understanding of children's empathic behaviour.

The disruptions caused by the pandemic have accentuated the importance of adaptability in educational schemes like the YIS. Future research should consider potential digital or hybrid adaptations of the YIS, maintaining fidelity to its core principles while accommodating new modes of educational delivery. As educational environments are likely to sustain a blend of online and traditional methods post-pandemic, understanding the scheme's adaptability in a hybrid context becomes crucial.

In summary, the educational landscape is at a critical juncture, shaped by both traditional pedagogical paradigms and transformative global events like the pandemic. Schemes such as the YIS, grounded in principles of inclusivity and adaptability, have the potential to not only navigate these complex terrains but also to set benchmarks for holistic, inclusive education. Harnessing these opportunities may be key to the YIS's continued success and relevance.

7.8 Concluding remarks

In summing up the contributions of this research, it is evident that as classrooms grow increasingly diverse, the imperative to incorporate inclusive pedagogies intensifies. Particularly for students with English as an Additional Language and recent arrivals to the educational system, such inclusivity is indispensable. The YIS emerges as a model in this environment, offering well-structured support mechanisms and this study has provided new evidence on the viability of this school-wide program.

As classrooms evolve to better reflect our interconnected world, there is a pressing need for educational systems to celebrate and embrace multilingualism as an asset. The YIS could be seen as an example in this regard, promoting an approach that aspires to be inclusive, empathetic, and

forward-looking. As educators, policymakers, and stakeholders navigate the future of education, it is possible that initiatives like the YIS may contribute to paving the way for a more harmonious, understanding, and inclusive global society.

7.9 References

Aldridge, J. M., & McChesney, K. (2018). The relationships between school climate and adolescent mental health and wellbeing: A systematic literature review. *International Journal of Educational Research*, *88*, 121-145. https://doi.org/https://doi.org/10.1016/j.ijer.2018.01.012

Ameli, F. (2020). Teaching and learning for the twenty-first century: educational goals, policies, and curricula from six nations. *Leadership and Policy in Schools*, *19*(3), 536-538. https://doi.org/10.1080/15700763.2020.1734631

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and organization review*, *3*(3), 335-371. https://doi.org/https://doi.org/10.1111/j.1740-8784.2007.00082.x

Baumsteiger, R. (2019). What the world needs now: An intervention for promoting prosocial behavior. *Basic and Applied Social Psychology*, *41*(4), 215-229. https://doi.org/10.1080/01973533.2019.1639507

Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Multilingual Matters.

Choudhury, S., Blakemore, S. J., & Charman, T. (2006). Social cognitive development during adolescence. *Soc Cogn Affect Neurosci*, *1*(3), 165-174. https://doi.org/10.1093/scan/nsl024

Collier, V. P., & Thomas, W. P. (2007). Predicting second language academic success in English using the Prism Model. In *International handbook of English language teaching* (pp. 333-348). Springer. https://oro.open.ac.uk/48377/

Crafter, S., Cline, T., & Prokopiou, E. (2017). Language brokering in UK schools. In R. Weisskirch (Ed.), *Language Brokering in Immigrant Families: Theories and contexts* (pp. 224-245). Routledge.

Cunningham, C. (2012). Pulling the threads together: current theories and current practice affecting UK primary school children who have English as an Additional Language. https://doi.org/https://www.teachingenglish.org.uk/sites/teacheng/files/B387%20ELTRP%20Report%20-%20Wardman_v6.pdf

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113-126. https://doi.org/10.1037/0022-3514.44.1.113

Dawson, N., Rastle, K., & Ricketts, J. (2021). Bridging form and meaning: support from derivational suffixes in word learning. *Journal of research in reading*, *44*(1), 27-50. https://doi.org/https://doi.org/10.1111/1467-9817.12338

DfE. (2020). *Evaluation of the Peer Support for Mental Health and Wellbeing Pilot*. London: Department for Education.

Díaz-Lefebvre, R. (2004). Multiple Intelligences, Learning for Understanding, and Creative Assessment: Some Pieces to the Puzzle of Learning. *Teachers College Record*, *106*(1), 49-57. https://doi.org/10.1111/j.1467-9620.2004.00317.x

Dubow, E. F., Huesmann, L. R., & Eron, L. D. (1987). Mitigating aggression and promoting prosocial behavior in aggressive elementary schoolboys. *Behaviour Research and Therapy*, *25*(6), 527-531. https://doi.org/10.1016/0005-7967(87)90061-1

Flynn, N. (2019). Teachers and Polish children: capturing changes in the linguistic field. *British Journal of Sociology of Education*, *40*(1), 65-82. https://doi.org/10.1080/01425692.2018.1481366

Galambos, S. J., & Goldin-Meadow, S. (1990). The effects of learning two languages on levels of metalinguistic awareness. *Cognition*, *34*(1), 1-56. https://doi.org/https://doi.org/10.1016/0010-0277(90)90030-N

Galinsky, A. D., & Ku, G. (2004). The effects of perspective-taking on prejudice: The moderating role of self-evaluation. *Personality and Social Psychology Bulletin*, *30*(5), 594-604. https://doi.org/https://doi.org/10.1177/0146167203262802

Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice*. teachers college press.

Gibbons, P. (1991). *Learning to Learn in a Second Language*. Heinemann.

Gudykunst, W. B. (2005). An Anxiety/Uncertainty Management (AUM) Theory of Strangers' Intercultural Adjustment. In *Theorizing about intercultural communication.* (pp. 419-457). Sage Publications Ltd.

Guo, R., & Wu, Z. (2021). Empathy as a buffer: How empathy moderates the emotional effects on Preschoolers' sharing. *British Journal of Psychology*, *112*(2), 412-432. https://doi.org/https://doi.org/10.1111/bjop.12466

Hayden, M., & Thompson, J. (2006). *International schools: growth and influence* (Vol. 92). United Nations Educational, Scientific and Cultural Organization Paris.

Hayden, M. C., & Wong, C. S. (1997). The International Baccalaureate: International education and cultural preservation. *Educational Studies*, *23*(3), 349-361. https://doi.org/https://doi.org/10.1080/0305569970230302

Heikamp, T., Phalet, K., Van Laar, C., & Verschueren, K. (2020). To belong or not to belong: Protecting minority engagement in the face of discrimination. *International Journal of Psychology*, *55*(5), 779-788. https://doi.org/https://doi.org/10.1002/ijop.12706

Heineke, A. J., & Vera, E. M. (2022). Beyond Language and Academics: Investigating Teachers' Preparation to Promote the Social-Emotional Well-Being of Emergent Bilingual Learners. *Journal of Teacher Education*, *73*(2), 145-158. https://doi.org/10.1177/00224871211027573

Herrera, C., & Karcher, M. (2013). School-based mentoring. In (pp. 203-220). https://doi.org/10.4135/9781412996907.n14

Hoffman, M. L. (1987). The contribution of empathy to justice and moral judgment. In N. E. J. Strayer (Ed.), *Empathy and its development.* (pp. 47-80). Cambridge University Press.

Hutchinson, J. (2018). *Educational outcomes of children with English as an additional language*. T. B. Foundation. https://www.bell-foundation.org.uk/eal-programme/research/educational-outcomes-of-children-with-english-as-an-additional-language/

Jolliffe, D., & Farrington, D. P. (2006a). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29*(4), 589-611. https://doi.org/10.1016/j.adolescence.2005.08.010

Killen, M., Lee-Kim, J., McGlothlin, H., Stangor, C., & Helwig, C. C. (2002). How Children and Adolescents Evaluate Gender and Racial Exclusion. *Monographs of the Society for Research in Child Development*, *67*(4), i-129. https://doi.org/http://www.jstor.org/stable/3181568

Kim, B. S. K., Green, J. L. G., & Klein, E. F. (2006). Using Storybooks to Promote Multicultural Sensitivity in Elementary School Children. *Journal of Multicultural Counseling and Development*, *34*(4), 223-234. https://doi.org/https://doi.org/10.1002/j.2161-1912.2006.tb00041.x

Klein, A. M., Otto, Y., Fuchs, S., Reibiger, I., & von Klitzing, K. (2015). A prospective study of behavioral and emotional symptoms in preschoolers. *Eur Child Adolesc Psychiatry*, *24*(3), 291-299. https://doi.org/10.1007/s00787-014-0575-2

Laguna, M., Mazur, Z., Kędra, M., & Ostrowski, K. (2020). Interventions stimulating prosocial helping behavior: A systematic review. *Journal of applied social psychology*, *50*(11), 676-696. https://doi.org/10.1111/jasp.12704

Lennon, R., & Eisenberg, N. (1987). Gender and age differences in empathy and sympathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 95–218). Cambridge University Press.

Leow, R. P., & Mercer, J. D. (2015). Depth of processing in L2 learning: theory, research, and pedagogy. *Journal of Spanish Language Teaching*, *2*(1), 69-82. https://doi.org/10.1080/23247797.2015.1026644

Litvack-Miller, W., McDougall, D., & Romney, D. M. (1997). The structure of empathy during middle childhood and its relationship to prosocial behavior. *Genetic, social, and general psychology monographs 123*(3), 303-324. https://doi.org/https://link.gale.com/apps/doc/A20632713/HRCA?u=anon~4d563dc0&sid=googleScholar&xid=8d7c7435

Lucas-Molina, B., Sarmento, R., Quintanilla, L., & Giménez-Dasí, M. (2018). The Spanish Version of the Empathy Questionnaire (EmQue): Evidence for Longitudinal Measurement Invariance and Relationship With Emotional Regulation. *Early Education and Development*, *29*(4), 467-476. https://doi.org/10.1080/10409289.2018.1427929

Lucas, T., Villegas, A. M., & Freedson-Gonzalez, M. (2008). Linguistically Responsive Teacher Education: Preparing Classroom Teachers to Teach English Language Learners. *Journal of Teacher Education*, *59*(4), 361-373. https://doi.org/10.1177/0022487108322110

MacLean, H., Braschi, E., Archibald, D., Sanchez-Campos, M., Jebanesan, D., Koszycki, D., & Gonsalves, C. (2020). A pilot study of a longitudinal mindfulness curriculum in undergraduate medical education. *Canadian medical education journal*, *11*(4), e5-e18. https://doi.org/10.36834/cmej.56726

Moll, L. C., & González, N. (2012). Teachers as Social Scientists: Learning about Culture from Household Research 1. In *Race, ethnicity, and multiculturalism* (pp. 89-114). Routledge.

Nussbaum, M. (2002). Education for Citizenship in an Era of Global Connection. *Studies in Philosophy and Education*, *21*(4), 289-303. https://doi.org/10.1023/A:1019837105053

Ornaghi, V., Grazzani, I., Cherubin, E., Conte, E., & Piralli, F. (2015). 'Let's talk about emotions!'. The effect of conversational training on preschoolers' emotion comprehension and prosocial orientation. *Social Development*, *24*(1), 166-183. https://doi.org/10.1111/sode.12091

Osterman, K. F. (2000). Students' Need for Belonging in the School Community. *Review of Educational Research*, *70*(3), 323-367. https://doi.org/10.3102/00346543070003323

Oxfam. (2006). *Education for global citizenship: A guide for schools*.

Page, D. (2019). *The Young Interpreter Scheme: Staff experiences of participation.* [Masters Thesis]. University of Reading.

Pallant, J. (2013). *SPSS survival manual: a step by step guide to data analysis using IBM SPSS* (5th ed ed.). McGraw-Hill.

Perry, L. B., & Southwell, L. (2011). Developing intercultural understanding and skills: Models and approaches. *Intercultural Education*, *22*(6), 453-466. https://doi.org/http://dx.doi.org/10.1080/14675986.2011.644948

Piek, J. P., Kane, R., Rigoli, D., McLaren, S., Roberts, C. M., Rooney, R., Jensen, L., Dender, A., Packer, T., & Straker, L. (2015). Does the Animal Fun program improve social-emotional and behavioural outcomes in children aged 4-6 years? *Human movement science*, *43*, 155-163. https://doi.org/10.1016/j.humov.2015.08.004

Rieffe, C., Ketelaar, L., & Wiefferink, C. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*, 362-367. https://doi.org/10.1016/j.paid.2010.03.046

Rieffe, C., Terwogt, M. M., Petrides, K. V., Cowan, R., Miers, A. C., & Tolland, A. (2007). Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, *43*(1), 95-105. https://doi.org/https://doi.org/10.1016/j.paid.2006.11.015

Santos, M., Araújo e Sá, M. H., & Simões, A. R. (2014). Intercultural education in primary school: a collaborative project. *Language and Intercultural Communication*, *14*(1), 140-150. https://doi.org/10.1080/14708477.2013.866130

Scarino, A. (2009). Assessing intercultural capability in learning languages: Some issues and considerations. *Language Teaching*, *42*. https://doi.org/10.1017/S0261444808005417

Siegler, R. (2006). *How Children Develop, Exploring Child Develop Student Media Tool Kit & Scientific American Reader to Accompany How Children Develop.* Worth Publishers.

Simon, P., & Nader-Grosbois, N. (2021). Preschoolers' Empathy Profiles and Their Social Adjustment. *Front Psychol*, *12*, 782500. https://doi.org/10.3389/fpsyg.2021.782500

Tadmor, C. T., & Tetlock, P. E. (2006). Biculturalism: A model of the effects of second-culture exposure on acculturation and integrative complexity. *Journal of cross-cultural psychology*, *37*(2), 173-190. https://doi.org/https://doi.org/10.1177/0022022105284495

Takeuchi, A. (2015). Developing a Scale of Children's Intercultural Competence: Issues and Challenges. *Maebashi Kyoai Gakuen College*, *1*, 45-58. https://doi.org/https://doi.org/10.1016/j.tsc.2014.02.006

Trivedi-Bateman, N., & Crook, E. L. (2021). The optimal application of empathy interventions to reduce antisocial behaviour and crime: a review of the literature. *Psychology, Crime & Law*, 1-24. https://doi.org/10.1080/1068316X.2021.1962870

Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Dev Psychol*, *50*(3), 881-888. https://doi.org/10.1037/a0034325

Villadangos, M., Errasti, J., Amigo, I., Jolliffe, D., & García-Cueto, E. (2016). Characteristics of Empathy in young people measured by the Spanish validation of the Basic Empathy Scale. *Psicothema*, *28*(3), 323-329. https://doi.org/10.7334/psicothema2016.6

Volbrecht, M. M., Lemery-Chalfant, K., Aksan, N., Zahn-Waxler, C., & Goldsmith, H. H. (2007). Examining the familial link between positive affect and empathy development in the second year. *The Journal of genetic psychology*, *168*(2), 105-129. https://doi.org/10.3200/GNTP.168.2.105-130

Xie, Q., & Yeung, S. S.-s. (2022). Do vocabulary, syntactic awareness, and reading comprehension in second language facilitate the development of each other in young children? *Learning and instruction*, *82*, 101682. https://doi.org/10.1016/j.learninstruc.2022.101682

Chapter 8: <u>Thesis references</u>

Aboud, F. E. (2008). A social-cognitive developmental theory of prejudice. In *Handbook of race, racism, and the developing child.* (pp. 55-71). John Wiley & Sons, Inc.

Abu-Bader, S. H., Tirmazi, M. T., & Ross-Sheriff, F. (2011). The impact of acculturation on depression among older Muslim immigrants in the United States. *J Gerontol Soc Work*, *54*(4), 425-448. https://doi.org/10.1080/01634372.2011.560928

Acevedo, M. V. (2019). Young children playing their way into intercultural understanding. *Journal of Early Childhood Literacy*, *19*(3), 375-398. https://doi.org/10.1177/1468798417727134

Adams, M. J. (1994). *Beginning to read: Thinking and learning about print*. The MIT Press.

Adesope, O. O., Lavin, T., Thompson, T., & Ungerleider, C. (2010). A systematic review and meta-analysis of the cognitive correlates of bilingualism. *Review of Educational Research*, *80*(2), 207-245. https://doi.org/https://doi.org/10.3102/0034654310368803

Aesop. (1867). *The Ant and the Grasshopper*. http://taleswithgigi.com/tale/14

Aldridge, J. M., & McChesney, K. (2018). The relationships between school climate and adolescent mental health and wellbeing: A systematic literature review. *International Journal of Educational Research*, *88*, 121-145. https://doi.org/https://doi.org/10.1016/j.ijer.2018.01.012

Alexander, K., Entwisle, D., & Olson, L. (2007). Lasting Consequences of the Summer Learning Gap. *American Sociological Review - AMER SOCIOL REV*, *72*, 167-180. https://doi.org/10.1177/000312240707200202

Allen, A. A., & Lembke, E. S. (2022). The effect of a morphological awareness intervention on early writing outcomes. *Learning Disability Quarterly*, *45*(2), 72-84. https://doi.org/https://doi.org/10.1177/0731948720912414

Allport, G. W. (1954). *The nature of prejudice*. Addison-Wesley.

Altman, C., Goldstein, T., & Armon-Lotem, S. (2018). Vocabulary, Metalinguistic Awareness and Language Dominance Among Bilingual Preschool Children. *Front Psychol*, *9*, 1953. https://doi.org/10.3389/fpsyg.2018.01953

Ameli, F. (2020). Teaching and learning for the twenty-first century: educational goals, policies, and curricula from six nations. *Leadership and Policy in Schools*, *19*(3), 536-538. https://doi.org/10.1080/15700763.2020.1734631

Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. In J. T. Guthrie (Ed.), *Comprehension and teaching: Research reviews* (pp. 77-117). International Reading Association.

Ang, S., Van Dyne, L., Koh, C., Ng, K. Y., Templer, K. J., Tay, C., & Chandrasekar, N. A. (2007). Cultural intelligence: Its measurement and effects on cultural judgment and decision making, cultural adaptation and task performance. *Management and organization review*, *3*(3), 335-371. https://doi.org/https://doi.org/10.1111/j.1740-8784.2007.00082.x

Anglin, J. M. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development*, *58*, v-165. https://doi.org/10.2307/1166112

Asaad, H., Hasan, M., Alidoust, N., Shabdin, A., Ounissi, A., & Hossain, M. D. (2022). The Impact of Morphological Awareness Intervention in Enhancing L2 Postgraduate Students' Productive Vocabulary Breadth. *Education Research International*, *2022*, 1-11. https://doi.org/10.1155/2022/5930822

Asaad, H. Q. M., & Shabdin, A. A. (2021). The predictive role of morphological awareness and productive vocabulary knowledge in L2 postgraduate students' academic writing. *Eurasian Journal of Applied Linguistics*, *7*(1), 24-44. https://doi.org/10.32601/ejal.911149

Ashdown, D. M., & Bernard, M. E. (2012). Can explicit instruction in social and emotional learning skills benefit the social-emotional development, well-being, and academic achievement of young children? *Early Childhood Education Journal*, *39*(6), 397-405. https://doi.org/10.1007/s10643-011-0481-x

Aslan, D., & Köksal-Akyol, A. (2020). Impact of an Empathy Training Program on Children's Perspective-Taking Abilities. *Psychological Reports*, *123*(6), 2394-2409. https://doi.org/10.1177/0033294119868785

Bagwell, C. L., Newcomb, A. F., & Bukowski, W. M. (1998). Preadolescent Friendship and Peer Rejection as Predictors of Adult Adjustment. *Child Development*, *69*(1), 140-153. https://doi.org/10.1111/j.1467-8624.1998.tb06139.x

Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood cliffs Prentice Hall.

Banerjee, R., Rieffe, C., Terwogt, M. M., Gerlein, A. M., & Voutsina, M. (2006). Popular and Rejected Children's Reasoning Regarding Negative Emotions in Social Situations: The Role of Gender. *Social Development*, *15*(3), 418-433. https://doi.org/https://doi.org/10.1111/j.1467-9507.2006.00349.x

Banks, J. A. (2006). *Diversity and citizenship education: Global perspectives*. John Wiley & Sons.

Banks, M. (2007). *The politics of cultural work*. Springer.

Banks, M. (2017). *Creative justice: Cultural industries, work and inequality*. Rowman & Littlefield.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a "theory of mind"? *Cognition*, *21*(1), 37-46. https://doi.org/10.1016/0010-0277(85)90022-8

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, *34*(2), 163-175. https://doi.org/https://doi.org/10.1023/b:jadd.0000022607.19833.00

Barry, C. M., & Wentzel, K. R. (2006). Friend Influence on Prosocial Behavior: The Role of Motivational Factors and Friendship Characteristics. *Developmental psychology*, *42*(1), 153-163. https://doi.org/10.1037/0012-1649.42.1.153

Bates, D. M., M. Bolker, B. Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software.*, *67(1).* 1-48. https://doi.org/10.18637/jss.v067.i01

Bates, E. A., & Goodman, J. C. (1997). On the inseparability of grammar and the lexicon: Evidence from acquisition.

Batson, C. D., & Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social issues and policy review*, *3*(1), 141-177. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1751-2409.2009.01013.x

Baumann, J. F., Edwards, E. C., Boland, E. M., Olejnik, S., & Kame'enui, E. J. (2003). Vocabulary Tricks: Effects of Instruction in Morphology and Context on Fifth-Grade Students' Ability to Derive and Infer Word Meanings. *American Educational Research Journal*, *40*, 447-494. https://doi.org/10.3102/00028312040002447

Baumann, J. F., Edwards, E. C., Font, G., Tereshinski, C. A., Kame'enui, E. J., & Olejnik, S. (2002). Teaching morphemic and contextual analysis to fifth-grade students. *Reading research quarterly*, *37*(2), 150-176. https://doi.org/https://doi.org/10.1598/RRQ.37.2.3

Baumsteiger, R. (2019). What the world needs now: An intervention for promoting prosocial behavior. *Basic and Applied Social Psychology*, *41*(4), 215-229. https://doi.org/10.1080/01973533.2019.1639507

Beacco, J.-C. (2011, 30 November 2011). *The cultural and intercultural dimensions of language teaching: Current practice and prospects* Curriculum convergences for plurilingual and intercultural education, Strasbourg, 29.

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing Words to Life: Robust Vocabulary Instruction.* (2nd. ed.). Guilford Press.

Bennett, J. M. (1986). A developmental approach to training for intercultural sensitivity. *International Journal of Intercultural Relations*, *10*(2), 179-196. https://doi.org/https://doi.org/10.1016/0147-1767(86)90005-2

Bennett, J. M. (1993a). Cultural marginality: Identity issues in intercultural training. In R. M. Paige (Ed.), *Education for the intercultural experience* (Vol. 3 (5), pp. 109-135). Intercultural Press.

Bennett, J. M. (1993b). Toward Ethnorelativism: A Developmental Model of Intercultural Sensitivity. In R. M. Paige (Ed.), *Education for the intercultural experience* (2nd ed., pp. 21-71.). Intercultural Press.

Bennett, M. J. (2017). Developmental model of intercultural sensitivity. In Y. Kim (Ed.), *The international encyclopedia of intercultural communication* (pp. 1-10). Wiley.

Berko, J. (1958). The child's learning of English morphology. *Word*, *14*(2-3), 150-177. https://doi.org/https://doi.org/10.1080/00437956.1958.11659661

Berliner, R., & Masterson, T. L. (2015). Review of Research: Promoting Empathy Development in the Early Childhood and Elementary Classroom: April Bedford and Renée Casbergue, Editors. *Childhood education*, *91*(1), 57-64. https://doi.org/10.1080/00094056.2015.1001675

Bialystok, E. (1986). Factors in the growth of linguistic awareness. *Child Development*, 498-510. https://doi.org/https://psycnet.apa.org/doi/10.2307/1130604

Bialystok, E. (1988). Levels of bilingualism and levels of linguistic awareness. *Developmental psychology*, *24*(4), 560. https://doi.org/https://doi.org/10.1037/0012-1649.24.4.560

Bialystok, E. (2001). Metalinguistic aspects of bilingual processing. *Annual review of applied linguistics*, *21*, 169-181. https://doi.org/10.1017/S0267190501000101

Bialystok, E., & Barac, R. (2012). Emerging bilingualism: Dissociating advantages for metalinguistic awareness and executive control. *Cognition*, *122*(1), 67-73. https://doi.org/https://doi.org/10.1016/j.cognition.2011.08.003

Bialystok, E., McBride-Chang, C., & Luk, G. (2005). Bilingualism, Language Proficiency, and Learning to Read in Two Writing Systems. *Journal of educational psychology*, *97*, 580-590. https://doi.org/10.1037/0022-0663.97.4.580

Bialystok, E., Peets, K. F., & Moreno, S. (2014). Producing bilinguals through immersion education: Development of metalinguistic awareness. *Applied Psycholinguistics*, *35*(1), 177-191. https://doi.org/https://doi.org/10.1017/s0142716412000288

Bishop, D. (2003). *Test for Reception of Grammar version 2 (TROG-2)*. Harcourt Assessment.

Blachowicz, C., & Fisher, P. (2010). *Teaching vocabulary in all classrooms.* (4th ed. ed.). Pearson-Merrill Prentice Hall.

Blake, P. R., Piovesan, M., Montinari, N., Warneken, F., & Gino, F. (2015). Prosocial norms in the classroom: The role of self-regulation in following norms of giving. *Journal of economic behavior & organization*, *115*, 18-29. https://doi.org/10.1016/j.jebo.2014.10.004

Bogaards, P. (2001). Lexical units and the learning of foreign language vocabulary. . *Studies in Second Language Acquisition*, *23*(3), 321-343. http://www.jstor.org/stable/44486545

Bowers, P. N., & Kirby, J. R. (2010). Effects of morphological instruction on vocabulary acquisition. *Reading and Writing: An Interdisciplinary Journal*, *23*, 515-537. https://doi.org/https://doi.org/10.3102/0034654309359353

Brislin, R., Worthley, R., & Macnab, B. (2006). Cultural Intelligence:Understanding Behaviors that Serve People's Goals. *Group & Organization Management*, *31*(1), 40-55. https://doi.org/10.1177/1059601105275262

Brown, H. D., & Lee, H. (2015). *Teaching principles*. P. Ed Australia.

Browne Rego, L. L., & Bryant, P. E. (1993). The connection between phonological, syntactic and semantic skills and children's reading and spelling. *European Journal of Psychology of Education*, *8*, 235-246. https://doi.org/http://www.jstor.org/stable/23420166

Brownell, C. A., Zerwas, S., & Balaram, G. (2002). Peers, cooperative play, and the development of empathy in children. *The Behavioral and brain sciences*, *25*(1), 28-29. https://doi.org/10.1017/S0140525X02300013

Bruck, M., & Genesee, F. (1995). Phonological awareness in young second language learners. *Journal of Child Language*, *22*, 307-324. https://doi.org/10.1017/S0305000900009806

Bryant, B. K. (1982). An Index of Empathy for Children and Adolescents. *Child Development*, *53*(2), 413-425. https://doi.org/10.2307/1128984

Brysbaert, M., Buchmeier, M., Conrad, M., Jacobs, A., Bölte, J., & Böhl, A. (2011). The Word Frequency Effect: A Review of Recent Developments and Implications for the Choice of Frequency Estimates in German. *Experimental psychology*, *58*, 412-424. https://doi.org/10.1027/1618-3169/a000123

Burr, V. (1998). *Gender and social psychology (1st ed.)*. Routledge.

Busching, R., & Krahé, B. (2020). With a little help from their peers: The impact of classmates on adolescents' development of prosocial behavior. *Journal of youth and adolescence*, *49*(9), 1849-1863. https://doi.org/10.1007/s10964-020-01260-8

Byram, M. (1997). *Teaching and assessing intercultural communicative competence*. Multilingual Matters.

Cain, K., & Oakhill, J. (2011). Matthew effects in young readers: Reading comprehension and reading experience aid vocabulary development. *Journal of Learning Disabilities*, *44*(5), 431-443. https://doi.org/https://doi.org/10.1177/0022219411410042

Cajander, Å., Daniels, M., & McDermott, R. (2012). On valuing peers: Theories of learning and intercultural competence. *Computer Science Education*, *22*. https://doi.org/10.1080/08993408.2012.727710

Calderón, M., Slavin, R., & Sanchez, M. (2011). Effective instruction for English learners. *The future of children*, 103-127.

Calvo, A. J., González, R., & Martorell, M. C. (2001). Variables related to prosocial behaviour in childhood and adolescence: Personality, self-concept and gender. *Journal for the Study of Education and Development*, *24*(1), 95-111. https://doi.org/10.1174/021037001316899947

Cameron, L., & Tenenbaum, H. R. (2021). Lessons from developmental science to mitigate the effects of the COVID-19 restrictions on social development. *Group Processes & Intergroup Relations*, *24*(2), 231-236. https://doi.org/10.1177/1368430220984236

Cappadocia, M. C., Pepler, D., Cummings, J. G., & Craig, W. (2012). Individual Motivations and Characteristics Associated With Bystander Intervention During Bullying Episodes Among Children and Youth. *Canadian Journal of School Psychology*, *27*(3), 201-216. https://doi.org/10.1177/0829573512450567

Carhill-Poza, A. (2017). "If you don't find a friend in here, it's gonna be hard for you": Structuring bilingual peer support for language learning in urban high schools. *Linguistics and Education*, *37*, 63-72. https://doi.org/https://doi.org/10.1016/j.linged.2016.09.001

Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and writing*, *12*(3), 169-190. https://doi.org/https://doi.org/10.1023/A:1008131926604

Carlisle, J. F. (2003). *Morphology matters in learning to read: A commentary* (Vol. 24). Taylor & Francis. https://doi.org/10.1080/02702710390227369

Carlisle, J. F. (2007). Fostering morphological processing, vocabulary development, and reading comprehension. In R. K. Wagner, A. E. Muse, & K. R. Tannenbaum (Eds.), *Vocabulary acquisition: Implications for reading comprehension.* (pp. 78-103). The Guilford Press.

Carlisle, J. F. (2010). Effects of Instruction in Morphological Awareness on Literacy Achievement: An Integrative Review. *Reading research quarterly*, *45*(4), 464-487. https://doi.org/https://doi.org/10.1598/RRQ.45.4.5

Carlisle, J. F., & Feldman, L. B. (1995). Morphological awareness and early reading achievement. In L. B. Feldman (Ed.), *Morphological aspects of language processing* (Vol. 189209, pp. 189-209). Lawrence Erlbaum Associates, Inc.

Carter, E. W., Asmus, J., Moss, C. K., Biggs, E. E., Bolt, D. M., Born, T. L., Brock, M. E., Cattey, G. N., Chen, R., & Cooney, M. (2016). Randomized evaluation of peer support arrangements to support the inclusion of high school students with severe disabilities. *Exceptional Children*, *82*(2), 209-233. https://journals.sagepub.com/doi/abs/10.1177/0014402915598780

Chakrabarti, B., & Baron-Cohen, S. (2006). Empathizing: neurocognitive developmental mechanisms and individual differences. *Prog Brain Res*, *156*, 403-417. https://doi.org/10.1016/s0079-6123(06)56022-4

Chan, A. (2004). Syntactic Transfer: Evidence from the Interlanguage of Hong Kong Chinese ESL Learners. *The Modern Language Journal*, *88*, 56-74. https://doi.org/10.1111/j.0026-7902.2004.00218.x

Chan, H. H., Kwong, H. Y. C., Shu, G. L. F., Ting, C. Y., & Lai, F. H. (2021). Effects of Experiential Learning Programmes on Adolescent Prosocial Behaviour, Empathy, and Subjective Well-being: A Systematic Review and Meta-Analysis. *Front Psychol*, *12*, 709699. https://doi.org/10.3389/fpsyg.2021.709699

Channon, S., Marsh, K., Jenkins, A., & Robling, M. (2013). Using Motivational Interviewing as the basis for a peer support programme in high school. *Pastoral Care in Education*, *31*(1), 66-78. https://doi.org/10.1080/02643944.2012.731426

Chen, X., Hastings, P. D., Rubin, K. H., Chen, H., Cen, G., & Stewart, S. L. (1998). Child-rearing attitudes and behavioral inhibition in Chinese and Canadian toddlers: a cross-cultural study. *Dev Psychol*, *34*(4), 677-686. https://doi.org/10.1037//0012-1649.34.4.677

Cheung, H., Chung, K., Wong, S., McBride-Chang, C., Penney, T., & Ho, C. (2010). Speech Perception, Metalinguistic Awareness, Reading, and Vocabulary in Chinese-English Bilingual Children. *Journal of educational psychology*, *102*, 367-380. https://doi.org/10.1037/a0017850

Choudhury, S., Blakemore, S. J., & Charman, T. (2006). Social cognitive development during adolescence. *Soc Cogn Affect Neurosci*, *1*(3), 165-174. https://doi.org/10.1093/scan/nsl024

Chung, S. C., Chen, X., & Deacon, S. H. (2018). The relation between orthographic processing and spelling in grade 1 French immersion children. *Journal of research in reading*, *41*, 290-311. https://doi.org/10.1111/1467-9817.12104

Clark, E. V. (1993). *The Proceedings of the 25th Annual Child Language Research Forum* (Vol. 25). Center for the Study of Language (CSLI).

Cline, T., Crafter, S., & Prokopiou, E. (2014). Child language brokering in schools: a discussion of selected findings from a survey of teachers and ex-students. *Educational & Child Psychology*, *31*, 34-45. https://oro.open.ac.uk/48377/

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and psychological measurement*, *20*(1), 37-46. https://doi.org/https://doi.org/10.1177/001316446002000104

Collier, V. P., & Thomas, W. P. (2004). The astounding effectiveness of dual language education for all. *NABE Journal of Research and practice*, *2*(1), 1-20. https://doi.org/https://www.researchgate.net/publication/251435686

Collier, V. P., & Thomas, W. P. (2007). Predicting second language academic success in English using the Prism Model. In *International handbook of English language teaching* (pp. 333-348). Springer. https://oro.open.ac.uk/48377/

Connor, C. M., Day, S. L., Zargar, E., Wood, T. S., Taylor, K. S., Jones, M. R., & Hwang, J. K. (2019). Building Word Knowledge, Learning Strategies, and Metacognition with the Word-Knowledge E-Book. *Comput Educ*, *128*, 284-311. https://doi.org/10.1016/j.compedu.2018.09.016

Cornelius-White, J. (2007). Learner-Centered Teacher-Student Relationships Are Effective: A Meta-Analysis. *Review of Educational Research*, *77*(1), 113-143. https://doi.org/10.3102/003465430298563

Coyle, D., Bower, K., Foley, Y., & Hancock, J. (2021). Teachers as designers of learning in diverse, bilingual classrooms in England: an ADiBE case study. *International Journal of Bilingual Education and Bilingualism*, 1-19. https://doi.org/10.1080/13670050.2021.1989373

Crafter, S., Cline, T., & Prokopiou, E. (2017). Language brokering in UK schools. In R. Weisskirch (Ed.), *Language Brokering in Immigrant Families: Theories and contexts* (pp. 224-245). Routledge.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychol Bull*, *115*(1), 74-101. https://doi.org/10.1037/0033-2909.115.1.74

Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish–English bilinguals. *Applied Psycholinguistics*, *20*(1), 1-20. https://doi.org/undefined

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297-334. https://doi.org/10.1007/BF02310555

Crosson, A. C., McKeown, M. G., Robbins, K. P., & Brown, K. J. (2019). Key Elements of Robust Vocabulary Instruction for Emergent Bilingual Adolescents. *Lang Speech Hear Serv Sch*, *50*(4), 493-505. https://doi.org/10.1044/2019_lshss-voia-18-0127

Cunningham, C. (2012). Pulling the threads together: current theories and current practice affecting UK primary school children who have English as an Additional Language. https://doi.org/https://www.teachingenglish.org.uk/sites/teacheng/files/B387%20ELTRP%20Report%20-%20Wardman_v6.pdf

Dadds, M. R., Dadds, M. R., Hunter, K., Hunter, K., Hawes, D. J., Hawes, D. J., Frost, A. D. J., Frost, A. D. J., Vassallo, S., Vassallo, S., Bunn, P., Bunn, P., Merz, S., Merz, S., Masry, Y. E., & Masry, Y. E. (2008). A Measure of Cognitive and Affective Empathy in Children Using Parent Ratings. *Child psychiatry and human development*, *39*(2), 111-122. https://doi.org/10.1007/s10578-007-0075-4

Daniel, E., Madigan, S., & Jenkins, J. (2016). Paternal and Maternal Warmth and the Development of Prosociality Among Preschoolers. *Journal of Family Psychology*, *30*(1), 114-124. https://doi.org/10.1037/fam0000120

Davidov, M., Paz, Y., Roth-Hanania, R., Uzefovsky, F., Orlitsky, T., Mankuta, D., & Zahn-Waxler, C. (2020). Caring babies: Concern for others in distress during infancy. *Developmental science*, e13016. https://doi.org/https://doi.org/10.1111/desc.13016

Davidov, M., Zahn-Waxler, C., Roth-Hanania, R., & Knafo, A. (2013). Concern for Others in the First Year of Life: Theory, Evidence, and Avenues for Research. *Child Development Perspectives*, *7*(2), 126-131. https://doi.org/https://doi.org/10.1111/cdep.12028

Davidson, D., Raschke, V. R., & Pervez, J. (2010). Syntactic awareness in young monolingual and bilingual (Urdu–English) children. *Cognitive Development*, *25*(2), 166-182. https://doi.org/https://doi.org/10.1016/j.cogdev.2009.07.003

Davidson, D., Vanegas, S. B., Hilvert, E., & Misiunaite, I. (2017). "I Readed the Book Last Week." The Role of Dominant Language, Receptive Vocabulary and Language Structure on Morphosyntactic Awareness in Monolingual and Heritage Language Children. *Bilingualism: Language and Cognition*, *20*(5), 1045-1062. https://doi.org/https://doi.org/10.1017/S136672891600078X

Davidson, D., Vanegas, S. B., Hilvert, E., Rainey, V. R., & Misiunaite, I. (2019). Examination of monolingual (English) and bilingual (English/Spanish; English/Urdu) children's syntactic awareness. *Journal of Child Language*, *46*(4), 682-706. https://doi.org/10.1017/S0305000919000059

Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, *44*(1), 113-126. https://doi.org/10.1037/0022-3514.44.1.113

Dawson, N., Rastle, K., & Ricketts, J. (2021). Bridging form and meaning: support from derivational suffixes in word learning. *Journal of research in reading*, *44*(1), 27-50. https://doi.org/https://doi.org/10.1111/1467-9817.12338

de Kemp, R. A., Overbeek, G., de Wied, M., Engels, R. C., & Scholte, R. H. (2007). Early adolescent empathy, parental support, and antisocial behavior. *J Genet Psychol*, *168*(1), 5-18. https://doi.org/10.3200/gntp.168.1.5-18

de Lima, F. F., & Osório, F. L. (2021). Empathy: Assessment Instruments and Psychometric Quality - A Systematic Literature Review With a Meta-Analysis of the Past Ten Years. *Front Psychol*, *12*, 781346. https://doi.org/10.3389/fpsyg.2021.781346

de Wied, M., Branje, S. J. T., & Meeus, W. H. J. (2007). Empathy and conflict resolution in friendship relations among adolescents. *Aggressive Behavior*, *33*(1), 48-55. https://doi.org/https://doi.org/10.1002/ab.20166

Deacon, H., Kieffer, M., & Laroche, A. (2014). The Relation Between Morphological Awareness and Reading Comprehension: Evidence From Mediation and Longitudinal Models. *Scientific Studies of Reading*, *18*. https://doi.org/10.1080/10888438.2014.926907

Deacon, S. H., & Kieffer, M. (2018). Understanding how syntactic awareness contributes to reading comprehension: Evidence from mediation and longitudinal models. *Journal of educational psychology*, *110*(1), 72. https://doi.org/https://doi.org/10.1037/edu0000198

Deacon, S. H., Wade-Woolley, L., & Kirby, J. (2007). Crossover: The role of morphological awareness in French immersion children's reading. *Developmental psychology*, *43*, 732-746. https://doi.org/10.1037/0012-1649.43.3.732

Deardorff, D. K. (2006). Identification and Assessment of Intercultural Competence as a Student Outcome of Internationalization. *Journal of studies in international education*, *10*(3), 241-266. https://doi.org/10.1177/1028315306287002

Decety, & Jackson, P. L. (2004). The functional architecture of human empathy. *Behav Cogn Neurosci Rev*, *3*(2), 71-100. https://doi.org/10.1177/1534582304267187

Decety, J., Bartal, I. B.-A., Uzefovsky, F., & Knafo-Noam, A. (2016). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical transactions. Biological sciences*, *371*(1686), 20150077-20150077. https://doi.org/10.1098/rstb.2015.0077

Decety, J., Michalska, K. J., & Akitsuki, Y. (2008). Who caused the pain? An fMRI investigation of empathy and intentionality in children. *Neuropsychologia*, *46*(11), 2607-2614. https://doi.org/10.1016/j.neuropsychologia.2008.05.026

Demie, F. (2018). English language proficiency and attainment of EAL (English as second language) pupils in England. *Journal of Multilingual and Multicultural Development*, *39*(7), 641-653. https://doi.org/10.1080/01434632.2017.1420658

Denham, S. A. (2019). Emotional Competence During Childhood and Adolescence. In V. LoBue, K. Pérez-Edgar, & K. A. Buss (Eds.), *Handbook of Emotional Development* (pp. 493-541). Springer International Publishing. https://doi.org/10.1007/978-3-030-17332-6_20

Derman-Sparks, L., & Ramsey, P. G. (2011). *What if all the kids are white?: Anti-bias multicultural education with young children and families*. Teachers College Press.

DfE. (2013). *National Curriculum in England: Primary Curriculum*. London: Department for Education Retrieved from https://www.gov.uk/government/publications/national-curriculum-in-england-primary-curriculum

DfE. (2019). *Schools, pupils and their characteristics*. Nottingham: DfE Publications Retrieved from https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2019

DfE. (2020). *Evaluation of the Peer Support for Mental Health and Wellbeing Pilot*. London: Department for Education.

DfE. (2023). *Schools, pupils and their characteristics*. London: Department for Education. Retrieved from https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics

Díaz-Lefebvre, R. (2004). Multiple Intelligences, Learning for Understanding, and Creative Assessment: Some Pieces to the Puzzle of Learning. *Teachers College Record*, *106*(1), 49-57. https://doi.org/10.1111/j.1467-9620.2004.00317.x

Dickinson, D. K. (1984). First impressions: Children's knowledge of words gained from a single exposure. *Applied Psycholinguistics*, *5*, 359-373. https://doi.org/10.1017/S0142716400005233

Dictionary, C. (2022). *English dictionary, translations & thesaurus.* https://dictionary.cambridge.org/

Diggle, P., Diggle, P. J., Heagerty, P., Liang, K.-Y., & Zeger, S. (2002). *Analysis of longitudinal data*. Oxford university press.

Dinneen, A. (2017). The Hampshire Young Interpreter Scheme: A coming of age. *National Association for Language Development in the Curriculum - EAL Matters*. https://doi.org/https://naldic.org.uk/wp-content/uploads/2017/06/EAL-Matters-2.pdf

DoBroka, C. C. (2012). Teaching to develop children's intercultural sensitivity: A multicultural literature lesson on The Sandwich Swap. *Ohio Journal of English Language Arts*, *52*, 53-57.

Dolva, A. S., Gustavsson, A., Borell, L., & Hemmingsson, H. (2011). Facilitating peer interaction—support to children with Down syndrome in mainstream schools. *European Journal of Special Needs Education*, *26*(2), 201-213. https://www.tandfonline.com/doi/abs/10.1080/08856257.2011.563607

Dubow, E. F., Huesmann, L. R., & Eron, L. D. (1987). Mitigating aggression and promoting prosocial behavior in aggressive elementary schoolboys. *Behaviour Research and Therapy*, *25*(6), 527-531. https://doi.org/10.1016/0005-7967(87)90061-1

Duncan, L. G., Casalis, S., & Colé, P. (2009). Early metalinguistic awareness of derivational morphology: Observations from a comparison of English and French. *Applied Psycholinguistics*, *30*(3), 405-440. https://doi.org/https://doi.org/10.1017/S0142716409090213

Dunn, L. M., & Dunn, D. M. (2009). *The British picture vocabulary scale*. GL Assessment Limited.

Dziedziewicz, D., Gajda, A., & Karwowski, M. (2014). Developing children's intercultural competence and creativity. *Thinking Skills and Creativity*, *13*, 32-42. https://doi.org/https://doi.org/10.1016/j.tsc.2014.02.006

Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press.

Echols, L. D., West, R. F., Stanovich, K. E., & Zehr, K. S. (1996). Using children's literacy activities to predict growth in verbal cognitive skills: A longitudinal investigation. *Journal of educational psychology*, *88*(2), 296. https://doi.org/https://doi.org/10.1037/0022-0663.88.2.296

Edwards, H. T., & Kirkpatrick, A. G. (1999). Metalinguistic awareness in children: a developmental progression. *J Psycholinguist Res*, *28*(4), 313-329. https://doi.org/10.1023/a:1023275214000

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annu Rev Psychol*, *51*, 665-697. https://doi.org/10.1146/annurev.psych.51.1.665

Eisenberg, N., Eggum, N. D., & Di Giunta, L. (2010). Empathy-related Responding: Associations with Prosocial Behavior, Aggression, and Intergroup Relations. *Soc Issues Policy Rev*, *4*(1), 143-180. https://doi.org/10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., Fabes, R. A., & Spinrad, T. L. (2006). Prosocial Development. In *Handbook of child psychology: Social, emotional, and personality development, Vol. 3, 6th ed.* (pp. 646-718). John Wiley & Sons, Inc.

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychol Bull*, *101*(1), 91-119. https://doi.org/10.1037/0033-2909.101.1.91

Eisenberg, N., & Mussen, P. H. (1989). *The roots of prosocial behavior in children*. Cambridge University Press.

Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial Development. In R. M. Lerner (Ed.), *Handbook of Child Psychology and Developmental Science* (pp. 1-47). John Wiley & Sons. https://doi.org/https://doi.org/10.1002/9781118963418.childpsy315

Elleman, A. M., Steacy, L. M., Olinghouse, N. G., & Compton, D. L. (2017). Examining Child and Word Characteristics in Vocabulary Learning of Struggling Readers. *Scientific Studies of Reading*, *21*(2), 133-145. https://doi.org/10.1080/10888438.2016.1265970

Ellis, R. (2009). Implicit and explicit learning, knowledge and instruction. In R. Ellis, S. Loewen, C. Elder, H. Reinders, R. Erlam, & J. Philp (Eds.), *Implicit and explicit knowledge in second language learning, testing and teaching* (pp. 3-26). Multilingual Matters.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107-115. https://doi.org/https://doi.org/10.1111/j.1365-2648.2007.04569.x

Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proc Natl Acad Sci U S A*, *118*(17). https://doi.org/10.1073/pnas.2022376118

Erikson, E. H. (1963). *Childhood and society* (2nd ed.). Norton.

Fantini, A., & Tirmizi, A. (2006). Exploring and Assessing Intercultural Competence. *World Learning Publications*, *1*. https://doi.org/https://digitalcollections.sit.edu/worldlearning_publications/1

Farnia, F., & Geva, E. (2011). Cognitive correlates of vocabulary growth in English language learners. *Applied Psycholinguistics*, *32*(4), 711-738. https://doi.org/https://doi.org/10.1017/S0142716411000038

Farrell, A. D., Thompson, E. L., & Mehari, K. R. (2017). Dimensions of Peer Influences and Their Relationship to Adolescents' Aggression, Other Problem Behaviors and Prosocial Behavior. *Journal of youth and adolescence*, *46*(6), 1351-1369. https://doi.org/10.1007/s10964-016-0601-4

Faver, C. A. (2010). School-based humane education as a strategy to prevent violence: Review and recommendations. *Children and youth services review*, *32*(3), 365-370. https://doi.org/10.1016/j.childyouth.2009.10.006

Feddes, A. R., Noack, P., & Rutland, A. (2009). Direct and Extended Friendship Effects on Minority and Majority Children's Interethnic Attitudes: A Longitudinal Study. *Child Development*, *80*(2), 377-390. http://www.jstor.org/stable/29738621

Feldman, R. (2007). Mother-infant synchrony and the development of moral orientation in childhood and adolescence: Direct and indirect mechanisms of developmental continuity. *American Journal of Orthopsychiatry*, *77*(4), 582-597. https://doi.org/10.1037/0002-9432.77.4.582

Finch, K. (2020). *The impact of statutory Modern Foreign Language (MFL) teaching in multilingual Key Stage 2 classrooms. [Unpublished doctoral thesis].* University of Manchester.

Fischer, R. (2011). Cross-cultural training effects on cultural essentialism beliefs and cultural intelligence. *International Journal of Intercultural Relations*, *35*, 767-775. https://doi.org/https://doi.org/10.1016/j.ijintrel.2011.08.005

Flavell, J. (1979). Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry. *American Psychologist*, *34*, 906-911. https://doi.org/https://psycnet.apa.org/doi/10.1037/0003-066X.34.10.906

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting Prosocial Behavior and Self-Regulatory Skills in Preschool Children Through a Mindfulness-Based Kindness Curriculum. *Developmental psychology*, *51*(1), 44-51. https://doi.org/10.1037/a0038256

Flynn, N. (2019). Teachers and Polish children: capturing changes in the linguistic field. *British Journal of Sociology of Education*, *40*(1), 65-82. https://doi.org/10.1080/01425692.2018.1481366

Flynn, N., & Curdt-Christiansen, X. L. (2018). Intentions versus enactment: making sense of policy and practice for teaching English as an additional language. *Language and Education*, *32*(5), 410-427. https://doi.org/10.1080/09500782.2018.1475484

Foursha-Stevenson, C., & Nicoladis, E. (2011). Early emergence of syntactic awareness and cross-linguistic influence in bilingual children's judgments. *International Journal of Bilingualism*, *15*(4), 521-534. https://doi.org/10.1177/1367006911425818

Foursha, C., Austin, J., & Walle, G. (2023, 03/11). Is language processing identical in monolinguals and early, balanced bilinguals? Proceedings Supplement of the 30th Boston University Conference on Language Development, Boston, MA

Fowler, Z., Law, K. F., & Gaesser, B. (2021). Against Empathy Bias: The Moral Value of Equitable Empathy. *Psychological Science*, *32*(5), 766-779. https://doi.org/10.1177/0956797620979965

Friedline, B. E. (2011). *Challenges in the second language acquisiton of derivational morphology: from theory to practice.* [Doctoral dissertation., University of Pittsburgh.]. http://d-scholarship.pitt.edu/8351/1/Friedline_ETD_8-15-2011_FINAL.pdf

Frost, R. (2005). Orthographic systems and skilled word recognition processes in reading. In M. Snowling & C. Hulme (Eds.), *The science of reading: A handbook.* (pp. 272-295). Blackwell Publishing. https://doi.org/https://doi.org/10.1002/9780470757642.ch15

Fukkink, R. G., & de Glopper, K. (1998). Effects of instruction in deriving word meaning from context: A meta-analysis. *Review of Educational Research*, *68*(4), 450-469. https://doi.org/https://doi.org/10.2307/1170735

Futh, A. M. A., O'Connor, T. G. P. D., Matias, C. P. D., Green, J. F. R. C. P., & Scott, S. F. R. C. P. (2008). Attachment Narratives and Behavioral and Emotional Symptoms in an Ethnically Diverse, At-Risk Sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*(6), 709-718. https://doi.org/10.1097/CHI.0b013e31816bff65

Gajda, A., Jankowska, D., & Karwowski, M. (2015). How to Develop Children's Creativity and Intercultural Sensitivity: Around Creativity Compass Program. In (pp. 133-145). https://doi.org/10.1007/978-981-287-636-2_9

Galambos, S. J., & Goldin-Meadow, S. (1990). The effects of learning two languages on levels of metalinguistic awareness. *Cognition*, *34*(1), 1-56. https://doi.org/https://doi.org/10.1016/0010-0277(90)90030-N

Galinsky, A. D., & Ku, G. (2004). The effects of perspective-taking on prejudice: The moderating role of self-evaluation. *Personality and Social Psychology Bulletin*, *30*(5), 594-604. https://doi.org/https://doi.org/10.1177/0146167203262802

Galloway, K. W., & Burns, S. (2015). Doing it for themselves: students creating a high quality peer-learning environment [10.1039/C4RP00209A]. *Chemistry Education Research and Practice*, *16*(1), 82-92. https://doi.org/10.1039/C4RP00209A

Garaigordobil, M. (2009). A comparative analysis of empathy in childhood and adolescence: Gender differences and associated socio-emotional variables. *International Journal of Psychology & Psychological Therapy*, *9*(2), 217-235. https://doi.org/https://dialnet.unirioja.es/servlet/articulo?codigo=2992452

Gay, G. (2018). *Culturally responsive teaching: Theory, research, and practice*. teachers college press.

Georgiou, G., Kimonis, E. R., & Fanti, K. A. (2019). What do others feel? Cognitive empathy deficits explain the association between callous-unemotional traits and conduct problems among preschool children. *European journal of developmental psychology*, *16*(6), 633-653. https://doi.org/10.1080/17405629.2018.1478810

Gerlich, L., Kersten, K., Massler, U., Wippermann, I., & Kersten, H. (2010). Intercultural Encounters in Bilingual Preschools. In K. Kersten, R. Rodhe, C. Schelletter, & A. Steinlen (Eds.), *Bilingual Preschools. Volume I: Learning and Development* (pp. 137-176). WVT Wissenschaftlicher Verlag Trier.

Gibbons, P. (1991). *Learning to Learn in a Second Language*. Heinemann.

Gleitman, L. (1990). The structural sources of verb meanings. *Language Acquisition: A Journal of Developmental Linguistics*, *1*, 3-55. https://doi.org/10.1207/s15327817la0101_2

Glenn, S., & Cunningham, C. (2005). Performance of young people with Down syndrome on the Leiter-R and British picture vocabulary scales. *Journal of Intellectual Disability Research*, *49*(4), 239-244. https://doi.org/10.1111/j.1365-2788.2005.00643.x

Goldstein, B. A., Fabiano, L., & Washington, P. S. (2005). Phonological skills in predominantly English-speaking, predominantly Spanish-speaking, and Spanish-English bilingual children. *Language, speech, and hearing services in schools.* , *36*(3), 201-218. https://doi.org/10.1044/0161-1461(2005/021)

Goodman, M. E. (1952). *Race awareness in young children*. Addison-Wesley Press.

Goodwin, A., Lipsky, M., & Ahn, S. (2012). Word Detectives: Using Units of Meaning to Support Literacy. *The Reading Teacher*, *65*. https://doi.org/10.1002/TRTR.01069

Goodwin, A. P., & Ahn, S. (2010). A meta-analysis of morphological interventions: effects on literacy achievement of children with literacy difficulties. *Ann Dyslexia*, *60*(2), 183-208. https://doi.org/10.1007/s11881-010-0041-x

Goodwin, A. P., Petscher, Y., Carlisle, J. F., & Mitchell, A. M. (2017). Exploring the dimensionality of morphological knowledge for adolescent readers. *Journal of research in reading*, *40*(1), 91-117. https://doi.org/https://doi.org/10.1111/1467-9817.12064

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*, *24*(2), 105-112. https://doi.org/https://doi.org/10.1016/j.nedt.2003.10.001

Graves, M., & Sales, G. (2013). *Teaching 50,000 words: Meeting and exceeding the Common Core State Standards for vocabulary* https://www.literacyworldwide.org/docs/default-source/member-benefits/e-ssentials/ila-e-ssentials-8035.pdf

Graves, M. F. (2016). *The Vocabulary Book: Learning and Instruction*. Teachers College Press. https://books.google.co.uk/books?id=OSTrDAAAQBAJ

Graves, M. F., Schneider, S., & Ringstaff, C. (2017). Empowering Students With Word-Learning Strategies: Teach a Child to Fish. *The Reading Teacher*, *71*(5), 533-543. https://doi.org/https://doi.org/10.1002/trtr.1644

Green, L., McCutchen, D., Schwiebert, C., Quinlan, T., Eva, A., & Juelis, J. (2003). Morphological Development in Children's Writing. *Journal of educational psychology*, *95*, 752-761. https://doi.org/http://dx.doi.org/10.1037/0022-0663.95.4.752

Greif, E. B., & Hogan, R. (1973). The theory and measurement of empathy. *Journal of counseling psychology*, *20*(3), 280-284. https://doi.org/10.1037/h0034488

Grühn, D., Rebucal, K., Diehl, M., Lumley, M., & Labouvie-Vief, G. (2008). Empathy across the adult lifespan: Longitudinal and experience-sampling findings. *Emotion (Washington, D.C.)*, *8*(6), 753-765. https://doi.org/10.1037/a0014123

Gudykunst, W. B. (2005). An Anxiety/Uncertainty Management (AUM) Theory of Strangers' Intercultural Adjustment. In *Theorizing about intercultural communication.* (pp. 419-457). Sage Publications Ltd.

Gudykunst, W. B., Ting-Toomey, S., & Chua, E. (1988). *Culture and interpersonal communication*. Sage Publications, Inc.

Guest, G., Macqueen, K., & Namey, E. (2011). *Applied Thematic Analysis*. SAGE Publications, Inc. https://doi.org/https://doi.org/10.4135/9781483384436

Guo, R., & Wu, Z. (2021). Empathy as a buffer: How empathy moderates the emotional effects on Preschoolers' sharing. *British Journal of Psychology*, *112*(2), 412-432. https://doi.org/https://doi.org/10.1111/bjop.12466

Hagihara, H., Yamamoto, N., Meng, X., Sakata, C., Wang, J., Watanabe, R., & Moriguchi, Y. (2022). COVID-19 school and kindergarten closure relates to children's social relationships: a longitudinal study in Japan. *Scientific Reports*, *12*(1). https://doi.org/10.1038/s41598-022-04944-2

Hall, E. T. (1959). *The silent language*. Doubleday & Company, Inc.

Hall, E. T. (1976). *Beyond culture*. Anchor.

Hall, J. A., & Schwartz, R. (2019). Empathy present and future. *The Journal of Social Psychology*, *159*(3), 225-243. https://doi.org/10.1080/00224545.2018.1477442

Halualani, R. T., Chitgopekar, A., Morrison, J. H. T. A., & Dodge, P. S.-W. (2004). Who's interacting? And what are they talking about?--intercultural contact and interaction among multicultural university students. *International Journal of Intercultural Relations*, *28*, 353-372. https://doi.org/10.1016/j.ijintrel.2004.08.004

Hammer, M. R., Bennett, M. J., & Wiseman, R. (2003). Measuring intercultural sensitivity: The Intercultural Development Inventory. *International Journal of Intercultural Relations*, *27*(4), 421-443. https://doi.org/10.1016/S0147-1767(03)00032-4

Hampshire, E. (2014). *Hampshire Young Interpreter Scheme Guidance Pack*. Hampshire County Council. https://www.hants.gov.uk/educationandlearning/emtas

Harris, M. L., Schumaker, J. B., & Deshler, D. D. (2011). The Effects of Strategic Morphological Analysis Instruction on the Vocabulary Performance of Secondary Students with and without

Disabilities. *Learning Disability Quarterly*, *34*(1), 17-33.
https://doi.org/10.1177/073194871103400102

Harris, P. L. (1983). Children's understanding of the link between situation and emotion. *Journal of Experimantal Child Psychology*, *36*(3), 490-509.
https://doi.org/https://doi.org/10.1016/0022-0965(83)90048-6

Harris, P. L. (2008). Children's understanding of emotion. In *Handbook of emotions, 3rd ed.* (pp. 320-331). The Guilford Press.

Hart, B., & Risley, T. R. (1992). American parenting of language-learning children: Persisting differences in family-child interactions observed in natural home environments. *Developmental psychology*, *28*, 1096-1105. https://doi.org/10.1037/0012-1649.28.6.1096

Havron, N. (2022). Why not both? Using multiple measures to improve reliability in infant studies. *Infant and Child Development*, *31*(5), e2336.
https://doi.org/https://doi.org/10.1002/icd.2336

Hayden, E. P., Klein, D. N., & Durbin, C. E. (2005). Parent Reports and Laboratory Assessments of Child Temperament: A Comparison of Their Associations With Risk for Depression and Externalizing Disorders. *Journal of psychopathology and behavioral assessment*, *27*(2), 89-100. https://doi.org/10.1007/s10862-005-5383-z

Hayden, M., & Thompson, J. (2006). *International schools: growth and influence* (Vol. 92). United Nations Educational, Scientific and Cultural Organization Paris.

Hayden, M. C., & Thompson, J. J. (1998). International education: Perceptions of teachers in international schools. *International review of education*, *44*, 549-568.
https://doi.org/https://www.jstor.org/stable/3444853

Hayden, M. C., & Wong, C. S. (1997). The International Baccalaureate: International education and cultural preservation. *Educational Studies*, *23*(3), 349-361.
https://doi.org/https://doi.org/10.1080/0305569970230302

Heikamp, T., Phalet, K., Van Laar, C., & Verschueren, K. (2020). To belong or not to belong: Protecting minority engagement in the face of discrimination. *International Journal of Psychology*, *55*(5), 779-788. https://doi.org/https://doi.org/10.1002/ijop.12706

Heineke, A. J., & Vera, E. M. (2022). Beyond Language and Academics: Investigating Teachers' Preparation to Promote the Social-Emotional Well-Being of Emergent Bilingual Learners. *Journal of Teacher Education*, *73*(2), 145-158. https://doi.org/10.1177/00224871211027573

Hernández-Bravo, J. A., Cardona-Moltó, M. C., & Hernández-Bravo, J. R. (2017). Developing elementary school students' intercultural competence through teacher-led tutoring action plans on intercultural education. *Intercultural Education*, *28*(1), 20-38.
https://doi.org/https://doi.org/10.1080/14675986.2017.1288985

Hernández Bravo, J. A., & Cardona, M. C. (2007). *La competencia intercultural en alumnado de educación primaria: diseño y evaluación de un plan de intervención para su desarrollo.* Universidad de Alicante.

Herrera, C., & Karcher, M. (2013). School-based mentoring. In (pp. 203-220).
https://doi.org/10.4135/9781412996907.n14

Herriman, M. L. (1994). Jean Émile Gombert, Metalinguistic development . Hemel Hempstead, Herts: Harvester Wheatsheaf, Transl, by Pownall Tim, 1992. 238 pp. *Journal of Child Language*, *21*, 504 - 509. https://doi.org/10.1017/S0305000900009399

Higgins, S., Katsipataki, M., Kokotsaki, D., Coleman, R., Major, L., & Coe, R. (2013). *The Sutton Trust - Education Endowment Foundation Teaching and Learning Toolkit.* Education Endowment Foundation. http://www.educationendowmentfoundation.org.uk/toolkit

Hill, J. P., Lynch, M. E., & Brooks-Gunn, J. (1983). The intensification of gender-related role expectations during early adolescence. In J. Brooks-Gunn & A. Petersen (Eds.), *Girls at puberty: Biological and psychosocial perspectives* (pp. 201-228). Plenum.

Hoff, E. (2003). The specificity of environmental influence: socioeconomic status affects early vocabulary development via maternal speech. *Child Dev*, *74*(5), 1368-1378. https://doi.org/10.1111/1467-8624.00612

Hoff, E., Quinn, J. M., & Giguere, D. (2018). What explains the correlation between growth in vocabulary and grammar? New evidence from latent change score analyses of simultaneous bilingual development. *Developmental science*, *21*(2), e12536. https://doi.org/https://doi.org/10.1111/desc.12536

Hoffman, M. L. (1984). Interaction of affect and cognition in empathy. In C. E. Izard, Kagan, J. and Zajonc, R. B. (Ed.), *Emotions, cognition, and behavior* (pp. 103-131). Cambridge University Press.

Hoffman, M. L. (1987). The contribution of empathy to justice and moral judgment. In N. E. J. Strayer (Ed.), *Empathy and its development.* (pp. 47-80). Cambridge University Press.

Hoffman, M. L. (2000). *Empathy and Moral Development: Implications for Caring and Justice*. Cambridge University Press. https://doi.org/DOI: 10.1017/CBO9780511805851

Hofmann, V., & Müller, C. M. (2018). Avoiding antisocial behavior among adolescents: The positive influence of classmates' prosocial behavior. *Journal of Adolescence*, *68*, 136-145. https://doi.org/https://doi.org/10.1016/j.adolescence.2018.07.013

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

Hogan, R. (1969). Development of an empathy scale. *Journal of consulting and clinical psychology*, *33*(3), 307-316. https://doi.org/10.1037/h0027580

Hopkins, T., Harrison, E., Coyne-Umfreville, E., & Packer, M. (2022). A pilot study exploring the effectiveness of a whole-school intervention targeting receptive vocabulary in the early years: Findings from a mixed method study involving students as part of a practice-based research placement. *Child Language Teaching and Therapy*, *38*(2), 212-229. https://doi.org/https://doi.org/10.1177/02656590221088210

Houlston, C., Smith, P. K., & Jessel, J. (2011). The relationship between use of school-based peer support initiatives and the social and emotional well-being of bullied and non-bullied students. *Children & Society*, *25*(4), 293-305. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1099-0860.2011.00376.x

Huang, K.-J. (2018). On bilinguals' development of metalinguistic awareness and its transfer to L3 learning: The role of language characteristics. *International Journal of Bilingualism*, *22*(3), 330-349. https://doi.org/10.1177/1367006916681081

Hulk, A., & Müller, N. (2000). Bilingual first language acquisition at the interface between syntax and pragmatics. *Bilingualism: Language and Cognition*, *3*(3), 227-244. https://doi.org/10.1017/S1366728900000353

Hutchinson, J. (2018). *Educational outcomes of children with English as an additional language*. T. B. Foundation. https://www.bell-foundation.org.uk/eal-programme/research/educational-outcomes-of-children-with-english-as-an-additional-language/

Ilie, S., Sutherland, A., & Vignoles, A. (2017). Revisiting free school meal eligibility as a proxy for pupil socio-economic deprivation. *British Educational Research Journal*, *43*(2), 253-274. https://doi.org/https://doi.org/10.1002/berj.3260

International, Q. (2018). *NVivo 12*. In QSR International.

Jolliffe, D., & Farrington, D. P. (2006a). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, *29*(4), 589-611. https://doi.org/10.1016/j.adolescence.2005.08.010

Jolliffe, D., & Farrington, D. P. (2006b). Examining the relationship between low empathy and bullying. *Aggressive Behavior*, *32*(6), 540-550. https://doi.org/https://doi.org/10.1002/ab.20154

Jung, J., Busching, R., & Krahé, B. (2019). Catching aggression from one's peers: A longitudinal and multilevel analysis. *Social and Personality Psychology Compass*, *13*(2), e12433. https://doi.org/https://doi.org/10.1111/spc3.12433

Karmiloff-Smith, A. (1994). Beyond Modularity: A Developmental Perspective on Cognitive Science*. *International Journal of Language & Communication Disorders*, *29*(1), 95-105. https://doi.org/https://doi.org/10.3109/13682829409041485

Karniol, R. (2012). Storybook-Induced Arousal and Preschoolers' Empathic Understanding of Negative Affect in Self, Others, and Animals in Stories. *Journal of research in childhood education*, *26*(3), 346-358. https://doi.org/10.1080/02568543.2012.684423

Katz, V. S. (2011). *Children being seen and heard: how youth contribute to their migrant families' adaptation.* Aresta Publications.

Kieffer, M. J. (2014). Morphological awareness and reading difficulties in adolescent Spanish-speaking language minority learners and their classmates. *Journal of Learning Disabilities*, *47*(1), 44-53. https://doi.org/https://doi.org/10.1177/0022219413509968

Kieffer, M. J., & Lesaux, N. K. (2007). Breaking Down Words to Build Meaning: Morphology, Vocabulary, and Reading Comprehension in the Urban Classroom. *The Reading Teacher*, *61*(2), 134-144. https://doi.org/https://doi.org/10.1598/RT.61.2.3

Kieffer, M. J., & Lesaux, N. K. (2012). Development of morphological awareness and vocabulary knowledge in Spanish-speaking language minority learners: A parallel process latent growth curve model. *Applied Psycholinguistics*, *33*(1), 23-54. https://doi.org/https://doi.org/10.1017/S0142716411000099

Kieseier, T., Thoma, D., Vogelbacher, M., & Holger, H. (2022). Differential effects of metalinguistic awareness components in early foreign language acquisition of English vocabulary and grammar. *Language awareness*, *31*(4), 495-514. https://doi.org/https://doi.org/10.1080/09658416.2022.2093888

Killen, M., Lee-Kim, J., McGlothlin, H., Stangor, C., & Helwig, C. C. (2002). How Children and Adolescents Evaluate Gender and Racial Exclusion. *Monographs of the Society for Research in Child Development*, *67*(4), i-129. https://doi.org/http://www.jstor.org/stable/3181568

Kim, B. S. K., Green, J. L. G., & Klein, E. F. (2006). Using Storybooks to Promote Multicultural Sensitivity in Elementary School Children. *Journal of Multicultural Counseling and Development*, *34*(4), 223-234. https://doi.org/https://doi.org/10.1002/j.2161-1912.2006.tb00041.x

Kim, Y. Y., & Gudykunst, W. B. (1988). *Theories in intercultural communication International and Intercultural Communication Annual* (Vol. 12). ERIC.

Klein, A. M., Otto, Y., Fuchs, S., Reibiger, I., & von Klitzing, K. (2015). A prospective study of behavioral and emotional symptoms in preschoolers. *Eur Child Adolesc Psychiatry*, *24*(3), 291-299. https://doi.org/10.1007/s00787-014-0575-2

Knafo, A., Zahn-Waxler, C., Van Hulle, C., Robinson, J. L., & Rhee, S. H. (2008). The developmental origins of a disposition toward empathy: Genetic and environmental contributions. *Emotion (Washington, D.C.)*, *8*(6), 737-752. https://doi.org/10.1037/a0014179

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, *4*(2), 193-212. https://doi.org/https://doi.org/10.5465/amle.2005.17268566

Kolb, D. A. (2015). *Experiential Learning: Experience as the source of Learning and Development Second Edition*. FT press.

Kramsch, C. (1993). *Context and culture in language teaching*. Oxford university press.

Kraut, R. (2015). The relationship between morphological awareness and morphological decomposition among English language learners. *Reading and writing*, *28*, 873-890. https://doi.org/http://dx.doi.org/10.1007/s11145-015-9553-4

Krevans, J., & Gibbs, J. C. (1996). Parents' Use of Inductive Discipline: Relations to Children's Empathy and Prosocial Behavior. *Child Development*, *67*(6), 3263-3277. https://doi.org/10.1111/j.1467-8624.1996.tb01913.x

Kruger, J. S., Kruger, D. J., & Suzuki, R. (2015). Assessing the Effectiveness of Experiential Learning in a Student-Run Free Clinic. *Pedagogy in Health Promotion*, *1*(2), 91-94. https://doi.org/10.1177/2373379915575530

Kucan, L. (2012). What Is Most Important to Know About Vocabulary? *The Reading Teacher*, *65*(6), 360-366. https://doi.org/https://doi.org/10.1002/TRTR.01054

Kuo, L.-J., & Anderson, R. C. (2010). Beyond Cross-Language Transfer: Reconceptualizing the Impact of Early Bilingualism on Phonological Awareness. *Scientific Studies of Reading*, *14*(4), 365-385. https://doi.org/10.1080/10888431003623470

Kuo, L.-J., & Anderson, R. C. (2012). Effects of early bilingualism on learning phonological regularities in a new language. *Journal of Experimantal Child Psychology*, *111*(3), 455-467. https://doi.org/https://doi.org/10.1016/j.jecp.2011.08.013

Kuo, L.-J., Ramirez, G., de Marin, S., Kim, T.-J., & Unal-Gezer, M. (2017). Bilingualism and morphological awareness: a study with children from general education and Spanish-English dual language programs. *Educational Psychology*, *37*(2), 94-111. https://doi.org/http://dx.doi.org/10.1080/01443410.2015.1049586

Kuo, L., J., & Anderson, R. C. (2006). Morphological Awareness and Learning to Read: A Cross-Language Perspective. *Educational Psychologist*, *41*, 161-180. https://doi.org/10.1207/s15326985ep4103_3

Lado, R. (1957). *Linguistics across cultures. Applied Linguistics for Language Teachers.* University of Michigan Press.

Laguna, M., Mazur, Z., Kędra, M., & Ostrowski, K. (2020). Interventions stimulating prosocial helping behavior: A systematic review. *Journal of applied social psychology*, *50*(11), 676-696. https://doi.org/10.1111/jasp.12704

Laible, D. J., Carlo, G., & Roesch, S. C. (2004). Pathways to self-esteem in late adolescence: the role of parent and peer attachment, empathy, and social behaviours. *J Adolesc*, *27*(6), 703-716. https://doi.org/10.1016/j.adolescence.2004.05.005

Lam, K., & Chen, X. (2018). The crossover effects of morphological awareness on vocabulary development among children in French immersion. *Reading and writing*, *31*, 1893-1921. https://doi.org/https://doi.org/10.1177/0022022113493138

Landau, B., Gleitman, L. R., & Landau, B. (2009). *Language and experience: Evidence from the blind child* (Vol. 8). Harvard University Press.

Lazdauskas, T., & Nasvytienė, D. (2021). Psychometric properties of Lithuanian versions of empathy questionnaires for children. *European journal of developmental psychology*, *18*(1), 144-159. https://doi.org/10.1080/17405629.2020.1772048

Lennon, R., & Eisenberg, N. (1987). Gender and age differences in empathy and sympathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 95–218). Cambridge University Press.

Lenth, R. (2020). *emmeans: Estimated Marginal Means, aka Least-Squares Means. R package version 1.5.0.* In https://CRAN.R-project.org/package=emmeans

Leow, R. P., & Mercer, J. D. (2015). Depth of processing in L2 learning: theory, research, and pedagogy. *Journal of Spanish Language Teaching*, *2*(1), 69-82. https://doi.org/10.1080/23247797.2015.1026644

Lesaux, N. K., & Siegel, L. S. (2003). The development of reading in children who speak English as a second language. *Developmental psychology*, *39*(6), 1005. https://doi.org/https://doi.org/10.1037/0012-1649.39.6.1005

Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2019). Inferring Meaning From Meaningful Parts: The Contributions of Morphological Skills to the Development of Children's Reading Comprehension. *Reading research quarterly*, *54*(1), 63-80. https://doi.org/https://doi.org/10.1002/rrq.219

Lietz, C. A., Gerdes, K. E., Sun, F., Geiger, J. M., Wagaman, M. A., & Segal, E. A. (2011). The Empathy Assessment Index (EAI): A confirmatory factor analysis of a multidimensional model of

empathy. *Journal of the Society for Social Work and Research*, *2*(2), 104-124. https://doi.org/https://psycnet.apa.org/doi/10.5243/jsswr.2011.6

Lin, C. Y., Cheng, C., & Wang, M. (2018). The contribution of phonological and morphological awareness in Chinese–English bilingual reading acquisition. *Reading and writing*, *31*(1), 99-132. https://doi.org/10.1007/s11145-017-9775-8

Litvack-Miller, W., McDougall, D., & Romney, D. M. (1997). The structure of empathy during middle childhood and its relationship to prosocial behavior. *Genetic, social, and general psychology monographs 123*(3), 303-324. https://doi.org/https://link.gale.com/apps/doc/A20632713/HRCA?u=anon~4d563dc0&sid=googleScholar&xid=8d7c7435

Lonigan, C. J., Shanahan, T., & Cunningham, A. (2008). Impact of shared-reading interventions on young children's early literacy skills. *Developing early literacy: Report of the National Early Literacy Panel.* , 153-171. https://doi.org/https://doi.org/10.1016/j.edurev.2019.100290

Lovett, B. J., & Sheffield, R. A. (2007). Affective empathy deficits in aggressive children and adolescents: A critical review. *Clinical Psychology Review*, *27*(1), 1-13. https://doi.org/https://doi.org/10.1016/j.cpr.2006.03.003

Lovett, M. W., Lacerenza, L., & Borden, S. L. (2000). Putting struggling readers on the PHAST track: A program to integrate phonological and strategy-based remedial reading instruction and maximize outcomes. *Journal of Learning Disabilities*, *33*(5), 458-476. https://doi.org/https://doi.org/10.1177/002221940003300507

Lucas-Molina, B., Sarmento, R., Quintanilla, L., & Giménez-Dasí, M. (2018). The Spanish Version of the Empathy Questionnaire (EmQue): Evidence for Longitudinal Measurement Invariance and Relationship With Emotional Regulation. *Early Education and Development*, *29*(4), 467-476. https://doi.org/10.1080/10409289.2018.1427929

Lucas, T., Villegas, A. M., & Freedson-Gonzalez, M. (2008). Linguistically Responsive Teacher Education: Preparing Classroom Teachers to Teach English Language Learners. *Journal of Teacher Education*, *59*(4), 361-373. https://doi.org/10.1177/0022487108322110

Ma, H. K., & Leung, M. C. (1991). Altruistic Orientation in Children: Construction and Validation of the Child Altruism Inventory. *International Journal of Psychology*, *26*(6), 745-759. https://doi.org/https://doi.org/10.1080/00207599108247163

MacKay, E., Lynch, E., Sorenson Duncan, T., & Deacon, S. H. (2021). Informing the Science of Reading: Students' Awareness of Sentence-Level Information Is Important for Reading Comprehension. *Reading research quarterly*, *56*(S1), S221-S230. https://doi.org/https://doi.org/10.1002/rrq.397

MacLean, H., Braschi, E., Archibald, D., Sanchez-Campos, M., Jebanesan, D., Koszycki, D., & Gonsalves, C. (2020). A pilot study of a longitudinal mindfulness curriculum in undergraduate medical education. *Canadian medical education journal*, *11*(4), e5-e18. https://doi.org/10.36834/cmej.56726

Mahon, M., & Crutchley, A. (2006). Performance of typically-developing school-age children with English as an additional language on the British Picture Vocabulary Scales II. *Child Language Teaching and Therapy*, *22*(3), 333-351. https://doi.org/10.1191/0265659006ct311xx

Malti, T., Chaparro, M. P., Zuffianò, A., & Colasante, T. (2016). School-Based Interventions to Promote Empathy-Related Responding in Children and Adolescents: A Developmental Analysis. *Journal of clinical child and adolescent psychology*, *45*(6), 718-731. https://doi.org/10.1080/15374416.2015.1121822

Marino, C., Gini, G., Angelini, F., Vieno, A., & Spada, M. M. (2020). Social norms and e-motions in problematic social media use among adolescents. *Addictive Behaviors Reports*, *11*, 100250. https://doi.org/https://doi.org/10.1016/j.abrep.2020.100250

Marks, R. A., Labotka, D., Sun, X., Nickerson, N., Zhang, K., Eggleston, R. L., Yu, C.-L., Uchikoshi, Y., Hoeft, F., & Kovelman, I. (2022). Morphological awareness and its role in early word reading

in English monolinguals, Spanish–English, and Chinese–English simultaneous bilinguals. *Bilingualism: Language and Cognition*, 1-16. https://doi.org/10.1017/S1366728922000517

Marulis, L. M., & Neuman, S. B. (2010). The Effects of Vocabulary Intervention on Young Children's Word Learning:A Meta-Analysis. *Review of Educational Research*, *80*(3), 300-335. https://doi.org/10.3102/0034654310377087

Matsumoto, D., LeRoux, J., Ratzlaff, C., Tatani, H., Uchida, H., Kim, C., & Araki, S. (2001). Development and validation of a measure of intercultural adjustment potential in Japanese sojourners: the Intercultural Adjustment Potential Scale (ICAPS). *International Journal of Intercultural Relations*, *25*(5), 483-510. https://doi.org/https://doi.org/10.1016/S0147-1767(01)00019-0

McBride-Chang, C., Cho, J. R., Liu, H., Wagner, R. K., Shu, H., Zhou, A., Cheuk, C. S., & Muse, A. (2005). Changing models across cultures: associations of phonological awareness and morphological structure awareness with vocabulary and word recognition in second graders from Beijing, Hong Kong, Korea, and the United States. *J Exp Child Psychol*, *92*(2), 140-160. https://doi.org/10.1016/j.jecp.2005.03.009

McBride-Chang, C., Tardif, T., Cho, J.-R., Shu, H., Fletcher, P., Stokes, S. F., Wong, A., & Leung, K. (2008). What's in a word? Morphological awareness and vocabulary knowledge in three languages. *Applied Psycholinguistics*, *29*(3), 437-462. https://doi.org/https://doi.org/10.1017/S014271640808020X

McClain, J. B., Mancilla-Martinez, J., Flores, I., & Buckley, L. (2021). Translanguaging to support emergent bilingual students in English dominant preschools: An explanatory sequential mixed-method study. *Bilingual Research Journal*, *44*(2), 158-173. https://doi.org/https://doi.org/10.1080/15235882.2021.1963014

McCutchen, D., & Logan, B. (2011). Inside Incidental Word Learning: Children's Strategic Use of Morphological Information to Infer Word Meanings. *Reading research quarterly*, *46*(4), 334-349. https://doi.org/https://doi.org/10.1002/RRQ.003

McDonald, N., & Messinger, D. (2011). The Development of Empathy: How, When, and Why. *Moral behavior and free will: A neurobiological and philosophical approach*, 333-359. https://doi.org/https://www.overcominghateportal.org/uploads/5/4/1/5/5415260/empathy_development.pdf

McKeown, M. G., & Beck, I. L. (2011). Making vocabulary interventions engaging and effective. In R. E. O'Connor & P. F. Vadasy (Eds.), *Handbook of Reading Interventions.* (pp. 138-168). Guilford Press.

Mehrabian, A., & Epstein, N. (1972). A measure of emotional empathy. *Journal of personality*. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1467-6494.1972.tb00078.x

Melogno, S., Pinto, M. A., & Lauriola, M. (2022). Becoming the Metalinguistic Mind: The Development of Metalinguistic Abilities in Children from 5 to 7. *Children (Basel)*, *9*(4). https://doi.org/10.3390/children9040550

Messiou, K., & Azaola, M. C. (2018). A peer-mentoring scheme for immigrant students in English secondary schools: a support mechanism for promoting inclusion? *International Journal of Inclusive Education*, *22*(2), 142-157. https://doi.org/10.1080/13603116.2017.1362047

Mestre Escrivá, V., Frías Navarro, M. D., & Samper García, P. (2004). La medida de la empatía: análisis del Interpersonal Reactivity Index. *Psicothema*, *16*(Número 2), 255-260. https://reunido.uniovi.es/index.php/PST/article/view/8243

Meuwese, R., Crone, E. A., de Rooij, M., & Güroğlu, B. (2015). Development of Equity Preferences in Boys and Girls Across Adolescence. *Child Development*, *86*(1), 145-158. https://doi.org/https://doi.org/10.1111/cdev.12290

Mfenyana, K., Griffin, M., Yogeswaran, P., Modell, B., Modell, M., Chandia, J., & Nazareth, I. (2006). Socio-economic inequalities as a predictor of health in South Africa--the Yenza cross-sectional study. *S Afr Med J*, *96*(4), 323-330.

Michael, O., & Rajuan, M. (2009). Perceptions of 'the other'in children's drawings: an intercultural project among Bedouin and Jewish children. *Journal of peace education*, *6*(1), 69-86. https://doi.org/https://doi.org/10.1080/17400200802658407

Miklikowska, M., Duriez, B., & Soenens, B. (2011). Family Roots of Empathy-Related Characteristics: The Role of Perceived Maternal and Paternal Need Support in Adolescence. *Developmental psychology*, *47*(5), 1342-1352. https://doi.org/10.1037/a0024726

Misch, A., & Dunham, Y. (2021). (Peer) Group influence on children's prosocial and antisocial behavior. *J Exp Child Psychol*, *201*, 104994. https://doi.org/10.1016/j.jecp.2020.104994

Mol, S. E., Bus, A. G., de Jong, M. T., & Smeets, D. J. H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development*, *19*(1), 7-26. https://doi.org/10.1080/10409280701838603

Moll, L. C., & González, N. (2012). Teachers as Social Scientists: Learning about Culture from Household Research 1. In *Race, ethnicity, and multiculturalism* (pp. 89-114). Routledge.

Moran, E., & Moir, J. (2018). Closing the vocabulary gap in early years: Is 'Word Aware' a possible approach? *Educational and Child Psychology*, *35*, 51-64. https://doi.org/10.53841/bpsecp.2018.35.1.51

Muter, V., Hulme, C., Snowling, M. J., & Stevenson, J. (2004). Phonemes, Rimes, Vocabulary, and Grammatical Skills as Foundations of Early Reading Development: Evidence From a Longitudinal Study. *Developmental psychology*, *40*, 665-681. https://doi.org/10.1037/0012-1649.40.5.665

Nagy, W., & Anderson, R. C. (1984). How Many Words are There in Printed School English. *Reading research quarterly*, *19*, 304-330. https://doi.org/https://doi.org/10.2307/747823

Nagy, W., Berninger, V., Abbott, R., Vaughan, K., & Vermeulen, K. (2003). Relationship of Morphology and Other Language Skills to Literacy Skills in At-Risk Second-Grade Readers and At-Risk Fourth-Grade Writers. *Journal of educational psychology*, *95*, 730-742. https://doi.org/10.1037/0022-0663.95.4.730

Nagy, W. E., Carlisle, J. F., & Goodwin, A. P. (2014). Morphological Knowledge and Literacy Acquisition. *Journal of Learning Disabilities*, *47*(1), 3-12. https://doi.org/10.1177/0022219413509967

Nagy, W. E., McClure, E. F., & Mir, M. (1997). Linguistic transfer and the use of context by Spanish-English bilinguals. *Applied Psycholinguistics*, *18*(4), 431-452. https://doi.org/https://doi.org/10.1017/S0142716400010924

Nation, I. S. P. (2001). *Learning vocabulary in another language.* (Vol. 10). Cambridge university press. https://doi.org/https://doi.org/10.1017/CBO9781139524759

Nation, K., & Snowling, M. J. (2000). Factors influencing syntactic awareness skills in normal readers and poor comprehenders. *Applied Psycholinguistics*, *21*(2), 229-241. https://doi.org/10.1017/S0142716400002046

Nation, K., & Snowling, M. J. (2004). Beyond phonological skills: Broader language skills contribute to the development of reading. *Journal of research in reading*, *27*(4), 342-356. https://doi.org/https://doi.org/10.1111/j.1467-9817.2004.00238.x

Neary, P. (2022). Questionnaire Measures of Empathy in Children: A Scoping Review. *Assessment*, 10731911211069677. https://doi.org/10.1177/10731911211069677

Nesdale, D., Durkin, K., Maass, A., & Griffiths, J. (2005). Threat, Group Identification, and Children's Ethnic Prejudice. *Social Development*, *14*, 189-205. https://doi.org/10.1111/j.1467-9507.2005.00298.x

Nesdale, D., & Todd, P. (2000). Effect of contact on intercultural acceptance: A field study. *International Journal of Intercultural Relations*, *24*(3), 341-360. https://doi.org/https://psycnet.apa.org/doi/10.1016/S0147-1767(00)00005-5

Neuman, S. B., & Roskos, K. (2012). More Than Teachable Moments: Enhancing Oral Vocabulary Instruction in Your Classroom. *The Reading Teacher*, *66*(1), 63-67. https://doi.org/https://doi.org/10.1002/TRTR.01104

Niezink, L. W. (2008). *Considering others in Need: On altruism, empathy and perspective taking. [Unpublished doctoral thesis].* University of Groningen.

Nussbaum, M. (2002). Education for Citizenship in an Era of Global Connection. *Studies in Philosophy and Education*, *21*(4), 289-303. https://doi.org/10.1023/A:1019837105053

Olweus, D. (1986). The Olweus Bully/Victim Questionnaire . In. Mimeo. Bergen, Norway.: Research Centre for Health Promotion, University of Bergen.

Orioni. (2021). Cultural iceberg model. In C. I. Model (Ed.). Wiki.

Ornaghi, V., Grazzani, I., Cherubin, E., Conte, E., & Piralli, F. (2015). 'Let's talk about emotions!'. The effect of conversational training on preschoolers' emotion comprehension and prosocial orientation. *Social Development*, *24*(1), 166-183. https://doi.org/10.1111/sode.12091

Osterman, K. F. (2000). Students' Need for Belonging in the School Community. *Review of Educational Research*, *70*(3), 323-367. https://doi.org/10.3102/00346543070003323

Overgaauw, S., Rieffe, C., Broekhof, E., Crone, E. A., & Güroğlu, B. (2017). Assessing Empathy across Childhood and Adolescence: Validation of the Empathy Questionnaire for Children and Adolescents (EmQue-CA) [Original Research]. *Frontiers in psychology*, *8*(870). https://doi.org/10.3389/fpsyg.2017.00870

Oxfam. (2006). *Education for global citizenship: A guide for schools*.

Page, D. (2019). *The Young Interpreter Scheme: Staff experiences of participation.* [Masters Thesis]. University of Reading.

Pagnamenta, E. (2013). Game, set and match. *Bulletin / Royal College of Speech and Language Therapists*, 24-25.

Pallant, J. (2013). *SPSS survival manual: a step by step guide to data analysis using IBM SPSS* (5th ed ed.). McGraw-Hill.

Pan, D. J., Nakayama, M., McBride, C., Cheah, Z. R. E., Zheng, M., & Yeung, C. C. L. (2023). Cognitive-linguistic skills and vocabulary knowledge breadth and depth in children's L1 Chinese and L2 English. *Applied Psycholinguistics*, *44*(1), 77-99. https://doi.org/https://doi.org/10.1017/S0142716422000480

Paradis, J. (2016). An agenda for knowledge-oriented research on bilingualism in children with developmental disorders. *Journal of Communication Disorders*. https://doi.org/10.1016/j.jcomdis.2016.08.002

Paradis, J., Emmerzael, K., & Duncan, T. S. (2010). Assessment of English language learners: Using parent report on first language development. *Journal of Communication Disorders*, *43*, 474-497. https://doi.org/https://doi.org/10.1016/j.jcomdis.2010.01.002

Paribakht, T. S., & Wesche, M. (1999). Reading and incidental L2 vocabulary acquisition: An Introspective Study of Lexical Inferencing. *Studies in Second Language Acquisition*, *21*(2), 195-224. http://www.jstor.org/stable/44486436

Parsons, S., & Branagan, A. (2014). *Word Aware: Teaching Vocabulary across the day, across the curriculum*. Routledge.

Patrinos, H. A., Vegas, E., & Carter-Rau, R. (2022). An analysis of COVID-19 student learning loss. https://doi.org/http://hdl.handle.net/10986/37400

Penno, J. F., Wilkinson, I. A., & Moore, D. W. (2002). Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect? *Journal of educational psychology*, *94*(1), 23. https://doi.org/https://doi.org/10.1037/0022-0663.94.1.23

Perfetti, C. A., & Hart, L. (2002). The lexical quality hypothesis. *Precursors of functional literacy.*, *11.*, 67-86. https://doi.org/https://doi.org/10.1075/swll.11.14per

Perry, L. B., & Southwell, L. (2011). Developing intercultural understanding and skills: Models and approaches. *Intercultural Education*, *22*(6), 453-466. https://doi.org/http://dx.doi.org/10.1080/14675986.2011.644948

Phinney, J. S. (1990). Ethnic identity in adolescents and adults: Review of research. *Psychol Bull*, *108*, 499-514. https://doi.org/10.1037/0033-2909.108.3.499

Piaget, J. (1952). *The origins of intelligence in children*. W W Norton & Co.

Piek, J. P., Kane, R., Rigoli, D., McLaren, S., Roberts, C. M., Rooney, R., Jensen, L., Dender, A., Packer, T., & Straker, L. (2015). Does the Animal Fun program improve social-emotional and behavioural outcomes in children aged 4-6 years? *Human movement science*, *43*, 155-163. https://doi.org/10.1016/j.humov.2015.08.004

Ponciano, L., & Shabazian, A. (2012). Interculturalism: Addressing diversity in early childhood. *Dimensions of Early Childhood*, *40*(1), 23-29. https://doi.org/https://eric.ed.gov/?id=EJ968645

Porter, J. D. (1971). *Black child, white child: The development of racial attitudes* (Vol. 49). Harvard University Press.

Portt, E., Person, S., Person, B., Rawana, E., & Brownlee, K. (2020). Empathy and Positive Aspects of Adolescent Peer Relationships: a Scoping Review. *Journal of Child and Family Studies*, *29*(9), 2416-2433. https://doi.org/10.1007/s10826-020-01753-x

Pouw, L. B., Rieffe, C., Oosterveld, P., Huskens, B., & Stockmann, L. (2013). Reactive/proactive aggression and affective/cognitive empathy in children with ASD. *Res Dev Disabil*, *34*(4), 1256-1266. https://doi.org/10.1016/j.ridd.2012.12.022

Powlishta, K., Serbin, L., Doyle, A., & White, D. (1994). Gender, Ethnic, and Body Type Biases: The Generality of Prejudice in Childhood. *Developmental psychology*, *30*, 526-536. https://doi.org/10.1037/0012-1649.30.4.526

R Development Core Team. (2020). *R: A language and environment for statistical computing.* In R Foundation for Statistical Computing. https://www.R-project.org/.

Raabe, T., & Beelmann, A. (2011). Development of ethnic, racial, and national prejudice in childhood and adolescence: a multinational meta-analysis of age differences. *Child Dev*, *82*(6), 1715-1737. https://doi.org/10.1111/j.1467-8624.2011.01668.x

Ragan, D. T. (2020). Similarity between deviant peers: Developmental trends in influence and selection. *Criminology*, *58*(2), 336-369. https://doi.org/https://doi.org/10.1111/1745-9125.12238

Ramirez, G., Chen, X. I., Geva, E., & Luo, Y. (2011). Morphological awareness and word reading in English language learners: Evidence from Spanish- and Chinese-speaking children. *Applied Psycholinguistics*, *32*(3), 601-618. https://doi.org/10.1017/S0142716411000233

Raven, J., Raven, J. C., & Court, J. H. (1998). *Raven's Coloured Progressive Matrices (CPM)*. Oxford Psychologists Press.

Raven, J. C. (1978). *Manual for Raven's progressive matrices and vocabulary scales*. Revised. London : H. K. Lewis ; Los Angeles, Calif. : Western Psychological Services, 1978, c1977. https://search.library.wisc.edu/catalog/999608145802121

Read, J. (2004). Plumbing the Depths: How Should the Construct of Vocabulary Knowledge Be Defined. In P. Bogaards & B. Laufer (Eds.), *Vocabulary in a Second Language* (pp. 209-227.). John Benjamin. https://doi.org/http://dx.doi.org/10.1075/lllt.10.15rea

Reder, F., Marec-Breton, N., Gombert, J. E., & Demont, E. (2013). Second-language learners' advantage in metalinguistic awareness: A question of languages' characteristics. *British Journal of Educational Psychology*, *83*(4), 686-702. https://doi.org/https://doi.org/10.1111/bjep.12003

Reid, C., Davis, H., Horlin, C., Anderson, M., Baughman, N., & Campbell, C. (2013). The Kids' Empathic Development Scale (KEDS): A multi-dimensional measure of empathy in primary school-aged children. *British Journal of Developmental Psychology*, *31*(2), 231-256. https://doi.org/10.1111/bjdp.12002

Reniers, R. L., Corcoran, R., Drake, R., Shryane, N. M., & Völlm, B. A. (2011). The QCAE: a Questionnaire of Cognitive and Affective Empathy. *J Pers Assess*, *93*(1), 84-95. https://doi.org/10.1080/00223891.2010.528484

Restrepo Ramos, F. D. (2015). Incidental vocabulary learning in second language acquisition: A literature review. *Profil.*, *17*(1), 157-166. https://doi.org/https://doi.org/10.15446/profile.v17n1.43957

Richaud, M. C., Lemos, V. N., Mesurado, B., & Oros, L. (2017). Construct Validity and Reliability of a New Spanish Empathy Questionnaire for Children and Early Adolescents. *Frontiers in psychology*, *8*, 979-979. https://doi.org/10.3389/fpsyg.2017.00979

Ricketts, J., Bishop, D. V. M., Pimperton, H., & Nation, K. (2011). The Role of Self-Teaching in Learning Orthographic and Semantic Aspects of New Words. *Scientific Studies of Reading*, *15*(1), 47-70. https://doi.org/10.1080/10888438.2011.536129

Rieffe, C., Ketelaar, L., & Wiefferink, C. (2010). Assessing empathy in young children: Construction and validation of an Empathy Questionnaire (EmQue). *Personality and Individual Differences*, *49*, 362-367. https://doi.org/10.1016/j.paid.2010.03.046

Rieffe, C., O'Connor, R., Bülow, A., Willems, D., Hull, L., Sedgewick, F., Stockmann, L., & Blijd-Hoogewys, E. (2020). Quantity and quality of empathic responding by autistic and non-autistic adolescent girls and boys. *Autism : the international journal of research and practice*, 1362361320956422-1362361320956422. https://doi.org/10.1177/1362361320956422

Rieffe, C., Terwogt, M. M., Petrides, K. V., Cowan, R., Miers, A. C., & Tolland, A. (2007). Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, *43*(1), 95-105. https://doi.org/https://doi.org/10.1016/j.paid.2006.11.015

Robinson, J., Witenberg, R., & Sanson, A. (2001). The socialization of tolerance. In M. Augoustinos & K. J. Reynolds (Eds.), *Understanding prejudice, racism, and social conflict* (pp. 73-88). SAGE Publications Ltd. https://doi.org/https://www.doi.org/10.4135/9781446218877.n5

Rodríguez-Ortiz, I. R., Moreno-Pérez, F. J., Simpson, I. C., Valdés-Coronel, M., & Saldaña, D. (2021). The influence of syntactic knowledge on reading comprehension varies as a function of oral vocabulary in Spanish-speaking children. *Journal of research in reading*, *44*(3), 695-714. https://doi.org/https://doi.org/10.1111/1467-9817.12363

Roehr, K. (2008). Metalinguistic Knowledge and Language Ability in University-Level L2 Learners. *Applied Linguistics*, *29*(2), 173-199. https://doi.org/10.1093/applin/amm037

Roeser, R. W., Midgley, C., & Urdan, T. C. (1996). Perceptions of the school psychological environment and early adolescents' psychological and behavioral functioning in school: The mediating role of goals and belonging. *Journal of educational psychology*, *88*(3), 408. https://psycnet.apa.org/record/1996-01787-003

Rotenberg, K. J., Fox, C., Green, S., Ruderman, L., Slater, K., Stevens, K., & Carlo, G. (2005). Construction and validation of a children's interpersonal trust belief scale. *British Journal of Developmental Psychology*, *23*(2), 271-292. https://doi.org/10.1348/026151005X26192

Roth-Hanania, R., Davidov, M., & Zahn-Waxler, C. (2011). Empathy development from 8 to 16 months: early signs of concern for others. *Infant Behav Dev*, *34*(3), 447-458. https://doi.org/10.1016/j.infbeh.2011.04.007

RStudio, I. (2019). *RStudio: Integrated Development for R.* In http://www.rstudio.com/

Ruben, B. D. (1989). The study of cross-cultural competence: Traditions and contemporary issues. *International Journal of Intercultural Relations*, *13*(3), 229-240. https://doi.org/https://doi.org/10.1016/0147-1767(89)90011-4

Saiegh-Haddad, E., & Geva, E. (2008). Morphological awareness, phonological awareness, and reading in English–Arabic bilingual children. *Reading and writing*, *21*, 481-504. https://doi.org/https://doi.org/10.1007/s11145-007-9074-x

Saldana, J. (2013). *The Coding Manual for Qualitative Researchers*. SAGE Publications. https://books.google.co.uk/books?id=RwcVEAAAQBAJ

Santos, M., Araújo e Sá, M. H., & Simões, A. R. (2014). Intercultural education in primary school: a collaborative project. *Language and Intercultural Communication*, *14*(1), 140-150. https://doi.org/10.1080/14708477.2013.866130

Sartori, R., & Pasini, M. (2007). Quality and Quantity in Test Validity: How can we be Sure that Psychological Tests Measure what they have to? *Quality & Quantity*, *41*(3), 359-374. https://doi.org/10.1007/s11135-006-9006-x

Scarborough, H. S., Rescorla, L., Tager-Flusberg, H., Fowler, A. E., & Sudhalter, V. (1991). The relation of utterance length to grammatical complexity in normal and language-disordered groups. *Applied Psycholinguistics*, *12*(1), 23-46. https://doi.org/https://psycnet.apa.org/doi/10.1017/S014271640000936X

Scarino, A. (2009). Assessing intercultural capability in learning languages: Some issues and considerations. *Language Teaching*, *42*. https://doi.org/10.1017/S0261444808005417

Schmitt, N. (2014). Size and Depth of Vocabulary Knowledge: What the Research Shows. *Language Learning*, *64*(4), 913-951. https://doi.org/https://doi.org/10.1111/lang.12077

Schneider, C., & Arnot, M. (2018). An exploration of school communication approaches for newly arrived EAL students: applying three dimensions of organisational communication theory. *Cambridge Journal of Education*, *48*(2), 245-262. https://doi.org/10.1080/0305764X.2017.1329399

Schwenck, C., Mergenthaler, J., Keller, K., Zech, J., Salehi, S., Taurines, R., Romanos, M., Schecklmann, M., Schneider, W., Warnke, A., & Freitag, C. M. (2012). Empathy in children with autism and conduct disorder: group-specific profiles and developmental aspects. *Journal of Child Psychology and Psychiatry*, *53*(6), 651-659. https://doi.org/10.1111/j.1469-7610.2011.02499.x

Segal, E., Wagaman, M., & Gerdes, K. (2012). Developing the Social Empathy Index: An Exploratory Factor Analysis. *Advances in Social Work*, *13*, 541-560. https://doi.org/10.18060/2042

Segal, E. A. (2011). Social Empathy: A Model Built on Empathy, Contextual Understanding, and Social Responsibility That Promotes Social Justice. *Journal of Social Service Research*, *37*(3), 266-277. https://doi.org/10.1080/01488376.2011.564040

Semel, E. M., Wiig, E. H., & Secord, W. A. (1987). *Clinical Evaluation of Language Fundamentals-revised.* Psychological Corporation.

Serratrice, L. (2013). The Bilingual Child. In T. K. Bhatia & W. C. Ritchie (Eds.), *The handbook of bilingualism and multilingualism* (2nd ed ed., pp. 85-108). Wiley-Blackwell. https://doi.org/10.1002/9781118332382.ch4

Sesso, G., Brancati, G. E., Fantozzi, P., Inguaggiato, E., Milone, A., & Masi, G. (2021). Measures of empathy in children and adolescents: A systematic review of questionnaires. *World journal of psychiatry*, *11*(10), 876-896. https://doi.org/10.5498/wjp.v11.i10.876

Shen, Y., & Crosson, A. (2022). Chinese adolescents learning to read in English: How do different types of morphological awareness contribute to vocabulary knowledge and comprehension? *Reading and writing*, *36*. https://doi.org/10.1007/s11145-022-10292-4

Short, K. G., & Acevedo, M. V. (2016). Creating global understanding through play. In R. J. Meyer & K. F. Whitmore (Eds.), *Reclaiming Early Childhood Literacies: Narratives of Hope, Power, and Vision* (pp. 185-188). Routledge.

Siegler, R. (2006). *How Children Develop, Exploring Child Develop Student Media Tool Kit & Scientific American Reader to Accompany How Children Develop.* Worth Publishers.

Simard, D., Fortier, V., & Foucambert, D. (2013). Measuring metasyntactic ability among heritage language children. *Bilingualism: Language and Cognition*, *16*(1), 19-31. https://doi.org/10.1017/S1366728911000071

Simard, D., & Gutiérrez, X. (2017). The study of metalinguistic constructs in second language acquisition research. In *The Routledge handbook of language awareness* (pp. 205-221). Routledge.

Simon, P., & Nader-Grosbois, N. (2021). Preschoolers' Empathy Profiles and Their Social Adjustment. *Front Psychol*, *12*, 782500. https://doi.org/10.3389/fpsyg.2021.782500

Singson, M., Mahony, D., & Mann, V. (2000). The relation between reading ability and morphological skills: Evidence from derivational suffixes. *Reading and writing*, *12*, 219-252. https://doi.org/https://doi.org/10.1023/A:1008196330239

Sinicrope, C., Norris, J., & Watanabe, Y. (2007). Understanding and assessing intercultural competence: A summary of theory, research, and practice (technical report for the foreign language program evaluation project). *Studies in Second Language Acquisition*. https://doi.org/https://api.semanticscholar.org/CorpusID:148177771

Slavin, R. E. (2011). Instruction based on cooperative learning. In R. E. Mayer & P. A. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 358-374). Routledge.

Sloan, L., Joyner, M., Stakeman, C., & Schmitz, C. (2018). *Critical multiculturalism and intersectionality in a complex world*. Oxford University Press.

Smith, R. L., & Rose, A. J. (2011). The "cost of caring" in youths' friendships: considering associations among social perspective taking, co-rumination, and empathetic distress. *Dev Psychol*, *47*(6), 1792-1803. https://doi.org/10.1037/a0025309

Sohail, J., Hipfner-Boucher, K., Deacon, H., & Chen, X. (2022). Reading Comprehension in French L2/L3 Learners: Does Syntactic Awareness Matter? *Languages (Basel)*, *7*(3), 211. https://doi.org/10.3390/languages7030211

Son, D., & Padilla-Walker, L. M. (2020). Happy Helpers: A Multidimensional and Mixed-Method Approach to Prosocial Behavior and Its Effects on Friendship Quality, Mental Health, and Well-Being During Adolescence. *Journal of Happiness Studies*, *21*(5), 1705-1723. https://doi.org/10.1007/s10902-019-00154-2

Spencer-Oatey, H. (2012). *What is culture? A compilation of quotations.* GlobalPAD Core Concepts. https://doi.org/http://www2.warwick.ac.uk/fac/soc/al/globalpad/interculturalskills/

Spinrad, T. L., & Gal, D. E. (2018). Fostering prosocial behavior and empathy in young children. *Current opinion in psychology*, *20*, 40-44. https://doi.org/10.1016/j.copsyc.2017.08.004

Spinrad, T. L., Losoya, S. H., Eisenberg, N., Fabes, R. A., Shepard, S. A., Cumberland, A., Guthrie, I. K., & Murphy, B. C. (1999). The Relations of Parental Affect and Encouragement to Children's Moral Emotions and Behaviour. *Journal of moral education*, *28*(3), 323-337. https://doi.org/10.1080/030572499103115

Spitzberg, B. H., & Changnon, G. (2009). Conceptualizing intercultural competence. In D. K. Deardorff (Ed.), *The SAGE handbook of intercultural competence* (pp. 2-52). Sage.

Stahl, S. A., & Nagy, W. E. (2007). *Teaching word meanings*. Routledge.

Stavnezer, A. J., & Lom, B. (2019). Student-led Recaps and Retrieval Practice: A Simple Classroom Activity Emphasizing Effective Learning Strategies. *Journal of Undergraduate Neuroscience* *18*(1), A1-a14. https://doi.org/https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6973304/

Stephan, W. G., & Stephan, C. W. (2013). Designing intercultural education and training programs: An evidence-based approach. *International Journal of Intercultural Relations*, *37*(3), 277-286. https://doi.org/https://doi.org/10.1016/j.ijintrel.2012.05.001

Stern, J., & Cassidy, J. (2017). Empathy from infancy to adolescence: An attachment perspective on the development of individual differences. *Developmental Review*, *47*. https://doi.org/10.1016/j.dr.2017.09.002

Stosic, M. D., Fultz, A. A., Brown, J. A., & Bernieri, F. J. (2021). What is your empathy scale not measuring? The convergent, discriminant, and predictive validity of five empathy scales. *The Journal of Social Psychology*, 1-19. https://doi.org/10.1080/00224545.2021.1985417

Strand, S., & Demie, F. (2005). English language acquisition and educational attainment at the end of primary school. *Educational Studies*, *31*(3), 275-291. https://www.tandfonline.com/doi/abs/10.1080/03055690500236613

Strand, S., & Lindorff, A. (2021). English as an additional language, proficiency in English and rate of progression: Pupil, school and LA variation. https://www.bell-foundation.org.uk/eal-programme/research/english-as-an-additional-language-proficiency-in-english-and-rate-of-progression-pupil-school-and-la-variation/

Strand, S., Malmberg, L., & Hall, J. (2015). English as an Additional Language (EAL) and educational achievement in England: An analysis of the National Pupil Database. https://ora.ox.ac.uk/objects/uuid:5fe64adb-a4b8-465c-aa9c-0e80697e28bb

Strayer, J., & Roberts, W. (2004). Empathy and Observed Anger and Aggression in Five-Year-Olds. *Social Development*, *13*(1), 1-13. https://doi.org/https://doi.org/10.1111/j.1467-9507.2004.00254.x

Subramaniam, V., Abd Rahim, N., Affendi, N., Sujud, A. i., Dani, N. A., & Hamzah, M. (2009). The English Picture Books on Intercultural Awareness of Malaysian Kindergateners. *The International Journal of Learning: Annual Review*, *16*, 441-450. https://doi.org/10.18848/1447-9494/CGP/v16i03/46158

Suggate, S. P., Lenhard, W., Neudecker, E., & Schneider, W. (2013). Incidental vocabulary acquisition from stories: Second and fourth graders learn more from listening than reading. *First Language*, *33*(6), 551-571. https://doi.org/10.1177/0142723713503144

Sun, B., Hu, G., & Curdt-Christiansen, X. L. (2018). Metalinguistic contribution to writing competence: a study of monolingual children in China and bilingual children in Singapore. *Reading and writing*, *31*, 1499-1523. https://doi.org/https://doi.org/10.1007/s11145-018-9846-5

Surtees, A. D., & Apperly, I. A. (2012). Egocentrism and automatic perspective taking in children and adults. *Child Dev*, *83*(2), 452-460. https://doi.org/10.1111/j.1467-8624.2011.01730.x

Swanborn, M., & de Glopper, K. (2002). Impact of reading purpose on incidental word learning from context. *Language Learning*, *52*(1), 95-117. https://doi.org/https://doi.org/10.1111/1467-9922.00178

Szuba, A. (2016). *The intercultural communicative competence of young children in a bilingual education setting* Radboud University Nijmegen].

Tabatabaei, O., & Yakhabi, M. (2011). The Relationship between Morphological Awareness and Vocabulary Size of EFL Learners. *English Language Teaching*, *4*, 262-273. https://doi.org/http://dx.doi.org/10.5539/elt.v4n4p262

Tadmor, C. T., & Tetlock, P. E. (2006). Biculturalism: A model of the effects of second-culture exposure on acculturation and integrative complexity. *Journal of cross-cultural psychology*, *37*(2), 173-190. https://doi.org/https://doi.org/10.1177/0022022105284495

Tajfel, H., & Turner, J. C. (2001). An integrative theory of intergroup conflict. In M. A. Hogg & D. Abrams (Eds.), *Intergroup relations: Essential readings* (pp. 94–109).

Takeuchi, A. (2015). Developing a Scale of Children's Intercultural Competence: Issues and Challenges. *Maebashi Kyoai Gakuen College*, *1*, 45-58. https://doi.org/https://doi.org/10.1016/j.tsc.2014.02.006

Ter Kuile, H., Veldhuis, M., Van Veen, S. C., & Wicherts, J. M. (2011). Bilingual education, metalinguistic awareness, and the understanding of an unknown language. *Bilingualism: Language and Cognition*, *14*(2), 233-242. https://doi.org/http://dx.doi.org/10.1017/S1366728910000258

Tobari, M. (2003). The development of empathy in adolescence: A multidimensional view. *Japanese Journal of Developmental Psychology*, *14*, 136-148. https://doi.org/https://doi.org/10.11201/jjdp.14.136

Tong, X., Deacon, S. H., & Cain, K. (2014). Morphological and Syntactic Awareness in Poor Comprehenders: Another Piece of the Puzzle. *Journal of Learning Disabilities*, *47*(1), 22-33. https://doi.org/10.1177/0022219413509971

Tong, X., Tong, X., & McBride, C. (2017). Unpacking the relation between morphological awareness and Chinese word reading: Levels of morphological awareness and vocabulary. *Contemporary Educational Psychology*, *48*, 167-178. https://doi.org/https://doi.org/10.1016/j.cedpsych.2016.07.003

Topping, K. J., & Ehly, S. W. (2001). Peer Assisted Learning: A Framework for Consultation. *Journal of Educational and Psychological Consultation*, *12*(2), 113-132. https://doi.org/10.1207/S1532768XJEPC1202_03

Torregrossa, J., Eisenbeiß, S., & Bongartz, C. (2022). Boosting Bilingual Metalinguistic Awareness Under Dual Language Activation: Some Implications for Bilingual Education. *Language Learning*, *n/a*(n/a). https://doi.org/https://doi.org/10.1111/lang.12552

Triandis, H. C. (1994). *Culture and social behavior*. Mcgraw-Hill Book Company.

Trivedi-Bateman, N., & Crook, E. L. (2021). The optimal application of empathy interventions to reduce antisocial behaviour and crime: a review of the literature. *Psychology, Crime & Law*, 1-24. https://doi.org/10.1080/1068316X.2021.1962870

Tzani-Pepelasi, C., Ioannou, M., Synnott, J., & McDonnell, D. (2019). Peer Support at Schools: the Buddy Approach as a Prevention and Intervention Strategy for School Bullying. *International Journal of Bullying Prevention*, *1*(2), 111-123. https://doi.org/10.1007/s42380-019-00011-z

Unsworth, S., & Blom, E. (2010). Child L2, Adult L2, Child L1: Differences and Similarities. A Study on the Acquisition of Direct Object Scrambling in Dutch. *Language Acquisition*, *Vol. 14, No. 2*, 215-217. https://doi.org/https://www.jstor.org/stable/20462488

Van der Graaff, J., Branje, S., De Wied, M., Hawk, S., Van Lier, P., & Meeus, W. (2014). Perspective taking and empathic concern in adolescence: gender differences in developmental changes. *Dev Psychol*, *50*(3), 881-888. https://doi.org/10.1037/a0034325

van der Zee, K., & Oudenhoven, J. P. (2000). The Multicultural Personality Questionnaire: A multidimensional instrument of multicultural effectiveness. *European Journal of Personality*, *14*, 291-309. https://doi.org/https://doi.org/10.1002/1099-0984(200007/08)14:4%3C291::AID-PER377%3E3.0.CO;2-6

van Heuven, W. J., Mandera, P., Keuleers, E., & Brysbaert, M. (2014). SUBTLEX-UK: a new and improved word frequency database for British English. *Q J Exp Psychol (Hove)*, *67*(6), 1176-1190. https://doi.org/10.1080/17470218.2013.850521

Villadangos, M., Errasti, J., Amigo, I., Jolliffe, D., & García-Cueto, E. (2016). Characteristics of Empathy in young people measured by the Spanish validation of the Basic Empathy Scale. *Psicothema*, *28*(3), 323-329. https://doi.org/10.7334/psicothema2016.6

Vitória, P., Pereira, S. E., Muinos, G., Vries, H. D., & Lima, M. L. (2020). Parents modelling, peer influence and peer selection impact on adolescent smoking behavior: A longitudinal study in two age cohorts. *Addictive Behaviors*, *100*, 106131. https://doi.org/https://doi.org/10.1016/j.addbeh.2019.106131

Volbrecht, M. M., Lemery-Chalfant, K., Aksan, N., Zahn-Waxler, C., & Goldsmith, H. H. (2007). Examining the familial link between positive affect and empathy development in the second year. *The Journal of genetic psychology*, *168*(2), 105-129. https://doi.org/10.3200/GNTP.168.2.105-130

Volet, S. E., & Ang, G. (1998). Culturally Mixed Groups on International Campuses: an Opportunity for Inter-cultural Learning. *Higher Education Research & Development*, *17*(1), 5-23. https://doi.org/10.1080/0729436980170101

Waal, F. B. M. d. (2008). Putting the Altruism Back into Altruism: The Evolution of Empathy. *Annual Review of Psychology*, *59*(1), 279-300. https://doi.org/10.1146/annurev.psych.59.103006.093625

Wagner, R. K. (2011). Practical intelligence. In *The Cambridge handbook of intelligence.* (pp. 550-563). Cambridge University Press. https://doi.org/10.1017/CBO9780511977244.028

Walqui, A. (2010). Growth of Teacher Expertise for Teaching English Language Learners: A Socio-Culturally Based Professional Development Model. In T. Lucas (Ed.), *Teacher Preparation for Linguistically Diverse Classrooms: A Resource for Teacher Educators*. Routledge.

Wang, Z., Xie, R., Xia, Y., Nguyen, T. P., & Wu, X. (2022). A golden triangle? Reciprocal effects among morphological awareness, vocabulary knowledge, and reading comprehension in Chinese children. *Contemporary Educational Psychology*, *70*, 102089. https://doi.org/https://doi.org/10.1016/j.cedpsych.2022.102089

Wechsler, D. (1991). *Wechsler Intelligence Scale for Children,3rd edn*. Psychological Corporation.

Weir, K., & Duveen, G. (1981). Further development and validation of the prosocial behaviour questionnaire for use by teachers. *Journal of Child Psychology and Psychiatry*, *22*(4), 357-374. https://doi.org/https://psycnet.apa.org/doi/10.1111/j.1469-7610.1981.tb00561.x

Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: the truth about false belief. *Child Dev*, *72*(3), 655-684. https://doi.org/10.1111/1467-8624.00304

White, H. (2020). Building empathy. *Early Years Educator*, *22*(2), 18-20. https://doi.org/10.12968/eyed.2020.22.2.18

White, T. G., Sowell, J., & Yanagihara, A. (1989). Teaching elementary students to use word-part clues. *The Reading Teacher*, *42*(4), 302-308. https://doi.org/https://www.jstor.org/stable/20200115

Wiig, E. H., & Secord, W. (1992). *TOWK: Test of Word Knowledge*. The Psychological Cooperation.

Wohlwend, K. E. (2013). Play, literacy and the converging cultures of childhood. In J. Larson & J. Marsh (Eds.), *The Sage Handbook of Early Childhood Literacy* (2nd ed., pp. 80-95). Sage.

Wolcott, H. F. (1994). *Transforming qualitative data: Description, analysis, and interpretation*. Sage.

Wright, T. S., & Cervetti, G. N. (2017). A Systematic Review of the Research on Vocabulary Instruction That Impacts Text Comprehension. *Reading research quarterly*, *52*(2), 203-226. https://doi.org/https://doi.org/10.1002/rrq.163

Wu, L., Kim, M., & Markauskaite, L. (2020). Developing young children's empathic perception through digitally mediated interpersonal experience: Principles for a hybrid design of empathy games. *British journal of educational technology*, *51*(4), 1168-1187. https://doi.org/10.1111/bjet.12918

Xie, Q., & Yeung, S. S.-s. (2022). Do vocabulary, syntactic awareness, and reading comprehension in second language facilitate the development of each other in young children? *Learning and instruction*, *82*, 101682. https://doi.org/10.1016/j.learninstruc.2022.101682

Yuval-Davis, N. (2007). Zionism, antisemitism and the struggle against racism. *Soundings*(36), 122. https://doi.org/http://dx.doi.org/10.3898/136266207820465796

Zahn-Waxler, C., & Radke-Yarrow, M. (1990). The origins of empathic concern. *Motivation and Emotion*, *14*(2), 107-130. https://doi.org/10.1007/BF00991639

Zahn-Waxler, C., Radke-Yarrow, M., & King, R. A. (1979). Child rearing and children's prosocial initiations toward victims of distress. *Child Development*, *50*(2), 319-330. https://doi.org/10.2307/1129406

Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental psychology*, *28*(1), 126. https://doi.org/https://psycnet.apa.org/doi/10.1037/0012-1649.28.1.126

Zhang, J., Lo, M.-T., & Lin, T.-J. (2023). Word and child characteristics in vocabulary learning of native English speakers and bilingual learners. *Reading and writing*, *36*(1), 147-173. https://doi.org/10.1007/s11145-022-10293-3

Zhang, X., & Zhou, M. (2019). Interventions to promote learners' intercultural competence: A meta-analysis. *International Journal of Intercultural Relations*, *71*, 31-47. https://doi.org/https://doi.org/10.1016/j.ijintrel.2019.04.006

Zhao, Y., Wu, X., Sun, P., Xie, R., Feng, J., & Chen, H. (2019). The relationship between morphological awareness and reading comprehension among Chinese children: evidence from multiple mediation models. *Learning and Individual Differences*, *72*, 59-68. https://doi.org/https://doi.org/10.1016/j.lindif.2019.04.005

Zipf, G. K. (1949). *Human behavior and the principle of least effort*. Addison-Wesley Press.

Zuur, A. F., Ieno, E. N., Walker, N. J., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology with R* (Vol. 574). Springer.

Chapter 9: <u>Appendices</u>

    Young Interpreter Diary

Young Interpreter diary

Yi
Young Interpreter Scheme®

Hampshire Ethnic Minority and Traveller
Achievement Service
Dame Mary Fagan House
Chineham Court
Lutyens Close
Basingstoke
RG24 8AG

Twitter: @YIscheme

My name is:

_____

Young Interpreter work

Name:

Monday's date:

	Monday	Tuesday	Wednesday	Thursday	Friday
Task 1					
Feeling					
Task 2					
Feeling					
Task 3					
Feeling					
Notes					

😃 🙂 😐 🙁 ☹️

Appendix A.   **Teaching word-learning strategies through stories (TWLSS)**

Extra training stories script

Lethargic

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **lethargic** means now?

4. Let's read the paragraph with **lethargic** in.

5. Are there any words that help us? - **snooze, wake up,**

6. Do you know what **lethargic** means now?

7. What part of speech is it? - adjective

8. Does it have a prefix? - no

9. Does it have a suffix? - no

10. Can you predict what it means? – child dependent

11. These are some synonyms, words that mean the same / similar as **lethargic – snooze, nap, sleepy.**

12. Do you know what **lethargic** means now?

13. Let's look it up in a dictionary."

Tireless

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **tireless** means now?

4. Let's read the paragraph with **tireless** in.

5. Are there any words that help us? - **tire**

6. Do you know what **tireless** means now?

7. What part of speech is it? - adjective

8. Does it have a prefix? - no

9. Does it have a suffix? – less

10. What does the suffix **less** mean?

11. Do you know what **tireless** means now?

12. Can you predict what it means? – child dependent

13. These are some synonyms, words that mean the same / similar as **tireless – energetic, determined, persistent.**

14. Do you know what **tireless** means now?

15. Let's look it up in a dictionary."

Hare

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **hare** means now?

4. Let's read the paragraph with **hare** in.

5. Are there any words that help us? -

6. Do you know what **hare** means now?

7. What part of speech is it? - noun

8. Does it have a prefix? - no

9. Does it have a suffix? - no

10. Can you predict what it means? – child dependent

11. These are some synonyms, words that mean the same / similar as **hare – large rabbit, bunny,**

12. Do you know what **hare** means now?

13. Let's look it up in a dictionary."

Slumber

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **slumber** means now?

4. Let's read the paragraph with **slumber** in.

5. Are there any words that help us? - **dreamed, woke up,**

6. Do you know what **slumber** means now?

7. What part of speech is it? - noun

8. Does it have a prefix? - no

9. Does it have a suffix? - no

10. Can you predict what it means? – child dependent

11. These are some synonyms, words that mean the same / similar as **slumber – sleep, snooze, nap**

12. Do you know what **slumber** means now?

13. Let's look it up in a dictionary."

Glanced

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **glanced** means now?

4. Let's read the paragraph with **glanced** in.

5. Do you know what **glanced** means now?

6. Are there any words that help us? - **see, saw,**

7. Do you know what **glanced** means now?

8. What part of speech is it? - verb?

9. Does it have a prefix? - no

10. Does it have a suffix? – yes -ed

11. What does the suffix **ed** mean?

12. Can you predict what it means? – child dependent

13. These are some synonyms, words that mean the same / similar as **glanced – look, peek, peep.**

14. Do you know what **glanced** means now?

15. Let's look it up in a dictionary."

Overslept

1. "Let's be a word detective.

2. Can we use the context? Let's look at the picture.

3. Do you know what **overslept** means now?

4. Let's read the paragraph with **overslept** in.

5. Do you know what **overslept** means now?

6. Are there any words that help us? - **slumber, woke up,**

7. Do you know what **overslept** means now?

8. What part of speech is it? - verb

9. Does it have a suffix? – no

10. Does it have a prefix? – yes – **over**

11. What does the prefix **over** mean? **(too much / extra)**

12. Do you know what **overslept** means now?

13. What is the root word? - **slept / sleep**

14. Do you know what **overslept** means now? Let's look it up in a dictionary."

Extra training story – bookmark

Context	Hare
Part of speech	Tireless
Noun — ball	
Verb — jump	
Adjective — cute	Glanced
Adverb — slowly	
Prefix — **mis**understanding	Lethargic
Suffix — misunderstand**ing**	
Predict	Slumber
Ask or look it up	Overslept

WORD AWARE ©Stephen Parsons and Anna Branagan.

Appendix B.   **Coloured Progressive Matrices Test (Raven, Raven, & Court, 1998)**

"Which picture from the bottom fits the missing piece the best to complete the pattern?"
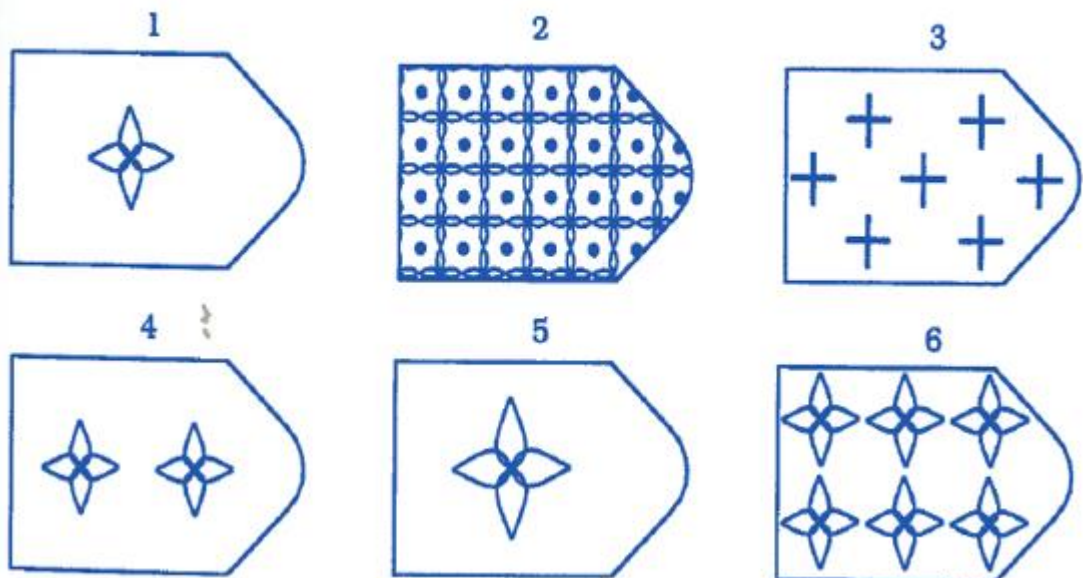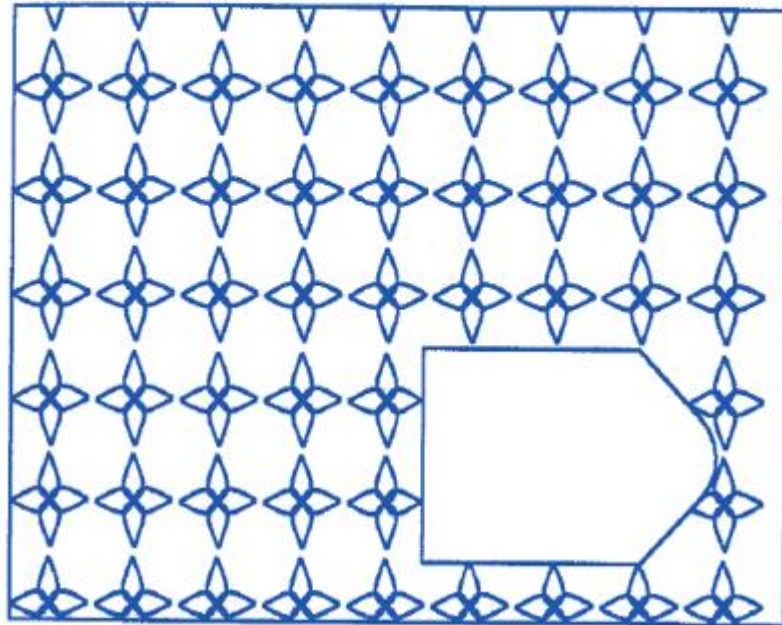
Appendix C. **The British Picture Vocabulary Scale III (Dunn & Dunn, 2009)**

Which picture is "tearing"?

Which picture is "links"?
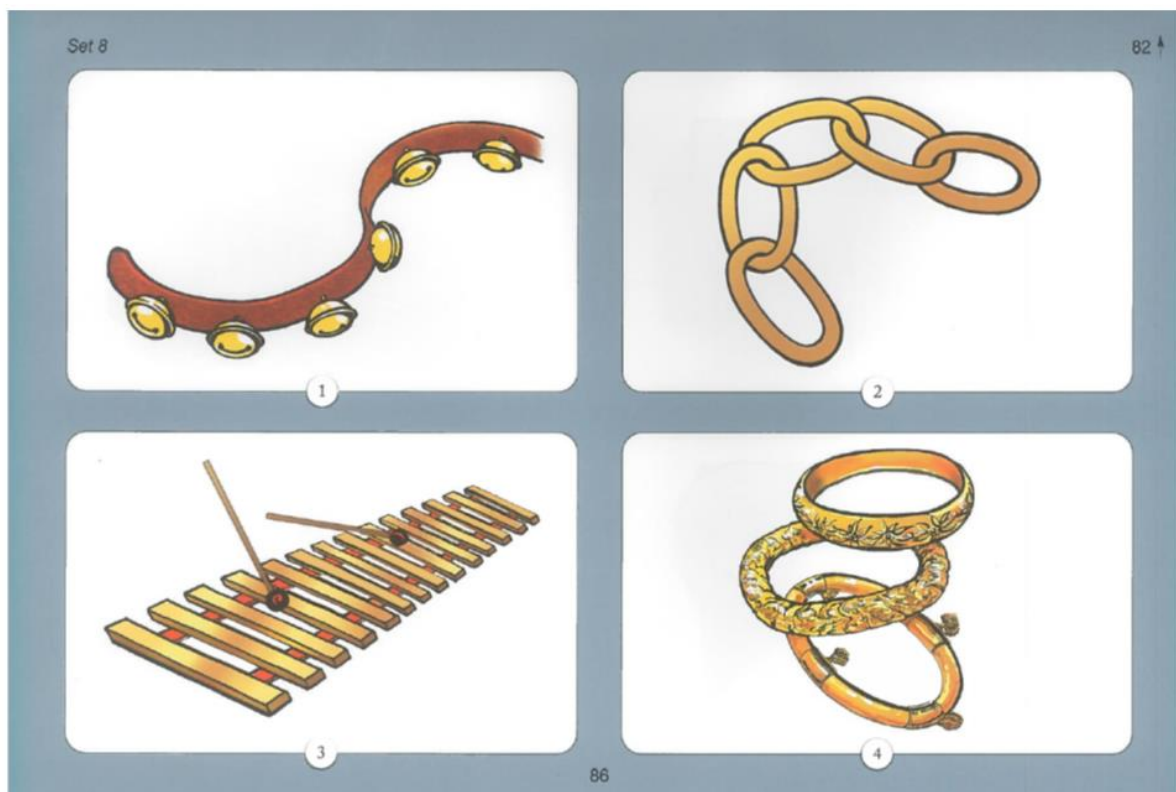
Appendix D.   The Test of Word Knowledge (Secord & Wiig, 1992) word opposite

subscale – example stimuli

Which word means the opposite of "together"?

together

along   apart

inside   here

Which word means the opposite of "heavy"?

heavy

light   gigantic

thin   wide

The Test of Word Knowledge (Secord & Wiig, 1992) word opposite subscale –

record form

Appendix E. **The Test of Word Knowledge (Secord & Wiig, 1992) synonym subscale –**

example stimuli

Which word means the same as "wet"?

wet

snowy   cool

crisp   soaked

Which word means the same as "real"?

real

sturdy   actual

amazing   mere

The Test of Word Knowledge (Secord & Wiig, 1992) synonym subscale – record form

Appendix F. **The Empathy Questionnaire (EmQue) (Rieffe et al, 2010).**

Empathy Questionnaire for Children and Adolescents – EmQue-CA English

EmQue-CA

Below you will find 18 short sentences. Every sentence is a statement about how you can react to other people's feelings. You can mark each sentence if this is often true, sometimes true or not true for you. Choose the answer that best fits you. You can only mark one answer. Please remember that there are no wrong or right answers.

		Not true	Sometimes true	Often true
1	If my parent / guardian is happy, I also feel happy	0	1	2
2	I understand that a friend is ashamed when he/she has done something wrong.	0	1	2
3	If a friend is sad, I like to comfort him.	0	1	2
4	I feel bad when two people argue.	0	1	2
5	When a friend is angry, I tend to know why.	0	1	2
6	I would like to help when a friend gets angry.	0	1	2
7	If a friend is sad, I also feel sad.	0	1	2
8	I understand that a friend is proud when he/she has done something good.	0	1	2
9	If a friend has an argument, I try to help.	0	1	2
10	If a friend is laughing, I also laugh.	0	1	2
11	If a friend is sad, I understand mostly why.	0	1	2
12	I want everyone to feel good.	0	1	2
13	When a friend cries, I cry myself.	0	1	2
14	If a friend cries, I often understand what has happened.	0	1	2
15	If a friend is sad, I want to do something to make it better.	0	1	2
16	If someone in my family is sad, I feel really bad.	0	1	2
17	I enjoy giving a friend a gift.	0	1	2
18	When a friend is upset, I feel upset too.	0	1	2

Appendix G.   **Intercultural competence task**

Intercultural task

1

Instructions

- Imagine a new student has recently moved to England from another country. He / she will be starting at your school.
- What shall we name the student?
- Which country are they from?
- I will now ask you some questions.

2

1. What do you think may be different for X living here compared to their previous country X?

3

2. What do you think might be the same and feel familiar for X?

4

3. How do you think X might feel about starting school in this country?

5

4. What could you do to show X you know things are different? And to help them?

6

5. What would you like to know from the new student about their life before moving here?

7

6. Do you know any children from another country? Have you learnt anything from them?

8

Task finished

Thank you ☺

9

Appendix H.   Intercultural competence – Q1 - What do you think may be different for Lin living here compared to her previous country China?

ALL codes; final categories		Y1 %	group B%	A: ID:Gender =F	Femal e %	B: ID:Gender =M	male %	Monoligual	ML %	Bi and multi lingual	BL %	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %
1 : Different skin colour or appearance	Time 1	4	0	0	0	1	6	0	0	1	3	0	0	0	0	0	0	1	4
2 : Differences in thinking or perspective		4	0	1	3	0	0	1	6	0	0	1	20	0	0	0	0	0	0
3 : Don't know		0	4	1	3	0	0	0	0	1	3	0	0	1	7	0	0	0	0
4 : Different clothes		11	0	2	5	1	6	1	6	2	5	1	20	0	0	1	8	1	4
5 : Different food		30	11	8	22	3	18	3	18	8	22	2	40	1	7	3	25	5	22
6 : Different language		63	74	26	70	12	71	13	76	25	68	3	60	8	57	10	83	17	74
7 : Different people		7	4	0	0	3	18	2	12	1	3	1	20	0	0	0	0	2	9
8 : Different school		26	11	6	16	4	24	4	24	6	16	1	20	1	7	2	17	6	26
9 : Different way of living		15	11	4	11	3	18	3	18	4	11	0	0	2	14	1	8	4	17
10 : Different weather		19	11	5	14	3	18	3	18	5	14	0	0	4	29	0	0	4	17
11 : Miscellaneous practical stuff		26	22	6	16	7	41	4	24	9	24	2	40	1	7	4	33	6	26
12 : Not relevant		4	4	2	5	0	0	1	6	1	3	0	0	0	0	1	8	1	4
13 : Diff celebrations A	Time 2	7	0	2	5	0	0	0	0	2	5	0	0	0	0	0	0	2	9
14 : Different clothes		4	7	2	5	1	6	1	6	2	5	0	0	1	7	1	8	1	4
Different language		52	56	23	62	6	35	7	41	22	59	3	60	9	64	9	75	8	35
15 : Different food		41	22	13	35	4	24	6	35	11	30	0	0	4	29	4	33	9	39
16 : Different miscellaneous stuff		26	26	2	5	12	71	4	24	10	27	0	0	4	29	5	42	5	22
17 : Different people		0	7	1	3	1	6	0	0	2	5	0	0	1	7	0	0	1	4
18 : Different schools		15	19	5	14	4	24	1	6	8	22	0	0	3	21	1	8	5	22
19 : Different ways of living		4	19	3	8	3	18	2	12	4	11	0	0	2	14	1	8	3	13
20 : Different weather		22	19	6	16	3	18	5	29	6	16	1	20	2	14	0	0	8	35
21 : Diff culture	Time 3	4	4	0	0	2	12	1	6	1	3	0	0	0	0	0	0	2	9
22 : Diff people		7	30	6	16	4	24	1	6	9	24	1	20	1	7	3	25	5	22
23 : Different beliefs		4	0	0	0	1	6	0	0	1	3	0	0	0	0	0	0	1	4
24 : Different clothes		4	4	2	5	1	6	1	6	1	3	0	0	1	7	0	0	0	0
25 : Different food		33	37	14	38	5	29	4	24	15	41	2	40	4	29	6	50	7	30
26 : Different language		70	59	27	73	8	47	7	41	28	76	3	60	9	64	11	92	12	52
27 : Different miscellaneous stuff		37	56	15	41	10	59	7	41	18	49	2	40	4	29	9	75	10	43
28 : Different schools		30	30	8	22	8	47	3	18	13	35	1	20	5	36	2	17	8	35
29 : Different way of living		19	7	2	5	5	29	3	18	4	11	0	0	0	0	1	8	6	26
30 : Different weather		33	30	12	32	5	29	6	35	11	30	3	60	5	36	2	17	7	30

Appendix I. Intercultural competence Q2 What do you think might be the same and feel familiar for Lin?

ALL codes, final categories	E: ID:Group =A	Y1 %	F: ID:Group =B	group B%	total check	A: ID:Gender =F	Female %	B: ID:Gender =M	male %	total check	Monoligual	ML %	Bi and multi lingual	BL%	total check	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %
Time 1																							
2 : Don't know	1	4	2	7	3	2	5	1	6	3	2	12	1	3	3	2	40	1	7	0	0	0	0
3 : Everyday items	3	11	8	30	11	8	22	3	18	11	2	12	9	24	11	0	0	4	29	3	25	4	17
4 : Family	5	19	5	19	10	8	8	7	41	10	4	24	6	16	10	0	0	0	0	4	33	6	26
5 : Food	2	7	2	7	4	3	8	1	6	4	1	6	3	8	4	0	0	2	14	0	0	2	9
7 : Having friends	3	11	1	4	4	3	8	1	6	4	3	18	1	3	4	0	0	0	0	1	8	3	13
6 : Games and leisure	2	7	3	11	5	2	5	3	18	5	0	0	5	14	5	0	0	1	7	0	0	4	17
9 : Language	2	7	1	4	3	2	5	1	6	3	1	6	2	5	3	0	0	0	7	0	0	2	9
12 : People	5	19	0	0	5	4	11	1	6	5	1	6	4	11	5	1	20	1	7	1	8	2	9
14 : Same routine	3	11	2	7	5	0	0	5	29	5	3	18	2	5	5	0	0	0	0	1	8	4	17
15 : Same school related stuff	11	41	7	26	18	13	35	5	29	18	5	29	13	35	18	1	20	6	43	2	17	9	39
Time 2																							
16 : Everyday items	7	26	6	22	13	11	30	2	12	13	3	18	10	27	13	1	20	6	43	4	33	10	43
17 : Family	4	15	4	15	8	3	8	5	29	8	1	6	7	19	8	0	0	0	0	3	25	5	22
18 : Food	3	11	3	11	6	4	11	2	12	6	3	18	3	8	6	0	0	0	0	2	17	4	17
19 : Having friends	3	11	3	11	6	1	3	5	29	6	3	18	3	8	6	0	0	0	0	0	0	6	26
24 : Same games and leisure	1	4	2	7	3	2	5	1	6	3	0	0	3	8	3	0	0	2	14	0	0	1	4
21 : Language	1	4	2	7	3	2	5	1	6	3	0	0	3	8	3	0	0	1	7	2	17	0	0
22 : People	3	11	3	11	6	4	11	2	12	6	2	12	4	11	6	0	0	0	0	2	17	4	17
25 : Same routine	1	4	0	0	1	0	0	1	6	1	1	6	0	0	1	0	0	0	0	0	0	1	4
26 : School related	11	41	11	41	22	13	35	9	53	22	6	35	16	43	22	1	20	5	36	6	50	10	43
Time 3																							
27 : Everyday items	10	37	13	48	23	19	51	4	24	23	8	47	15	41	23	1	20	9	64	7	58	6	26
28 : Family	5	19	6	22	11	6	16	5	29	11	4	24	7	19	11	1	20	2	14	2	17	6	26
29 : Food	3	11	4	15	7	6	16	1	6	7	1	6	6	16	7	1	20	1	7	3	25	2	9
30 : Having friends	2	7	2	7	4	3	8	1	6	4	1	6	3	8	4	0	0	1	7	1	8	2	9
34 : Same games and leisure	3	11	3	11	6	4	11	2	12	6	1	6	5	14	6	2	40	0	0	1	8	3	13
35 : Same language	1	4	3	11	4	3	8	1	6	4	1	6	3	8	4	0	0	0	0	2	17	2	9
33 : People	4	15	3	11	7	5	14	2	12	7	4	24	3	8	7	1	20	1	7	3	25	2	9
25 : Same routine	1	4	0	0	1	0	0	1	6	1	1	6	0	0	1	0	0	0	0	0	0	1	4
36 : School related	9	33	8	30	17	11	30	6	35	17	6	35	11	30	17	0	0	5	36	5	42	7	30

Appendix J. Intercultural competence Q3 How do you think Lin might feel about starting school in this country?

Time	ALL codes, final categories	E: ID:Group = A	Y1 %	F: ID:Group = B	group B%	A: ID:Gender = F	Female %	B: ID:Gender = M	male %	Monolingual	ML %	Bi and multi lingual	BL %	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %
Time 1	1 : Anxious	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 : Confused	2	7	3	11	1	3	4	24	1	6	4	11	1	20	0	0	1	8	3	13
	3 : Curious	3	11	0	0	1	3	2	12	2	12	1	3	0	0	1	7	0	0	2	9
	4 : Excited	8	30	4	15	9	24	3	18	3	18	9	24	1	20	2	14	4	33	5	22
	5 : Happy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6 : Nervous	15	56	18	67	23	62	10	59	12	71	21	57	2	40	8	57	8	67	15	65
	7 : Sad	3	11	0	0	2	5	1	6	0	0	3	8	1	20	1	7	0	0	1	4
	8 : Scared	12	44	15	56	18	49	9	53	12	71	15	41	3	60	7	50	6	50	11	48
	9 : Shy	4	15	1	4	4	11	1	6	0	0	5	14	0	0	1	7	3	25	1	4
	10 : Worried	4	15	8	30	5	14	7	41	5	29	7	19	1	20	3	21	3	25	5	22
Time 2	11 : Anxious	4	15	1	4	4	11	1	6	3	18	2	5	1	20	0	0	2	17	2	9
	12 : Confused	4	15	3	11	4	11	3	18	0	0	7	19	2	40	2	14	1	8	2	9
	13 : Curious	2	7	0	0	1	3	1	6	1	6	1	3	0	0	1	7	0	0	1	4
	14 : Excited	6	22	7	26	11	30	2	12	6	35	7	19	0	0	5	36	3	25	5	22
	16 : Happy	4	15	5	19	6	16	3	18	3	18	6	16	0	0	3	21	1	8	5	22
	17 : Lonely	1	4	1	4	0	0	2	12	0	0	2	5	0	0	0	0	0	0	2	9
	18 : Nervous	22	81	18	67	28	76	12	71	12	71	28	76	3	60	10	71	9	75	18	78
	19 : Sad	2	7	3	11	3	8	2	12	1	6	4	11	1	20	1	7	0	0	3	13
	20 : Scared	11	41	8	30	16	43	3	18	7	41	12	32	2	40	6	43	3	25	8	35
	21 : Shy	2	7	1	4	3	8	0	0	0	0	3	8	0	0	0	0	2	17	1	4
	22 : Surprised	0	0	1	4	0	0	1	6	0	0	1	3	0	0	0	0	1	8	0	0
	Frightened	1	4	0	0	1	3	0	0	1	6	0	0	0	0	1	7	0	0	0	0
	23 : Worried	7	26	7	26	8	22	6	35	4	24	10	27	2	40	5	36	2	17	5	22
Time 3	24 : Anxious	3	11	2	7	3	8	2	12	2	12	3	8	1	20	1	7	2	17	1	4
	25 : Confused	1	4	1	4	0	0	2	12	0	0	2	5	0	0	0	0	0	0	2	9
	26 : Curious	1	4	0	0	1	3	0	0	0	0	1	3	1	20	0	0	0	0	0	0
	27 : Excited	6	22	7	26	10	27	3	18	5	29	8	22	2	40	5	36	2	17	4	17
	28 : Happy	3	11	3	11	5	14	1	6	1	6	5	14	0	0	1	7	1	8	4	17
	29 : Nervous	23	85	21	78	31	84	13	76	13	76	31	84	5	100	12	86	8	67	19	83
	30 : Sad	5	19	0	0	3	8	2	12	1	6	4	11	1	20	1	7	1	8	2	9
	31 : Scared	9	33	12	44	16	43	5	29	8	47	13	35	1	20	7	50	4	33	9	39
	32 : Shy	3	11	2	7	3	8	2	12	1	6	4	11	0	0	1	7	2	17	2	9
	33 : Worried	4	15	3	11	4	11	3	18	5	29	2	5	0	0	1	7	1	8	5	22

Appendix K. **Intercultural competence Q4 What could you do to show Lin you know things are different? And to help her?**

	ALL codes; final categories	YI %	F: ID:Group = B	group B%	A: ID:Gender = F	Female %	B: ID:Gender = M	male %	Monolingual	ML %	Bi and multi lingual	BL %	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %
Time 1	1 : Be their friend	30	2	7	6	16	4	24	4	24	6	16	2	40	2	14	2	17	4	17
	2 : Don't know	0	3	11	2	5	1	6	0	0	3	8	0	0	3	21	0	0	0	0
	3 : Help them	19	2	7	5	14	2	12	4	24	3	8	1	20	2	14	1	8	3	13
	4 : Help with language	30	10	37	12	32	8	35	5	29	13	35	1	20	4	29	8	50	7	30
	5 : Introduce to people	11	1	4	3	8	1	6	0	0	4	11	0	0	0	0	2	17	2	9
	6 : Make them feel welcome	11	0	0	2	5	1	6	1	6	2	5	0	0	0	0	0	0	3	13
	7 : Non-relevant	4	3	11	4	11	0	0	2	12	2	5	0	0	2	14	1	8	1	4
	8 : Play with them	7	5	19	3	8	4	24	3	18	4	11	0	0	1	7	1	8	5	22
	9 : Random	11	4	15	4	11	3	18	1	6	6	16	1	20	2	14	1	8	3	13
	10 : Show them around	48	10	37	15	41	8	47	7	41	16	43	1	20	5	36	5	42	12	52
Time 2	11 : Be their friend	15	5	19	6	16	3	18	1	6	8	22	0	0	2	14	2	17	1	22
	12 : don't know	0	2	7	1	3	1	6	1	6	1	3	0	0	1	7	0	0	1	4
	13 : Help them	15	2	7	4	11	2	12	4	24	2	5	1	20	0	0	1	8	4	17
	14 : Help with language	22	8	30	8	22	8	35	2	12	12	32	1	0	2	14	8	50	8	28
	15 : Ideas from YIS training	19	0	0	8	16	0	0	2	12	4	11	2	40	1	7	2	17	1	4
	16 : Introduce to people	4	1	4	1	3	1	6	0	0	2	5	0	0	0	0	2	17	0	0
	17 : Make them feel welcome	7	0	0	0	0	2	12	2	12	0	0	0	0	0	0	0	0	2	9
	18 : Overall B non-relevant comments	0	4	15	3	8	1	6	1	6	3	8	0	0	2	14	0	0	2	9
	19 : Play with them	7	3	11	4	11	1	6	3	18	2	5	0	0	1	7	3	25	1	4
	20 : Random ideas	0	3	11	2	5	1	6	2	12	1	3	0	0	1	7	1	8	1	4
	21 : Show them around the school	26	13	48	18	43	4	24	7	41	13	35	2	40	8	57	5	42	8	26
Time 3	22 : Be their friend	19	5	19	7	19	3	18	5	29	5	14	2	40	5	36	1	8	2	9
	12 : don't know	11	5	19	8	16	2	12	4	24	4	11	2	40	2	14	2	17	2	9
	23 : Help them	41	11	41	18	49	4	24	7	41	15	41	3	60	4	29	7	58	8	35
	24 : Help with language	30	0	0	4	11	4	24	2	12	6	16	1	20	0	0	3	25	4	17
	25 : Ideas from YIS training	7	3	11	2	5	3	18	0	0	5	14	0	0	1	7	0	0	4	17
	26 : Introduce to people	4	0	0	1	3	0	0	1	6	0	0	0	0	1	7	0	0	0	0
	27 : Make them feel welcome	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	0
	28 : Overall B non-relevant comments	11	3	11	2	5	4	24	5	29	1	3	0	0	1	7	1	8	4	17
	29 : Play with them	19	0	0	4	11	2	6	2	12	3	8	0	0	2	14	0	0	3	13
	30 : random	56	14	52	20	54	9	53	6	35	23	62	3	60	8	57	6	50	12	52
	32 : Show them around the school																			

Appendix L.Intercultural competence Q5 What would you like to know from Lin about her life in China before moving here?

Time	ALL codes, final categories	E IDGroup = A	Y1 %	F IDGroup = B	group B%	A IDGender = F	Female %	B IDGender = M	male %	Monolingual	ML %	Bi and multilingual	BL %	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %
Time 1	Ask about clothes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ask about family	2	7	1	4	2	5	1	6	1	6	2	5	0	0	0	0	2	17	1	4
	Ask about food	4	15	5	19	6	16	3	18	4	24	5	14	0	0	1	7	2	17	6	26
	Ask about friends	6	22	3	11	7	19	2	12	4	24	5	14	1	20	1	7	2	17	5	22
	Ask about games and leisure	3	11	4	15	4	11	3	18	1	6	6	16	0	0	3	21	1	8	3	13
	Ask about houses	0	0	3	11	3	8	0	0	1	6	2	5	1	20	1	7	1	8	0	0
	Ask about language	4	15	1	4	3	8	2	12	4	24	1	3	0	0	0	0	2	17	3	13
	Ask about life in general	11	41	9	33	10	27	10	59	5	29	15	41	2	40	1	0	5	42	8	35
	Ask about pets or animals	2	7	2	7	1	3	3	18	1	6	3	8	0	0	1	7	0	0	3	13
	Ask about school	3	11	5	19	6	16	2	12	2	12	6	16	1	20	2	14	0	0	5	22
	Ask about weather	1	4	3	11	2	5	2	12	2	12	2	5	0	0	0	0	2	17	0	0
	Don't know what to ask	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Random and specific	11	41	13	48	18	49	7	41	8	47	17	46	2	40	5	36	7	58	11	48
Time 2	Ask about clothes	1	4	0	0	1	3	0	0	0	0	1	3	0	0	0	0	1	8	0	0
	Ask about family	2	7	1	4	2	5	1	6	2	12	1	3	0	0	0	0	2	17	1	4
	Ask about food	11	41	4	15	9	24	6	35	6	35	9	24	0	40	1	7	4	33	8	35
	Ask about friends	1	4	3	11	2	5	2	12	1	6	3	8	0	0	1	7	0	0	3	13
	Ask about games and leisure	6	22	3	11	3	8	6	35	2	12	7	19	0	0	1	7	2	17	6	26
	Ask about houses	1	4	2	7	3	8	0	0	2	12	3	3	0	0	0	0	2	17	1	4
	Ask about language	3	11	5	19	6	16	2	12	5	29	3	8	0	0	4	29	2	17	2	9
	Ask about life in general	16	59	9	33	19	51	6	35	7	41	18	49	4	80	9	64	6	50	6	26
	Ask about pets or animals	2	7	0	0	1	3	1	6	1	6	1	3	0	0	0	0	0	0	2	9
	Ask about school	9	33	8	30	9	24	8	47	5	29	12	32	0	0	7	7	3	25	13	57
	Ask about weather	0	0	5	19	4	11	1	6	1	6	4	11	0	0	0	0	3	25	2	9
	Don't know what to ask	0	0	1	4	0	0	1	6	0	0	1	3	0	0	1	7	0	0	0	0
	Random and specific	6	22	8	30	5	14	2	12	2	12	5	14	2	40	0	0	1	8	6	26
Time 3	Random and specific	11	41	9	33	15	41	5	29	6	35	14	38	3	60	4	29	8	67	5	22
	Don't know what to ask	0	0	1	4	1	3	0	0	0	0	1	3	0	0	1	7	0	0	0	0
	Ask about weather	1	4	2	7	2	5	1	6	1	6	2	5	0	0	0	0	1	8	2	9
	Ask about school	10	37	3	11	9	24	4	24	4	24	9	24	1	20	3	21	3	25	6	26
	Ask about pets or animals	2	7	1	4	2	5	1	6	1	6	2	5	0	0	1	7	0	0	2	9
	Ask about life in general	9	33	12	44	13	35	8	47	6	35	15	41	2	40	6	43	1	8	12	52
	Ask about language	4	15	3	11	5	14	2	12	2	12	5	14	0	0	2	14	1	8	4	17
	Ask about houses	0	0	1	4	0	0	1	6	1	6	0	0	0	0	0	0	0	0	1	4
	Ask about games and leisure	4	15	5	19	6	16	3	18	2	12	7	19	1	20	3	21	2	17	3	13
	Ask about friends	4	15	9	33	9	24	4	24	3	18	10	27	1	20	2	14	3	25	7	30
	Ask about food	6	22	3	11	6	16	3	18	3	18	6	16	1	20	1	7	2	17	5	22
	Ask about clothes	1	4	1	4	2	5	0	0	1	6	1	3	1	20	0	0	0	0	1	4

Appendix M. **Intercultural competence Q6 Do you know any children from another country? Have you learnt anything from them?**

All codes, final categories	E: ID:Group = A	Y1 %	F: ID:Group = B	group B%	total check	A: ID:Gender = F	Female %	B: ID:Gender = M	male %	total check	Monolingual	ML %	Bi and multilingual	BL %	total check	7 YEARS	7Y %	8 YEARS	8Y %	9 YEARS	9Y %	10 YEARS	10 Y %	total check
Yes	19	70	19	70	38	22	59	16	94	38	13	76	25	88	38	4	80	8	57	8	67	18	78	38
Time 1 — Taught something by new child.	4	15	2	7	6	3	8	3	18	6	1	6	5	14	6	0	0	0	0	1	8	5	22	6
3 : Identifying someone other than a child at their school	3	11	1	4	4	3	8	1	6	4	1	6	3	8	4	0	0	1	7	1	8	2	9	4
4 : No identification of cross-cultural friendship	4	15	7	26	11	11	30	0	0	11	2	12	9	24	11	1	20	5	36	3	25	2	9	11
yes	19	70	18	67	37	21	57	16	94	37	11	65	26	70	37	4	80	7	50	7	58	19	83	37
Time 2 — Taught something by new child.	7	26	8	30	15	12	32	3	18	15	5	29	10	27	15	1	20	1	7	4	33	9	39	15
7 : Identifying someone other than a child at their school	7	26	4	15	11	8	22	3	18	11	3	18	8	22	11	0	0	3	21	4	33	4	17	11
8 : No identification.	1	4	6	22	7	7	19	0	0	7	1	6	6	16	7	0	0	5	36	2	17	0	0	7
yes	25	93	19	70	44	28	76	17	100	45	14	82	31	84	45	4	80	11	79	9	75	21	91	45
Time 3 — Taught something by new child.	15	56	7	26	22	17	46	7	41	24	7	41	17	46	24	2	40	6	43	4	33	12	52	24
11 : Identifying someone other than a child at their school	0	0	2	7	2	2	5	0	0	2	0	0	2	5	2	0	0	2	14	0	0	0	0	2
12 : No identification.	3	11	4	15	7	7	19	0	0	7	2	12	5	14	7	1	20	2	14	3	25	1	4	7

Appendix N. **Syntactic awareness - Word re-ordering task**

The instructions to each child were:

"Here are some words from a sentence that are all mixed up. Your job is to move the words around using the mouse to make a sentence that makes sense and is grammatically correct. You must use all the word tiles in each sentence and put them in the best order."

Highlighted sentences were when the child was asked to explain why they chose the order that they did.

Sentence Type		TIME 1 Sentence	TIME 2 Sentence	TIME 3 Sentence
1.	active reversible/singular verb	The girl has followed the bird.	The cat / boy has watched the boy / cat.	The girl / horse has seen the girl / horse.
2.	active reversible/singular verb	The boy has called the shopkeeper.	The assistant / man has rung the man / assistant.	The girl / boy has raced the girl / boy.
3.	active reversible/singular verb	The dog has chased the rabbit	The dog / cat has followed the cat / dog.	The man / woman has shouted the man / woman.
4.	active reversible/ plural verb	The tigers have seen the lions	The cheetahs / zebras have noticed the zebras / cheetahs.	The dogs / rabbits have spotted the dogs / rabbits.
5.	active reversible/ plural verb	The cats have heard the mice	The girls / boys have assisted the boys / girls.	The cats / dogs have caught the cats / dogs.
6.	active reversible/ plural verb	The men have helped the women	The rats / snakes have discovered the snakes / rats.	The men / women have saved the men / women.
7.	active non reversible/singular verb	The elephant has seen the monkeys.	The rhino has noticed the baboons.	The cat has spotted the mice.
8.	active non reversible/singular verb	The man has heard the neighbours.	The woman has discovered the police.	The men have caught the boy.
9.	active non reversible/singular verb	The girl has followed the kittens.	The boy has watched the puppies.	The lion has seen the zebras.
10.	active non reversible/plural verb	The men have helped the girl.	The women have assisted the boy.	The policemen have shouted the man.
11.	active non reversible/plural verb	The boys have chased the dog.	The girls have followed the cat.	The women have raced the man.
12.	active non reversible/plural verb	The children have called the policeman.	The firemen have rang the man	The men have saved the girl.
13.	Non-reversible filler	The boy threw a ball.	The dog chewed the food.	The woman cracked the mirror.

		TIME 1 Sentence	TIME 2 Sentence	TIME 3 Sentence
14.	Non-reversible filler	The man made a sandwich.	The girl hit a ball.	The man shut the window.
15.	Non-reversible filler	The cat drank the milk.	The man opened the box.	The boy flung a stick.
16.	Non-reversible filler	The child broke the vase.	The man fixed the car.	The rabbit sipped the water.
17.	Non-reversible filler	The girl ate the biscuit.	The boy baked a cake.	The child nibbled the biscuit.
18.	Non-reversible filler	The woman closed the door.	The woman made a salad.	The man built a treehouse.
19.	active with reflexive pronoun	The boy and the girl looked at themselves.	The man and the boy watched themselves	The boy and the girl saw themselves.
20.	active with reflexive pronoun	The woman cut herself with a knife.	The boy injured himself with the scissors.	The man cut himself with a razor.
21.	active with reflexive pronoun	The children locked themselves out of the house.	The family locked themselves out of the car.	The couple chained themselves to the tree.
22.	passive with gendered possessive pronoun	The boy was hugged by his mum.	The boy was stopped by his sister.	The man was caught by his wife.
23.	passive with gendered possessive pronoun	The teacher was followed by his cat.	The doctor was chased by her dog.	The dentist was followed by his dog.
24.	passive with gendered possessive pronoun	The girl was helped by her brother.	The girl was cuddled by her dad.	The woman was helped by her son.
25.	Double object dative	The mum gave her daughter a present.	The dad gave his son the gift.	The boy gave his brother a banana.
26.	Double object dative	The man sent his wife a letter.	The woman gave her husband a parcel.	The girl sent her friend a postcard.
27.	Double object dative	The boy threw the girl a ball.	The woman kicked the man a ball.	The dad passed the boy a chocolate.

Appendix O. **Explaining words task**

Introducing the task

"I need a word helper so that I can help other children.

I am finding out what words children know, and how they would explain words to another child who doesn't know the meaning.

I will tell you a word and I want you to tell me what it means.

Some words you will know and some you might not.

Try your best."

Explaining words task instructions

SHOW - Citation / word only.

"This word is X. Can you tell me what X means?"

SHOW Sentence example shown and read to child.

"Can you guess what X means now using the context?"

"What do you think it means now?

"How would you explain X to someone who doesn't know what it means?"

SAY "Can you break the word down and find bits of meaning?"

"What do those words mean?"

"Can you explain X without using the word X?" (prompt if needed)

"let's look at the definition."

SHOW definition and read, include part of speech.

Slide 1

Explaining words

Slide 2

Time 2

Slide 3

Instructions
- I need a word helper so that I can help other children.
- I am finding out what words children know, and how they would explain words to another child who doesn't know the meaning.
- I will tell you a word and I want you to tell me what it means.
- Some words you will know and some you might not.
- Try your best.

Slide 4

antifreeze

Antifreeze was needed to remove the ice from the car.

Definition: noun
Liquid added to water to make it less likely to freeze.

Slide 5

unnoticed

The boy snuck out of the house unnoticed by his mum.

Definition: adjective
without being seen or noticed.

Slide 6

distrust

I distrust my friend because she told my secret.

Definition: noun
A lack of trust.

Slide 7

inkwell

She dipped her pen into the inkwell before writing the card.

Definition: noun
a container for ink, used in the past, that fitted into a hole in a table.

Slide 8

overcrowded

The shops are always overcrowded at Christmas.

Definition: adjective
An overcrowded place has too many people in it.

Slide 9

relive

The elderly couple like to relive their childhood memories.

Definition: verb
To remember something that happened before in detail, as though it was happening again.

Slide 10

Task finished!

Thank you ☺

Slide 11

Script – do all stages regardless of correct definition or not

1. I need a word helper so that I can help other children.
2. I am finding out what words children know, and how they would explain words to another child who doesn't know the meaning.
3. I will tell you a word and I want you to tell me what it means.
4. Some words you will know and some you might not.
5. Try your best.
6. SHOW - Citation only. Can you tell me what this word means? Can you guess?
7. If, "I don't know" then say, "I will say it in a sentence to see if that helps."
8. Sentence example shown and read to child. Can you guess what X means from the context?
9. If, "I don't know" then say, "can you see any words that you know in this word? can you break the word down and find bits of meaning?" what do those words mean? Can you guess the meaning of X now?
10. If, "I don't know" then say, "let's look at a definition."

Slide 1

Explaining words

Slide 2

Time 3

Slide 3

Instructions
- I need a word helper so that I can help other children.
- I am finding out what words children know, and how they would explain words to another child who doesn't know the meaning.
- I will tell you a word and I want you to tell me what it means.
- Some words you will know and some you might not.
- Try your best.

Slide 4

afterlife

People of many religions believe in an afterlife.

Definition: noun
The life that some people believe begins after death, especially in heaven

Slide 5

feverish

The girl felt feverish and hoped it wasn't the start of flu.

Definition: adjective
Suffering from fever (high body temperature).

Slide 6

mistreat

The man was banned from keeping pets after he mistreated his dog.

Definition: verb
to treat a person or animal badly, cruelly, or unfairly:

Slide 7

sideboard

The only furniture the dining room had was an old sideboard.

Definition: noun
a piece of furniture with a flat top and cupboards at the bottom, usually used for holding glasses, plates, etc.

Slide 8

joyful

Christmas is such a joyful time of year.

Definition: adjective
having or causing great happiness.

Slide 9

degrease

To prepare for cooking, the woman had to degrease the pan.

Definition: verb
to remove grease, oil, or similar, from something, especially by treating with a chemical.

Slide 10

Task finished!

Thank you ☺

Slide 11

Script – do all stages regardless of correct definition or not

1. I need a word helper so that I can help other children.
2. I am finding out what words children know, and how they would explain words to another child who doesn't know the meaning.
3. I will tell you a word and I want you to tell me what it means.
4. Some words you will know and some you might not.
5. Try your best.
6. SHOW - Citation only. Can you tell me what this word means? Can you guess?
7. If, "I don't know" then say, "I will say it in a sentence to see if that helps."
8. Sentence example shown and read to child. Can you guess what X means from the context?
9. If, "I don't know" then say, "can you see any words that you know in this word? can you break the word down and find bits of meaning?" what do those words mean? Can you guess the meaning of X now?
10. If, "I don't know" then say, "let's look at a definition."

Appendix P.   R Script – descriptive analyses

---
title: "Sample descriptives"
author: "DKP"
date: "18/11/2021"
output:
  word_document: default
  html_document: default

#Read in datafile and load packages.
```{r}
library(tidyverse)
library(readr)
baselineR <- read_csv("C:/Users/Debra Page/OneDrive - University of Reading/PhD/Data/baseline/baselineR.csv")
View(baselineR)
```

#Make age numeric.
```{r }
as.numeric(baselineR$NumLanguages)
str(baselineR)
```

#Make a table for means by group and then by school.
#The order of aruguments in the brackets means group by group (A or B) and then by school.
#Then you summarise (which is the function name) then tell R to calucate the (function) mean and in the brackets after tell R which original variable name to get the mean of.
##R defaults to 4 decimal places so add the mutate fucntion (to numeric variables only) and the only thing to change in the code is the number of digits / decimal places you want to round to.
```{r}
 baselineR %>%
  group_by(Group, School) %>%
    summarise(mean(RavensPercent), sd(RavensPercent), range(baselineR$RavensPercent), mean(BPVSRS), sd(BPVSRS), range(baselineR$BPVSRS), mean(TOWKWORS), sd(TOWKWORS), range(baselineR$TOWKWORS), mean(TOWKSynRS),sd(TOWKSynRS), range(baselineR$TOWKSynRS)) %>%
  mutate_if(is.numeric, round, digits= 0)
```

#The range shows the exact same values for 2 rows on the other measures so the first row has the minimum #of the range and the second row has the maximum.
```{r}
 baselineR %>%
  group_by(Group) %>%
    summarise(mean(RavensPercent), sd(RavensPercent), range(baselineR$RavensPercent), mean(BPVSRS), sd(BPVSRS), range(baselineR$BPVSRS), mean(TOWKWORS), sd(TOWKWORS), range(baselineR$TOWKWORS), mean(TOWKSynRS),sd(TOWKSynRS), range(baselineR$TOWKSynRS)) %>%
  mutate_if(is.numeric, round, digits= 0)
```

#Do the same again but only group by whether they are a YI or not (A or B group).
```{r}
 baselineA <-baselineR[baselineR$Group=="A",]
View(baselineA)
```

```{r}
 baselineA %>%
   summarise(mean(RavensPercent),        sd(RavensPercent),        range(baselineR$RavensPercent),
mean(BPVSRS),   sd(BPVSRS),   range(baselineR$BPVSRS),   mean(TOWKWORS),   sd(TOWKWORS),
range(baselineR$TOWKWORS),  mean(TOWKSynRS),sd(TOWKSynRS),  range(baselineR$TOWKSynRS))
%>%
  mutate_if(is.numeric, round, digits= 0)
View
```

#Do the same again but only group by whether they are a YI or not (A or B group).
```{r}
 baselineB <-baselineR[baselineR$Group=="B",]
View(baselineB)
```

```{r}
 baselineB %>%
   summarise(mean(RavensPercent),        sd(RavensPercent),        range(baselineR$RavensPercent),
mean(BPVSRS),   sd(BPVSRS),   range(baselineR$BPVSRS),   mean(TOWKWORS),   sd(TOWKWORS),
range(baselineR$TOWKWORS),  mean(TOWKSynRS),sd(TOWKSynRS),  range(baselineR$TOWKSynRS))
%>%
  mutate_if(is.numeric, round, digits= 0)
View
```

```{r}

baselineA%>%
 summarise (mean(Time1AgeMonths), sd(Time1AgeMonths), range(Time1AgeMonths))

```

#Find age frequencies using count function.
```{r}
#change the data file for frequencies for different analyses (empathy has lost cases)
baselineA %>%

   count(Time1AgeYears)
```
#Find language status frequencies using count function.
```{r}
baselineR %>%
  group_by(Group, School) %>%
   count(LanguageStatus)
```

#Find gender frequencies using count function.
```{r}
baselineR %>%
   group_by(Group, School) %>%
     count(Gender)
```

#Find overall N for each timepoint.
```{r}
baselineR %>%
  count(Group)
```

#Find overall N for each timepoint by gender.
```{r}
baselineR %>%
group_by(Gender) %>%
  count(Group)
```

#Find overall N for each timepoint by language status
```{r}
baselineR %>%
group_by(LanguageStatus) %>%
  count(Group)
```

#Find overall N for each timepoint by language status
```{r}
baselineR %>%
group_by(Time1AgeYears) %>%
  count(Group)
```

#this is to generate descriptive statistics for my data - whole sample and by group
```{r }
summary(baselineR)
```

```{r }
summary(baselineA)
```

```{r }
summary(baselineB)
```

#Baseline comparisons betwween groups.
#the data can stay as 'wide data' for these t tests
#This is to run independent t tests comparing the Young Interpreter A children and the control B children on each of their baseline assessments.
#change the argument after(DV)
```{r }
t.test(RavensRS ~ Group, data = baselineR, var.equal = T)          #not significant

```
t.test(RavensSS ~ Group, data = baselineR, var.equal = T)                    #not significant
####################################
t.test(RavensPercent ~ Group, data = baselineR, var.equal = T)       #not significant       GOOD
NEWS
t.test(BPVSRS ~ Group, data = baselineR, var.equal = T)            #not significant     GROUPS DID
NOT DIFFER ON BASEINE Ax        #not significant
t.test(TOWKWORS ~ Group, data = baselineR, var.equal = T)           #not significant
t.test(TOWKSynRS ~ Group, data = baselineR, var.equal = T)         #not significant
```

#This is to run independent t tests comparing the Young Interpreter A children and the control B children on each of their baseline assessments.
#change the argument after t.test(DV)
```{r }
t.test(RavensRS ~ Group, data = baselineR, var.equal = T)
t.test(RavensSS ~ Group, data = baselineR, var.equal = T)
t.test(RavensPercent ~ Group, data = baselineR, var.equal = T)
t.test(BPVSRS ~ Group, data = baselineR, var.equal = T)
t.test(BPVSSS ~ Group, data = baselineR, var.equal = T)
t.test(BPVSPercent ~ Group, data = baselineR, var.equal = T)
t.test(TOWKWORS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKWOSS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKWORS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKWOPercent ~ Group, data = baselineR, var.equal = T)
t.test(TOWKSynRS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKSySS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKSynRS ~ Group, data = baselineR, var.equal = T)
t.test(TOWKSynPercent ~ Group, data = baselineR, var.equal = T)
```
```

Appendix Q.   **R Script - Empathy analyses**

---
title: "Final empathy analyses"
author: "DKP"
date: "2023-04-14"
output: html_document

#Young Interpreter Scheme - empathy data measured using EmQue-CA. #2 groups of chidren, Young Interpreters (Group A) and non Young Interpreters (Group B) #3 time points. #Dependant variables = 4 empathy scores from 18 items - affective empathy (out of max 14 points), cognitive empathy (max 10), prosocial motivation (max 12) and total empathy (max 36).

#Removed cases
#5A37 - no time 2 or time 3 data
#5B41 - no time 2 or time 3 data

```{r}
#Read in my data frame for main A/B comparisons which is empathy
library(readr)
empathy <-    read_csv("C:/Users/bc813168/OneDrive    -    University    of Reading/PhD/Data/empathy/empathy.csv")
View(empathy)
```

```{r}
#Remove ID 3B25 at time 3 as no data.
empathy <- empathy [-c(44, 162),]
```

```{r}
#change timepoint to factor
empathy$Timepoint <- as.factor(empathy$Timepoint)
#change time 1 age years to numerical scale.
empathy$Time1AgeYears <- as.numeric(empathy$Time1AgeYears)
```

Total empathy
#Total empathy - Box plot
```{r}
#Make a box plot for the overall mean for each group at each timepoint.
boxplot(TotalEmpathy ~ Group*Timepoint,
    names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
    col=c("pink", "purple"), empathy,
    main = "Boxplot of Total empathy scores at each timepoint for each group." )
```

Total empathy descriptives organized into groups and timepoints.
```{r}
#Compute summary statistics for the variable Total empathy organized into groups and timepoints.
#Load package for summary SE
library(Rmisc)

```r
TEsummary <- summarySE(empathy, measurevar = "TotalEmpathy", groupvars = c("Timepoint", "Group"))
TEsummary
```

#Total empathy line graph
```{r}
#Draw a line graph.
TEplot <- ggplot(TEsummary, aes(x = Timepoint, y = TotalEmpathy, group = Group, colour = Group)) +
 geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_line(aes(color = Group),  size = 1) +
   geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Total empathy  Score") +
  geom_errorbar(aes(ymin = TotalEmpathy - se, ymax = TotalEmpathy + se), width = .1, postition = TEsummary) +
            geom_line(postition = TEsummary)+
            geom_point(postition = TEsummary, size=2, shape=20, fill="black") +
  theme_classic() +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
      legend.box = "horizontal")
TEplot
```

#Make a data frame for A children only and look at gender differences.
```{r}
empathyA <- empathy[empathy$Group == "A",]
View(empathyA)
```


#Total empathy descriptives for Young Interpreter children only, by timepoint.
```{r}
empathyA %>%
   group_by (Timepoint, Gender) %>%
   dplyr::summarise (mean(TotalEmpathy), sd(TotalEmpathy))
#Must tell R to use dplyr package or else it doesn't compute.
```

#Make a data frame for B children only and look at gender differences.
```{r}
empathyB <- empathy[empathy$Group == "B",]
View(empathyB)
```


#Descriptives for CONTROL children only, by timepoint.
```{r}
empathyB %>%
```

```
    group_by (Timepoint, Gender) %>%
    dplyr::summarise (mean(TotalEmpathy), sd(TotalEmpathy))
```

#Affective empathy - Box plot
```{r}
#Make a box plot for the overall mean for each group at each timepoint.
boxplot(AffectiveEmp ~ Group*Timepoint,
    names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
    col=c("pink", "purple"), empathy,
    main = "Boxplot of Affective Empathy scores at each timepoint for each group." )
```

#Affective empathy - descriptive statistics organized into groups and timepoints
```{r}
#Compute summary statistics for the variable Affective Empathy organized into groups and timepoints.
#Load package for summary SE
library(Rmisc)
AEsummary <- summarySE(empathy, measurevar = "AffectiveEmp", groupvars = c("Timepoint",
"Group"))
AEsummary
```

```{r}
#Compute summary statistics for the variable Affective Empathy organized into groups and timepoints.
#Load package for summary SE
library(Rmisc)
AEsummary2 <- summarySE(empathy, measurevar = "AffectiveEmp", groupvars = c("Timepoint",
"Group", "Gender"))
AEsummary2
```

#Affective empathy line graph
```{r}
#Draw a line graph.
library(ggplot2)
AEplot <- ggplot(AEsummary, aes(x = Timepoint, y = AffectiveEmp, group = Group, colour = Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_line(aes(color = Group),  size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
   ylab("Affective Empathy Score") +
  geom_errorbar(aes(ymin = AffectiveEmp - se, ymax = AffectiveEmp + se), width = .1, postition =
AEsummary) +
          geom_line(postition = AEsummary)+
          geom_point(postition = AEsummary, size=2, shape=20, fill="black") +
  theme_classic() +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
```

```
    theme(legend.position = "bottom",
        legend.box = "horizontal")
AEplot
```
```

#Affective descriptives for Young Interpreter children only, by timepoint.
```{r}
empathyA %>%
    group_by (Timepoint, Gender) %>%
    dplyr::summarise (mean(AffectiveEmp), sd(AffectiveEmp))
```

#Affective descriptives for CONTROL children only, by timepoint.
```{r}
empathyB %>%
    group_by (Timepoint, Gender) %>%
    dplyr::summarise (mean(AffectiveEmp), sd(AffectiveEmp))
```

####Cognitive Empathy ###
#Cognitive empathy - Box plot
```{r}
#Make a box plot for the overall mean for each group at each timepoint.
boxplot(CognitiveEmp ~ Group*Timepoint,
        names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
        col=c("pink", "purple"), empathy,
        main = "Boxplot of Cognitive Empathy scores at each timepoint for each group." )
```

Cognitive Empathy descriptives organized into groups and timepoints.
```{r}
#Compute summary statistics for the variable Cognitive Empathy organized into groups and
timepoints.
#Load package for summary SE
library(Rmisc)
CEsummary <- summarySE(empathy, measurevar = "CognitiveEmp", groupvars = c("Timepoint",
"Group"))
CEsummary
```

#Cognitive empathy line graph
```{r}
#Draw a line graph.
library(ggplot2)
CEplot <- ggplot(CEsummary, aes(x = Timepoint, y = CognitiveEmp, group = Group, colour = Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_line(aes(color = Group),  size = 1) +
    geom_point(aes(color = Group), size = 3) +
    xlab("Timepoint") +
  ylab("Cognitive Empathy Score") +
```

```
      geom_errorbar(aes(ymin = CognitiveEmp - se, ymax = CognitiveEmp + se), width = .1, postition =
CEsummary) +
            geom_line(postition = CEsummary)+
            geom_point(postition = CEsummary, size=2, shape=20, fill="black") +
  theme_classic() +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
      legend.box = "horizontal")
CEplot
```

#Cognitive descriptives for Young Interpreter children only, by timepoint.
```{r}
empathyA %>%
  group_by (Timepoint, Gender) %>%
  dplyr::summarise (mean(CognitiveEmp), sd(CognitiveEmp))
```

#Descriptives for CONTROL children only, by timepoint.
```{r}
empathyB %>%
  group_by (Timepoint, Gender) %>%
  dplyr::summarise (mean(CognitiveEmp), sd(CognitiveEmp))
```

Prosocial motivation
#Prosocial motivation - Box plot
```{r}
#Make a box plot for the overall mean for each group at each timepoint.
boxplot(ProsocialMotivation ~ Group*Timepoint,
      names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
      col=c("pink", "purple"), empathy,
      main = "Boxplot of Prosocial motivation scores at each timepoint for each group." )
```

Prosocial Motivation descriptives organized into groups and timepoints.
```{r}
#Compute summary statistics for the variable ProsocialMotivation organized into groups and
timepoints.
PMsummary  <-  summarySE(empathy,  measurevar  =  "ProsocialMotivation",  groupvars  =
c("Timepoint", "Group"))
PMsummary
```

#Prosocial Motivation line graph
```{r}
#Draw a line graph.
PMplot <- ggplot(PMsummary, aes(x = Timepoint, y = ProsocialMotivation, group = Group, colour =
Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
```

```
  geom_line(aes(color = Group),  size = 1) +
   geom_point(aes(color = Group), size = 3) +
 xlab("Timepoint") +
 ylab("Prosocial Motivation Score") +
 geom_errorbar(aes(ymin = ProsocialMotivation - se, ymax = ProsocialMotivation + se), width = .1,
postition = PMsummary) +
            geom_line(postition = PMsummary)+
            geom_point(postition = PMsummary, size=2, shape=20, fill="black") +
 theme_classic() +
scale_x_discrete(limit = c("1", "2", "3")) +
 theme(text = element_text(family = "Calibri", size = 11))+
 theme(plot.background = element_rect(fill = "white")) +
 theme(panel.background = element_rect(fill = "white")) +
 theme(legend.position = "bottom",
      legend.box = "horizontal")
PMplot
```


#Prosocial Motivation descriptives for Young Interpreter children only, by timepoint.
```{r}
empathyA %>%
   group_by (Timepoint, Gender) %>%
   dplyr::summarise (mean(ProsocialMotivation), sd(ProsocialMotivation))
```

#Descriptives for CONTROL children only, by timepoint.
```{r}
empathyB %>%
   group_by (Timepoint, Gender) %>%
   dplyr::summarise (mean(ProsocialMotivation), sd(ProsocialMotivation))
```

Mixed effects models
#fully crossed crossed random effects (not nested).
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they
are "significant" or not: they are part of your design and have to be included. We tested our children
multiple times - we then have to fit children as a random effect.

It is good practice to standardise your explanatory variables before proceeding so that they have a
mean of zero ("centering") and standard deviation of one ("scaling"). It ensures that the estimated
coefficients are all on the same scale, making it easier to compare effect sizes.
#scale() centers the data (the column mean is subtracted from the values in the column) and then
scales it (the centered column values are divided by the column's standard deviation).


```{r}
#change timepoint to factor
empathy$Timepoint <- as.factor(empathy$Timepoint)
#change time 1 age years to numerical scale.
empathy$Time1AgeYears <- as.numeric(empathy$Time1AgeYears)
```

```{r}
empathy$Time1AgeYearsCEN <- scale(empathy$Time1AgeYears, center = TRUE, scale = TRUE)
empathy$RavensSSCEN <- scale(empathy$RavensSS, center = TRUE, scale = TRUE)
empathy$BPVSRSCEN <- scale(empathy$BPVSRS, center = TRUE, scale = TRUE)
empathy$TOWKWORSCEN <- scale(empathy$TOWKWORS, center = TRUE, scale = TRUE)
empathy$TOWKSynRSCEN <- scale(empathy$TOWKSynRS, center = TRUE, scale = TRUE)
```


```{r}
install.packages("lme4")
install.packages("lmerTest")
library(lme4)
library(lmerTest)
```


#Total empathy - Linear mixed effects models.
#Total empathy base model - All random and baseline fixed effects
```{r}
TEmodelbase <- lmer(TotalEmpathy ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + (1 |ID) , data = empathy, REML = TRUE)
summary(TEmodelbase)
```
#Base model - All random and baseline fixed effects + gender
```{r}
#Add fixed effect of gender
TEmodel_gender <- lmer(TotalEmpathy ~ Group * Timepoint +  Gender + (1 |ID) , data = empathy, REML = TRUE)
summary(TEmodel_gender)
```
#Base model - All random and baseline fixed effects + age
```{r}
#Add the fixed effect of age
TEmodel_age <- lmer(TotalEmpathy ~ Group * Timepoint +  Time1AgeYearsCEN  + (1 |ID) , data = empathy, REML = TRUE)
summary(TEmodel_age)
```
#Total empathy model comparison
```{r}
#Compare the models for model fit
anova (TEmodelbase,  TEmodel_gender, TEmodel_age)
```
#Affective Empathy - Linear mixed effects models.
#Affective base model All random and baseline fixed effects
```{r}
AEmodelbase <- lmer(AffectiveEmp ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + (1 |ID) , data = empathy)
summary(AEmodelbase)
```
#Affective base model plus gender
```{r}
#Add the fixed effect of gender
```

AEmodel_gender <- lmer(AffectiveEmp ~ Group * Timepoint + + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + Gender + (1 |ID) , data = empathy)
summary(AEmodel_gender)
```

```{r}
#Compare the models for model fit
anova (AEmodelbase, AEmodel_gender)
```

#Affective base model plus age
```{r}
#Add the fixed effect of age
AEmodel_age <- lmer(AffectiveEmp ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + Time1AgeYearsCEN + (1 |ID) , data = empathy)
summary(AEmodel_age)
```

#Affective empathy model comparison
```{r}
#Compare the models for model fit
anova (AEmodelbase, AEmodel_age)
```

#AE model final
```{r}
AEmodel_final <- lmer(AffectiveEmp ~ Group * Timepoint + Gender + (1 |ID) , data = empathy)
summary(AEmodel_final)
```

#Affective empathy model comparison
```{r}
#Compare the models for model fit
anova (AEmodelbase, AEmodel_final)
```

```{r}
confint.merMod(AEmodel_final)
```

#Checking assumptions
```{r}
# Checking that the residuals are normally distributed
AEmodel_final <- resid(AEmodel_final) # Extracting the residuals
shapiro.test(AEmodel_final) # Using the Shapiro-Wilk test
# The null hypothesis of normal distribution is accepted
```

#Affective empathy model R squared.
```{r}
install.packages("MuMIn")
library(MuMIn)
```

```{r}

```
# Calculate R-squared values for AEmodel_final
conditional_r2 <- MuMIn::r.squaredGLMM(AEmodel_final, method = "conditional")
marginal_r2 <- MuMIn::r.squaredGLMM(AEmodel_final, method = "marginal")
conditional_r2
marginal_r2
```

#post hoc tests for overal score model
```{r}
library (emmeans)
lsmeans(AEmodel_final, pairwise ~ Gender * Timepoint, adjust = "tukey")
```

#post hoc tests for overal score model
```{r}
library (emmeans)
lsmeans(AEmodel_final, pairwise ~ Timepoint * Group, adjust = "tukey")
```

#Cognitive Empathy - Linear mixed effects models.
#Cognitive base model
```{r}
CEmodelbase <- lmer(CognitiveEmp ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN + (1 |ID) , data = empathy)
summary(CEmodelbase)
```

#Cognitive base model plus gender
```{r}
#Add the fixed effect of gender
CEmodel_gender <- lmer(CognitiveEmp ~ Group * Timepoint + + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN + Gender + (1 |ID) , data = empathy )
summary(CEmodel_gender)
```

#Cognitive empathy model comparison
```{r}
#Compare the models for model fit
anova (CEmodelbase, CEmodel_gender)
```

#Cognitive base model plus age
```{r}
#Add the fixed effect of age
CEmodel_age <- lmer(CognitiveEmp ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN + Time1AgeYearsCEN + (1 |ID) , data = empathy )
summary(CEmodel_age)
```

#Cognitive empathy model comparison
```{r}
#Compare the models for model fit
anova (CEmodelbase, CEmodel_age)
```

```
```

```
#Cognitive empathy final model
```{r}
CEmodel_final <- lmer(CognitiveEmp ~ Group * Timepoint  + Time1AgeYears + (1 |ID) , data = empathy)
summary(CEmodel_final)
```
```

```
#Cognitive empathy model comparison
```{r}
#Compare the models for model fit
anova (CEmodel_age, CEmodel_final)
```
```

```
#Cognitive empathy model R squared.
```{r}
#Compute R squared
#Load package
require(MuMIn)
r.squaredGLMM(CEmodel_final)
```
```

```
#confidence intervals for Cognitive empathy final model
```{r}
confint.merMod(CEmodel_final)
```
```

```
```{r}

lsmeans(CEmodel_final, pairwise ~ Timepoint * Group , adjust = "tukey")
```
```

```
```{r}
# Convert "Group" variable to factor
empathy$Group <- factor(empathy$Group)

# Fit the model with updated "Group" variable
CEmodel_final <- lmer(CognitiveEmp ~ Timepoint * Group * Time1AgeYears + (1 | ID), data = empathy)
```
```

```
```{r}
# Load libraries
library(dplyr)

# Define dif function
dif <- function(x, lag = 1) {
  c(diff(x, lag), rep(NA, lag))
}

# Calculate differences in lsmeans scores for each age
empathy_diff <- empathy %>%
  group_by(Time1AgeYears, Timepoint) %>%
```

```r
  summarize(CognitiveEmp_diff = dif(CognitiveEmp))

# View result
empathy_diff
```

```r
library(dplyr)

empathy_avg <- empathy %>%
  group_by(Time1AgeYears, Group, Timepoint) %>%
  summarize(avg_score = mean(CognitiveEmp, na.rm = TRUE))

# View result
empathy_avg
```

```r
# Load libraries
library(lme4)
library(lmerTest)
library(multcomp)

empathy$Time1AgeYears <- factor(empathy$Time1AgeYears)
CEmodel_agesplit <- lmer(CognitiveEmp ~ Group*Timepoint + Time1AgeYears + (1|ID), data =
empathy)
summary(CEmodel_agesplit)
```

```r
anova(CEmodel_gender, CEmodel_agesplit)
```

#confidence intervals for Cognitive empathy final model
```r
confint.merMod(CEmodel_agesplit)
```
```r
r.squaredGLMM(CEmodel_agesplit)
```

```r
lsmeans(CEmodel_agesplit, pairwise ~ Time1AgeYears, adjust = "tukey")
```

#Prosocial Motivation - Linear mixed effects models.

#Prosocial Motivation base model
```{r}
PMmodelbase <- lmer(ProsocialMotivation ~ Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN + Gender + Time1AgeYears + (1 |ID) , data = empathy)
summary(PMmodelbase)
```

#Prosocial Motivation base model plus gender
```{r}
#Add the fixed effect of gender
PMmodel_gender <- lmer(ProsocialMotivation ~ Group * Timepoint + Gender + (1 |ID) , data = empathy)
summary(PMmodel_gender)
```

#Prosocial Motivation base model plus age
```{r}
#Add the fixed effect of age
PMmodel_age <- lmer(ProsocialMotivation ~ Group * Timepoint + Time1AgeYears  + (1 |ID) , data = empathy)
summary(PMmodel_age)
```

```{r}
lsmeans(PMmodel_age, pairwise ~ Time1AgeYears, adjust = "tukey")
```


Were there some items on the empathy questionniare that were more or less likely to get a higher or lower score?
#What were these items targeting?

Whole sample
#Answering options: Not True (0) – Sometimes True (1) – Often True(2)

#Affective Empathy (Contagion) items
1. If my mother is happy, I also feel happy .
4. I feel awful when two people argue -
7. If a friend is sad, I also feel sad -
10. If a friend is laughing, I also laugh
13. When a friend cries, I cry myself
16. If someone in my family is sad, I feel really bad
18. When a friend is upset, I feel upset too -

```{r}
#Means for whole sample - affective empathy
empathyempathyAEMeans <- colMeans(empathy [, c(31, 34, 37, 40, 43, 46, 48), sapply (empathy, is.numeric)], na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
   print()
```

```{r}
#Means for YI children - affective empathy
```

```r
empathyA_AEmeans <- colMeans(empathyA [, c(31, 34, 37, 40, 43, 46, 48), sapply (empathyA, is.numeric)], na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
    print()
```

#Answer frequencies - Affective Empathy YI children only.
```r
#Answer frequencies  - Affective Empathy YI children only.
table(empathyA$'1AE')
table(empathyA$'4AE')
table(empathyA$'7AE')
table(empathyA$'10AE')
table(empathyA$'16AE')
table(empathyA$'18AE')
```


```r
#Means for B children  - affective empathy
empathyB_AEmeans <- colMeans(empathyB [, c(31, 34, 37, 40, 43, 46, 48), sapply (empathyB, is.numeric)], na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
    print()

```

#Answer frequencies - Affective Empathy control children only.
```r
#Answer frequencies  - Affective Empathy control children only.
table(empathyB$'1AE')
table(empathyB$'4AE')
table(empathyB$'7AE')
table(empathyB$'10AE')
table(empathyB$'16AE')
table(empathyB$'18AE')
```


#Girls
#Boys

#Cognitive Empathy (Understanding)**
2. I understand that a friend is ashamed when he/she has done something wrong
5. When a friend is angry, I tend to know why
8. I understand that a friend is proud when he/she has done something good -
11. If a friend is sad, I understand mostly why
14. If a friend cries, I often understand what has happened

```r
#Means for whole sample - cognitive empathy
empathyCEMeans <- colMeans(empathy [, c(32, 35, 38, 41, 44), sapply (empathy, is.numeric)], na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
```

```r
  print()
```

```r
#Means for YI children - cognitive empathy
empathyA_CEMeans <- colMeans(empathyA [, c(32, 35, 38, 41, 44), sapply (empathyA, is.numeric)],
na.rm=TRUE)  %>%     #These are the means across all timepoints.
as_tibble(rownames="rowame")  %>%
  print()
```

#Answer frequencies - Cognitive Empathy YI children only.
```r
#Answer frequencies  - Cognitive Empathy YI children only.
table(empathyA$'2CE')
table(empathyA$'5CE')
table(empathyA$'8CE')
table(empathyA$'11CE')
table(empathyA$'14CE')
```

```r
#Means for control children - cognitive empathy
empathyB_CEMeans <- colMeans(empathyB [, c(32, 35, 38, 41, 44), sapply (empathyB, is.numeric)],
na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
  print()
```

```r
#Frequencies for control children - cognitive empathy
table(empathyB$'2CE')
table(empathyB$'5CE')
table(empathyB$'8CE')
table(empathyB$'11CE')
table(empathyB$'14CE')
```

#Prosocial motivation (support) items
3. If a friend is sad, I like to comfort him *
6. I would like to help when a friend gets angry
9. If a friend has an argument, I try to help
15. If a friend is sad, I want to do something to make it better *
17. I enjoy giving a friend a gift

```r
#Means for whole sample - Prosocial motivation
empathyPMMeans <- colMeans(empathy [, c(33, 36, 39, 42, 45, 47), sapply (empathy, is.numeric)],
na.rm=TRUE)  %>%
as_tibble(rownames="rowame")  %>%
  print()
```

```
```

```{r}
#Means for YI children - Prosocial motivation
empathyA_PMMeans <- colMeans(empathyA [, c(33, 36, 39, 42, 45, 47), sapply (empathyA, is.numeric)], na.rm=TRUE) %>%     #These are the means across all timepoints.
as_tibble(rownames="rowame") %>%
    print()
```

```{r}
#Frequencies for YI children  - Prosocial motivation
table(empathyA$'3PM')
table(empathyA$'6PM')
table(empathyA$'9PM')
table(empathyA$'12PM')
table(empathyA$'15PM')
table(empathyA$'17PM')
```

```{r}
#Means for control children - Prosocial motivation
empathyB_PMMeans <- colMeans(empathyB [, c(33, 36, 39, 42, 45, 47), sapply (empathyB, is.numeric)], na.rm=TRUE) %>%
as_tibble(rownames="rowame") %>%
    print()
```

```{r}
#Frequencies for control children  - Prosocial motivation
table(empathyB$'3PM')
table(empathyB$'6PM') #No B child answered 'not true' to "I would like to help when a friend gets angry "
table(empathyB$'9PM')
table(empathyB$'12PM')
table(empathyB$'15PM') #No B child answered 'not true' to "If a friend is sad, I want to do something to make it better "
table(empathyB$'17PM')
```

Appendix R.   R Script - Word re-ordering analyses

---
title: "Final explaining words analyses"
author: "DKP"
date: '2023-04-03'
output: html_document

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

#Young Interpreter Scheme - Explaining words data. #2 groups of chidren,
#2 groups - Young Interpreters (Group A) and non Young Interpreters (Group B)
#3 time points.
#6 samples per participant per time point.
#Dependant variable = 1 score out of 10 for each of 6 words (items)
#max score per word = 10;
#max score per time point = 60.

```{r}
#Read in my data frame for main A/B comparisons which is explainingwords
library(readr)
library(readr)
explainingwords    <-    read_csv("C:/Users/bc813168/OneDrive    -    University    of
Reading/PhD/Data/explaining words/explainingwords.csv")
View(explainingwords)
```

#I need to add a total score column to this dataframe.
```{r}
# create a new column that sums up the values of the 6 existing columns
explainingwords$Total <- rowSums(explainingwords[,c(27, 29, 31, 33, 35, 37)])

# rename the column at position 38 to "TotalScore"
names(explainingwords)[38] <- "TotalScore"

# print the dataframe to verify the new column was added at position 38
View(explainingwords)

# save the modified dataframe to the existing dataframe
explainingwords <- explainingwords
```

```{r}
# Create a correlation matrix
# Subset the data to include only the columns of interest
subset_df <- explainingwords[, c(15, 17, 20, 23)]

# Calculate the correlation matrix

```
cor_matrix <- cor(subset_df)

# Print the correlation matrix
print(cor_matrix)
```

```{r}
#change time 1 age years to numerical scale.
explainingwords$Time1AgeYears <- as.numeric(explainingwords$Time1AgeYears)
#change timepoint to factor
explainingwords$Timepoint <- as.factor(explainingwords$Timepoint)
```


#Find frequencies using count function.
#Frequencies for gender, language status and age needed.
```{r}
install.packages("dplyr")
install.packages("tidyr")
library(dplyr)
library(tidyr)
```


##find frequencies of gender for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(Gender, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(Gender)
```

#find frequencies of language status for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(LanguageStatus, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(LanguageStatus)
```

##find frequencies of age for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(Time1AgeYears, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(Time1AgeYears)
```

```{r}
#distribution of response variables
hist(explainingwords$Score1)
hist(explainingwords$Score2)
hist(explainingwords$Score3)
hist(explainingwords$Score4)
```

```r
hist(explainingwords$Score5)
hist(explainingwords$Score6)
```

```{r}
#Summary of N for each group at each timepoint.
explainingwords <- na.omit(explainingwords)
(summaryN <- plyr::count(explainingwords, c("Timepoint", "Group"))) #put plyr so it uses this package
and not dplyr or it gets confused
```

#Make long data frame.
```{r}
#Make long data frame.
library(tidyverse)
expwordslong <- pivot_longer(
  data = explainingwords,
  cols = starts_with("Score"), # Only select the "Score" columns for pivoting
  names_prefix = "Score", # Remove the "Score" part of the original column name
  names_to = "Item", # Put what's left of the original column names (hopefully just the number) in a
column called "Item"
  values_to = "Score" # Put the corresponding values into a column called "Score"
  ) %>%
  select (-matches("Item+[0-9]")) # Drop all the original Item columns (optional, but recommended)
View(expwordslong)
```

It is good practice to standardise your explanatory variables before proceeding so that they have a
mean of zero ("centering") and standard deviation of one ("scaling"). It ensures that the estimated
coefficients are all on the same scale, making it easier to compare effect sizes.
#scale() centers the data (the column mean is subtracted from the values in the column) and then
scales it (the centered column values are divided by the column's standard deviation).
```{r}
expwordslong$Time1AgeYearsCEN <- scale(expwordslong$Time1AgeYears, center = TRUE, scale =
TRUE)
expwordslong$RavensSSCEN <- scale(expwordslong$RavensSS, center = TRUE, scale = TRUE)
expwordslong$BPVSRSCEN <- scale(expwordslong$BPVSRS, center = TRUE, scale = TRUE)
expwordslong$TOWKWORSCEN <- scale(expwordslong$TOWKWORS, center = TRUE, scale = TRUE)
expwordslong$TOWKSynRSCEN <- scale(expwordslong$TOWKSynRS, center = TRUE, scale = TRUE)
View(expwordslong)
```

#Compute summary statistics for the variable Explaining words score by groups and timepoints.
#Load package for summary SE
```{r}
#summary statistics to enable a line graph to be drawn.
#Need to compute the total score (not the average per item as this is what this code does)
library(Rmisc)
expwordslong <- na.omit(expwordslong)
expwordssummary <- summarySE(expwordslong, measurevar = "TotalScore", groupvars =
c("Timepoint", "Group"))
```

expwordssummary
```

#Draw a line graph for total scores per group and timepoint.
```{r}
expwordstotalplot <- ggplot(expwordssummary, aes(x = Timepoint, y = TotalScore, colour = Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_line(aes(color = Group),  size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Explaining Words Total Score") +
  geom_errorbar(aes(ymin = TotalScore - se, ymax = TotalScore + se), width = .1, postition = expwordssummary) +
  geom_line(postition = expwordssummary)+
  geom_point(postition = expwordssummary, size=2, shape=20, fill="black") +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
      legend.box = "horizontal")
 #ggtitle("Explaining Words total scores")

expwordstotalplot  #display the plot
```

#Make a box plot for the overall score for each group at each timepoint.
```{r}
boxplot(TotalScore ~ Group*Timepoint,
      names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
      col=c("pink", "purple"), expwordslong,
      main = "Boxplot of Explaining words  Total scores at each timepoint for each group." )
#Outlier at time 2 for 1 YI child.
```

#Linear models
#As we don't expect all children to exhibit the same relationship between timepoint and score (fixed slope), though do expect some may be better than others to start wiht (random intercept).
#So want to fit random slop and random intercept model.
#Model failed to converge with slopes.
#fully crossed crossed random effects (not nested).
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they are "significant" or not: they are part of your design and have to be included. We tested our children multiple times - we then have to fit children as a random effect.

```{r}
install.packages("lme4")
install.packages("lmerTest")
library(lme4)

```
library(lmerTest)
base <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN + (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
#fully crossed crossed random effects (not nested).
summary(base)
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they
are "significant" or not: they are part of your design and have to be included. We tested our children
multiple times - we then have to fit children as a random effect.
```

#Base model - All random and baseline fixed effects + gender
```{r}
base1 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + Gender +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base1)
```
#Model comparison base and base + gender
```{r}
anova(base, base1)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Gender not kept in model.
```

#Base model - All random and baseline fixed effects + age
```{r}
base2 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + Time1AgeYearsCEN +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base2)
```

```{r}
#checking for multicollinearity
#Issues if numbers over 10
vif(base2)
```

#Model comparison base and base + age
```{r}
anova(base, base2)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Age not kept in model.
```
`

#Base model - All random and baseline fixed effects + language status
```

```r
base3 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + LanguageStatus +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base3)
```

#Model comparison base and base + language status
```r
anova(base, base3)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Language Status not kept in model.
```

#Model comparison of 4 models so far
```r
anova(base, base1, base2, base3)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant differences.
#Base model retained.
```

#Base model retaining only sig baseline fixed effects.
```r
base4 <- lmer(Score ~  Group * Timepoint + TOWKSynRSCEN  +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base4)
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they
are "significant" or not: they are part of your design and have to be included. We tested our children
multiple times - we then have to fit children as a random effect.
```

```r
#Compare base model to base with only sig fixed effect
anova(base, base4)
#No sig difference, but base4 AIC lower.
#Optimal model is model 4 (baseline, interactions, random effect, and fixed effect of synonyms.)
```

```r
confint.merMod(base4)
```

#Checking assumptions
```r
# Checking that the residuals are normally distributed
base4.resid <- resid(base4) # Extracting the residuals
shapiro.test(base4.resid) # Using the Shapiro-Wilk test
```

The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(Score ~ Timepoint, data = expwordslong)
# The null hypothesis of homoscedasticity is rejected.
```

#Produce co-efficeints of base model4.
```{r}
# Get the summary table with t-values and degrees of freedom
# Load the necessary packages
install.packages("lme4")
install.packages("broom.mixed")
install.packages("sjPlot")
library(lme4)
library(broom.mixed)
library(sjPlot)

# Extract the coefficients table using broom.mixed
coeff_table <- tidy(base4, effects = "fixed")
coeff_table
```
```{r}
library(car)
Anova(base4, type = 3)
```

```{r}
# Extract the random effects for ID
re_effects <- ranef(base4)

# Extract the variance and SD for participant
participant_var <- attr(re_effects$ID, "postVar")[1]
participant_sd <- sqrt(participant_var)

# Extract the variance and SD for residual
residual_var <- summary(base4)$sigma^2
residual_sd <- sqrt(residual_var)

# Print the results
cat("Participant random effect variance: ", participant_var, "\n")
cat("Participant random effect SD: ", participant_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
# Extract the random effects for Item
```

```r
re_effects <- ranef(base4)

# Extract the variance and SD for item
item_var <- attr(re_effects$Item, "postVar")[1]
item_sd <- sqrt(item_var)


# Extract the variance and SD for residual
residual_var <- summary(base4)$sigma^2
residual_sd <- sqrt(residual_var)


# Print the results
cat("Item random effect variance: ", item_var, "\n")
cat("Item random effect SD: ", item_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
library(MuMIn)
# Calculate conditional and marginal R-squared for base4
r.squaredGLMM(base4) #conditional_r2
r.squaredGLMM(base4, which = "fixed") #marginal_r2 <-
```

```{r Confidence intervals}
confint.merMod(base4)$coefficients
```

#post hoc tests for overal score model
#compare Timepoint 3 to the other timepoints instead of comparing Timepoint 1 to the other timepoints,

```{r}
# Change the reference level of Timepoint to level 3
expwordslong$Timepoint <- relevel(expwordslong$Timepoint, ref = "3")

# Fit the linear model with the new reference level
base4 <- lmer(Score ~  Group * Timepoint + TOWKSynRSCEN +    (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
```

```{r}
library (emmeans)
lsmeans(base4, pairwise ~ Timepoint * Group , adjust = "tukey")
```

#Exploring the other dependent variables.

#Definition - First, the target word appeared and was presented orally and in written form to the child, and the child was asked "this word is X. Can you tell me what X means?" #If they defined it correctly, they got 2 points.

Irrespective of whether the correct definition was provided at the first stage, the child was then shown and read a sentence with the target word in before being asked "what #do you think X means now?." If the child was now able to define the word, after being given a sentence for context, they got 1 point.

#If they still couldn't define the word with the help of a sentence, they got 0 points.

#Decomposition - could the child break the word down into smaller bits of meaning? 1 point per morpheme identified. (max = 2 points)

#"With the test item and example sentence displayed on screen, the child was asked "can you break the word down and find bits of meaning? "

#Morpheme Meaning - could the child define the morphemes that they identify? "what do those words mean?" 1 point per correct meaning. (max = 2 points) n.b. some children only identified one morpheme so only #attempted to define one.

#Bonus

#The child also received up to four bonus points for using grammatical terminology such as part of speech, using the term 'prefix' or 'suffix,' using the term 'compound word' and using the term 'root word'.

#Load in data file for sub scores.
```{r}
#Load in data file for sub scores.
library(readr)
expwordssub <- read_csv("C:/Users/bc813168/OneDrive - University of Reading/PhD/Data/explaining words/expwordssub.csv")
View(expwordssub)
```

```{r}
expwordssub <- na.omit(expwordssub)
View(expwordssub)
```

```{r}
#change time 1 age years to numerical scale.
expwordssub$Time1AgeYears <- as.numeric(expwordssub$Time1AgeYears)
#change timepoint to factor
#MUST do or EM means and model don't work accurately.
expwordssub$Timepoint <- as.factor(expwordssub$Timepoint)
```

#Descriptive data - overall DEFINITION total for each group at each timepoint.
#Compute summary statistics for the variable Explaining words score by groups and timepoints.
#Load package for summary SE

```{r}
expwordssubdef <- summarySE(expwordssub, measurevar = "TotalDef", groupvars = c("Timepoint", "Group"))
```

expwordssubdef
```

#Draw a line graph for the Explaining Words DEFINITION Total
```{r}
expwordsdefplot <- ggplot(expwordssubdef, aes(x = Timepoint, y = TotalDef, colour = Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Explaining words tasks - Mean Definition score") +
  geom_line(aes(group = Group), size = 1) +
  geom_point(aes(color = Group), size = 3, shape = 20, fill = "black") +
  geom_errorbar(aes(ymin = TotalDef - se, ymax = TotalDef + se), width = 0.1) +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
      legend.box = "horizontal")
  #ggtitle("Explaining words tasks - Mean Definition score")

expwordsdefplot  #display the plot
```

#Descriptive data - overall DECOMPSITION Total for each group at each timepoint.
```{r}

expwordssubdec <- summarySE(expwordssub, measurevar = "TotalDec", groupvars = c("Timepoint",
"Group"))
expwordssubdec
```

#Draw a line graph for the Explaining Words DECOMPSITION Total
```{r}
expwordsdecplot <- ggplot(expwordssubdec, aes(x = Timepoint, y = TotalDec, colour = Group)) +

  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Explaining words tasks - Mean Decomposition score") +
  geom_line(aes(group = Group), size = 1) +
  geom_point(aes(color = Group), size = 3, shape = 20, fill = "black") +
  geom_errorbar(aes(ymin = TotalDec - se, ymax = TotalDec + se), width = 0.1) +
  scale_x_discrete(limit = c("1", "2", "3")) +

```
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
       legend.box = "horizontal")
 #ggtitle("Explaining words tasks - Mean Definition score")

expwordsdefplot  #display the plot
```

#Descriptive data - overall MORPHEME Meaning Total for each group at each timepoint.
```{r}
expwordssubmorph <- summarySE(expwordssub, measurevar = "TotalMorph", groupvars =
c("Timepoint", "Group"))
expwordssubmorph
```

#Make a line graph for mean morpheme meaning score
```{r}

 expwordsmorphplot <- ggplot(expwordssubmorph, aes(x = Timepoint, y = TotalMorph, group = Group,
colour = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #change the main line colours
  geom_line(aes(color = Group),size = 1) +  #make the line thicker
  geom_line(aes(color = Group),  size = 1) + #repeat to make the other line thicker
    geom_point(aes(color = Group), size = 3) + #add points to end of lines in same colour as
  xlab("Timepoint") + #label for x axis
  ylab("Explaining Words Morpheme meaning Total Score") +  #label for y axis
  geom_errorbar(aes(ymin = TotalMorph - se, ymax = TotalMorph + se), width = .1, postition =
expwordssubmorph) + #add error bars
            geom_line(postition = expwordssubmorph)+  #error bar formatting
            geom_point(postition = expwordssubmorph, size=2, shape=20, fill="black") + #error bar
formatting
  scale_x_discrete(limit = c("1", "2", "3")) + #manipulate bins on x axis
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+ #add font type and size
   theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
   theme(legend.position = "bottom",
       legend.box = "horizontal")
 # ggtitle("Explaining Words Morpheme meaning total scores") #add title
expwordsmorphplot
```
#Descriptive data - overall BONUS total for each group at each timepoint.
```{r}

expwordssubbonus <- summarySE(expwordssub, measurevar = "TotalBonus", groupvars =
c("Timepoint", "Group"))
expwordssubbonus
```
```

#Make a line graph for bonus scores

````{r}
expwordsbonusplot <- ggplot(expwordssubbonus, aes(x = Timepoint, y = TotalBonus, group = Group, colour = Group)) +
 scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter children", "Non Young Interpreter children")) + #change the main line colours
  geom_line(aes(color = Group),size = 1) +  #make the line thicker
  geom_line(aes(color = Group),  size = 1) + #repeat to make the other line thicker
    geom_point(aes(color = Group), size = 3) + #add points to end of lines in same colour as
 xlab("Timepoint") + #label for x axis
 ylab("Explaining Words Bonus Total  Score") +  #label for y axis
 geom_errorbar(aes(ymin = TotalBonus - se, ymax = TotalBonus + se), width = .1, postition = expwordssubbonus) + #add error bars
            geom_line(postition = expwordssubbonus)+  #error bar formatting
            geom_point(postition = expwordssubbonus, size=2, shape=20, fill="black") + #error bar formatting
 scale_x_discrete(limit = c("1", "2", "3")) + #manipulate bins on x axis
 theme_classic() +
 theme(text = element_text(family = "Calibri", size = 11))+ #add font type and size
  theme(plot.background = element_rect(fill = "white")) +
 theme(panel.background = element_rect(fill = "white")) +
 theme(legend.position = "bottom",
     legend.box = "horizontal")
 # ggtitle("Explaining Words Bonus total scores") #add title
expwordsbonusplot
````

#Model building for sub scores.

#reload sub file
````{r}
#Load in data file for sub scores.
#rename file to explaining words sub2
library(readr)
expwordssub <- read_csv("C:/Users/bc813168/OneDrive - University of Reading/PhD/Data/explaining words/expwordssub.csv")
View(expwordssub)
````

````{r}
#change time 1 age years to numerical scale.
expwordssub$Time1AgeYears <- as.numeric(expwordssub$Time1AgeYears)
#change timepoint to factor
#MUST do or EM means and model don't work accurately.
expwordssub$Timepoint <- as.factor(expwordssub$Timepoint)
````

#Center the baseline variables in the sub data frame.
````{r}
expwordssub$Time1AgeYearsCEN <- scale(expwordssub$Time1AgeYears, center = TRUE, scale = TRUE)
expwordssub$RavensSSCEN <- scale(expwordssub$RavensSS, center = TRUE, scale = TRUE)
````

```
expwordssub$BPVSRSCEN <- scale(expwordssub$BPVSRS, center = TRUE, scale = TRUE)
expwordssub$TOWKWORSCEN <- scale(expwordssub$TOWKWORS, center = TRUE, scale = TRUE)
expwordssub$TOWKSynRSCEN <- scale(expwordssub$TOWKSynRS, center = TRUE, scale = TRUE)
View(expwordssub)
```

#MODEL BUILDING FOR explaining words DEFINITION SCORE
#Definition model - beyong optimal. All random and baseline fixed effects.
```{r}
def.base <- lmer(DefScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + LanguageStatus + Time1AgeYearsCEN + Gender +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(def.base)
#Effects  of group B, synonyms and anotnyms and being monolingual.
```

#Definition model - beyong optimal. Only fixed effects.
```{r}
def.base1 <- lmer(DefScore ~   Group * Timepoint + TOWKWORSCEN + TOWKSynRSCEN   +
LanguageStatus +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(def.base1)
#Effects  of group B, synonyms and anotnyms and almost being monolingual.
```


```{r}
anova(def.base, def.base1)
```


#Decompostion model - beyong optimal. All random and baseline fixed effects.
```{r}
dec.base <- lmer(DecScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + LanguageStatus + Time1AgeYearsCEN + Gender +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(dec.base)
#Effects  of timepoint, and synonyms, almost males and B*timepoint interaction.
```

#Decompostion model - beyong optimal. Only fixed effects.
```{r}
dec.base1 <- lmer(DecScore ~  Group * Timepoint + TOWKSynRSCEN  +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(dec.base1)
```


```{r}
anova(dec.base, dec.base1)
```

#Morpheme model - beyong optimal. All random and baseline fixed effects.
```{r}
morph.base <- lmer(MorphScore ~   Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN  + LanguageStatus + Time1AgeYearsCEN + Gender +
```

```
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(morph.base)
#Effects  of timepoint, and synonyms,  males and almost BPVS
```

#Morpheme model - beyong optimal. Only fixed effects.
```{r}
morph.base1 <- lmer(MorphScore ~  Group * Timepoint + TOWKSynRSCEN  + BPVSRSCEN + Gender +
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(morph.base1)
#Effects  of timepoint, and synonyms,  males and almost BPVS
```

```{r}
anova(morph.base, morph.base1)
```
#MODEL BUILDING FOR explaining words BONUS SCORE
#Base bonus model - beyong optimal. All random and baseline fixed effects.
```{r}
bonus.base <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN
+ TOWKSynRSCEN  +
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base)
#Effect of Ravens standard score.
```

#Base model - All random and baseline fixed effects + gender
```{r}
bonus.base1 <- lmer(BonusScore ~   Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN  + Gender +
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base1)
#Gender doesn't add anything.
```

#Model comparison base and base + gender
```{r}
anova(bonus.base, bonus.base1)
#No significant difference. Gender not kept in model.
```

#Base model - All random and baseline fixed effects + age
```{r}
bonus.base2 <- lmer(BonusScore ~   Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN  + Time1AgeYearsCEN +
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base2)
#Age doesn't add anything.
```

#Model comparison base and base + age
```{r}
anova(bonus.base, bonus.base2)
```

#No significant difference. Age not kept in model.
```

#Base model - All random and baseline fixed effects + language status
```{r}
bonus.base3 <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN + TOWKSynRSCEN  + LanguageStatus +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base3)
#Language status doesn't add anything.
```

#Model comparison base and base + language status
```{r}
anova(bonus.base, bonus.base3)
#No significant difference. Language Status not kept in model.
```

#Base model retaining only sig baseline fixed effects.
```{r}
bonusbase4 <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN +
          (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonusbase4)
```

```{r}
#Compare base model to base with only sig fixed effect
anova(bonus.base, bonusbase4)
#No sig difference.
#Optimal model is model 4 (baseline, interactions, random effect and fixed effect of Ravens.)
```

```{r}
confint.merMod(bonusbase4)
```

```{r}
# Change the reference level of Timepoint to level 3
expwordssub$Timepoint <- relevel(expwordssub$Timepoint, ref = "3")

# Fit the linear model with the new reference level
bonusbase4 <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN +   (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
```

#post hoc tests for overal bonus score model
```{r}
library (emmeans)
lsmeans(bonusbase4, pairwise ~ Timepoint * Group , adjust = "tukey")
```

#Checking assumptions
```{r}
# Checking that the residuals are normally distributed
bonusbase4.resid <- resid(bonusbase4) # Extracting the residuals
shapiro.test(bonusbase4.resid) # Using the Shapiro-Wilk test

# The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(BonusScore ~ Timepoint, data = expwordssub)
# The null hypothesis of homoscedasticity is accepted.
```

```{r}
install.packages("MuMIn")
library(MuMIn)
# Calculate conditional and marginal R-squared for bonus.base4
r.squaredGLMM(bonusbase4) #conditional_r2
r.squaredGLMM(bonusbase4, which = "fixed") #marginal_r2 <-


```
```{r}
# Extract the random effects for participant
re_effects <- ranef(bonusbase4)

# Extract the variance and SD for participant
participant_var <- attr(re_effects$ID, "postVar")[1]
participant_sd <- sqrt(participant_var)

# Extract the variance and SD for residual
residual_var <- summary(bonusbase4)$sigma^2
residual_sd <- sqrt(residual_var)

# Print the results
cat("Participant random effect variance: ", participant_var, "\n")
cat("Participant random effect SD: ", participant_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
# Extract the random effects for Item
re_effects <- ranef(bonusbase4)

# Extract the variance and SD for item
item_var <- attr(re_effects$Item, "postVar")[1]
item_sd <- sqrt(item_var)


# Extract the variance and SD for residual
residual_var <- summary(bonusbase4)$sigma^2
residual_sd <- sqrt(residual_var)

```
# Print the results
cat("Item random effect variance: ", item_var, "\n")
cat("Item random effect SD: ", item_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

#Exploring why post-hoc do not show where the interraction comes from
```{r}
install.packages("multcomp")

library(multcomp)
# Generate estimated marginal means
emmeans_diff <- emmeans(bonusbase4, ~ Group:Timepoint)

# Perform pairwise comparisons between the means
interaction_diff <- pairs(emmeans_diff, adjust = "tukey")

print(emmeans_diff)
print(interaction_diff)
```

#Checking assumptions
```{r}
# Checking that the residuals are normally distributed
bonusbase4.resid <- resid(bonusbase4) # Extracting the residuals
shapiro.test(bonusbase4.resid) # Using the Shapiro-Wilk test
# The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from
a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(BonusScore ~ Timepoint, data = expwordssub)
# The null hypothesis of homoscedasticity is accepted.
```

#End.

Appendix S. **R Script Explaining words analysis**

---
title: "Final explaining words analyses"
author: "DKP"
date: '2023-04-03'
output: html_document

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

#Young Interpreter Scheme - Explaining words data. #2 groups of chidren,
#2 groups - Young Interpreters (Group A) and non Young Interpreters (Group B)
#3 time points.
#6 samples per participant per time point.
#Dependant variable = 1 score out of 10 for each of 6 words (items)
#max score per word = 10;
#max score per time point = 60.

```{r}
#Read in my data frame for main A/B comparisons which is explainingwords
library(readr)
library(readr)
explainingwords    <-    read_csv("C:/Users/bc813168/OneDrive    -    University    of
Reading/PhD/Data/explaining words/explainingwords.csv")
View(explainingwords)
```

#I need to add a total score column to this dataframe.
```{r}
# create a new column that sums up the values of the 6 existing columns
explainingwords$Total <- rowSums(explainingwords[,c(27, 29, 31, 33, 35, 37)])

# rename the column at position 38 to "TotalScore"
names(explainingwords)[38] <- "TotalScore"

# print the dataframe to verify the new column was added at position 38
View(explainingwords)

# save the modified dataframe to the existing dataframe
explainingwords <- explainingwords
```

```{r}
# Create a correlation matrix
# Subset the data to include only the columns of interest
subset_df <- explainingwords[, c(15, 17, 20, 23)]

# Calculate the correlation matrix
```

```
cor_matrix <- cor(subset_df)

# Print the correlation matrix
print(cor_matrix)
```

```{r}
#change time 1 age years to numerical scale.
explainingwords$Time1AgeYears <- as.numeric(explainingwords$Time1AgeYears)
#change timepoint to factor
explainingwords$Timepoint <- as.factor(explainingwords$Timepoint)
```


#Find frequencies using count function.
#Frequencies for gender, language status and age needed.
```{r}
install.packages("dplyr")
install.packages("tidyr")
library(dplyr)
library(tidyr)
```


##find frequencies of gender for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(Gender, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(Gender)
```

#find frequencies of language status for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(LanguageStatus, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(LanguageStatus)
```

##find frequencies of age for each group at each timepoint.
```{r}
explainingwords %>%
  dplyr::select(Time1AgeYears, Timepoint, Group) %>%
  na.omit() %>%
  group_by(Timepoint,Group) %>%
  dplyr::count(Time1AgeYears)
```

```{r}
#distribution of response variables
hist(explainingwords$Score1)
hist(explainingwords$Score2)
hist(explainingwords$Score3)
hist(explainingwords$Score4)
```

```
hist(explainingwords$Score5)
hist(explainingwords$Score6)
```

```{r}
#Summary of N for each group at each timepoint.
explainingwords <- na.omit(explainingwords)
(summaryN <- plyr::count(explainingwords, c("Timepoint", "Group"))) #put plyr so it uses this package
and not dplyr or it gets confused
```

#Make long data frame.
```{r}
#Make long data frame.
library(tidyverse)
expwordslong <- pivot_longer(
  data = explainingwords,
  cols = starts_with("Score"), # Only select the "Score" columns for pivoting
  names_prefix = "Score", # Remove the "Score" part of the original column name
  names_to = "Item", # Put what's left of the original column names (hopefully just the number) in a
column called "Item"
  values_to = "Score" # Put the corresponding values into a column called "Score"
  ) %>%
  select (-matches("Item+[0-9]")) # Drop all the original Item columns (optional, but recommended)
View(expwordslong)
```

It is good practice to standardise your explanatory variables before proceeding so that they have a
mean of zero ("centering") and standard deviation of one ("scaling"). It ensures that the estimated
coefficients are all on the same scale, making it easier to compare effect sizes.
#scale() centers the data (the column mean is subtracted from the values in the column) and then
scales it (the centered column values are divided by the column's standard deviation).
```{r}
expwordslong$Time1AgeYearsCEN <- scale(expwordslong$Time1AgeYears, center = TRUE, scale =
TRUE)
expwordslong$RavensSSCEN <- scale(expwordslong$RavensSS, center = TRUE, scale = TRUE)
expwordslong$BPVSRSCEN <- scale(expwordslong$BPVSRS, center = TRUE, scale = TRUE)
expwordslong$TOWKWORSCEN <- scale(expwordslong$TOWKWORS, center = TRUE, scale = TRUE)
expwordslong$TOWKSynRSCEN <- scale(expwordslong$TOWKSynRS, center = TRUE, scale = TRUE)
View(expwordslong)
```

#Compute summary statistics for the variable Explaining words score by groups and timepoints.
#Load package for summary SE
```{r}
#summary statistics to enable a line graph to be drawn.
#Need to compute the total score (not the average per item as this is what this code does)
library(Rmisc)
expwordslong <- na.omit(expwordslong)
expwordssummary <- summarySE(expwordslong, measurevar = "TotalScore", groupvars =
c("Timepoint", "Group"))
```

expwordssummary
```

#Draw a line graph for total scores per group and timepoint.
```{r}
expwordstotalplot <- ggplot(expwordssummary, aes(x = Timepoint, y = TotalScore, colour = Group)) +
 geom_line(aes(group = Group)) +
 scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter children", "Non Young Interpreter children")) + #add color scale to the plot
 geom_line(aes(color = Group),size = 1) +
 geom_line(aes(color = Group),  size = 1) +
 geom_point(aes(color = Group), size = 3) +
 xlab("Timepoint") +
 ylab("Explaining Words Total Score") +
 geom_errorbar(aes(ymin = TotalScore - se, ymax = TotalScore + se), width = .1, postition = expwordssummary) +
 geom_line(postition = expwordssummary)+
 geom_point(postition = expwordssummary, size=2, shape=20, fill="black") +
 scale_x_discrete(limit = c("1", "2", "3")) +
 theme_classic() +
 theme(text = element_text(family = "Calibri", size = 11))+
 theme(plot.background = element_rect(fill = "white")) +
 theme(panel.background = element_rect(fill = "white")) +
 theme(legend.position = "bottom",
     legend.box = "horizontal")
 #ggtitle("Explaining Words total scores")

expwordstotalplot  #display the plot
```
#Make a box plot for the overall score for each group at each timepoint.
```{r}
boxplot(TotalScore ~ Group*Timepoint,
     names = c("YI T1", "Control T1", "YI T2", "Control T2", "YI T3", "Control T3" ),
     col=c("pink", "purple"), expwordslong,
     main = "Boxplot of Explaining words  Total scores at each timepoint for each group." )
#Outlier at time 2 for 1 YI child.
```
#Linear models
#As we don't expect all children to exhibit the same relationship between timepoint and score (fixed slope), though do expect some may be better than others to start wiht (random intercept).
#So want to fit random slop and random intercept model.
#Model failed to converge with slopes.
#fully crossed crossed random effects (not nested).
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they are "significant" or not: they are part of your design and have to be included. We tested our children multiple times - we then have to fit children as a random effect.

```{r}
install.packages("lme4")
install.packages("lmerTest")
library(lme4)

```
library(lmerTest)
base <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN + (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
#fully crossed crossed random effects (not nested).
summary(base)
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they
are "significant" or not: they are part of your design and have to be included. We tested our children
multiple times - we then have to fit children as a random effect.
```

#Base model - All random and baseline fixed effects + gender
```{r}
base1 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + Gender +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base1)
```
#Model comparison base and base + gender
```{r}
anova(base, base1)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Gender not kept in model.
```

#Base model - All random and baseline fixed effects + age
```{r}
base2 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + Time1AgeYearsCEN +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base2)
```

```{r}
#checking for multicollinearity
#Issues if numbers over 10
vif(base2)
```

#Model comparison base and base + age
```{r}
anova(base, base2)
#The output shows Chi Square statistics representing the difference in deviance between successive
models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Age not kept in model.
```
`

#Base model - All random and baseline fixed effects + language status
```

```r
base3 <- lmer(Score ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN  + LanguageStatus +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base3)
```

#Model comparison base and base + language status
```r
anova(base, base3)
#The output shows Chi Square statistics representing the difference in deviance between successive models.
#p values based on likelihood ratio test comparisons.
#No significant difference. Language Status not kept in model.
```


#Model comparison of 4 models so far
```r
anova(base, base1, base2, base3)
#The output shows Chi Square statistics representing the difference in deviance between successive models.
#p values based on likelihood ratio test comparisons.
#No significant differences.
#Base model retained.
```


#Base model retaining only sig baseline fixed effects.
```r
base4 <- lmer(Score ~  Group * Timepoint + TOWKSynRSCEN  +
        (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
summary(base4)
#random effects are there to deal with pseudoreplication, then it doesn't really matter whether they are "significant" or not: they are part of your design and have to be included. We tested our children multiple times - we then have to fit children as a random effect.
```


```r
#Compare base model to base with only sig fixed effect
anova(base, base4)
#No sig difference, but base4 AIC lower.
#Optimal model is model 4 (baseline, interactions, random effect and fixed effect of synonyms.)
```


```r
confint.merMod(base4)
```


#Checking assumptions
```r
# Checking that the residuals are normally distributed
base4.resid <- resid(base4) # Extracting the residuals
shapiro.test(base4.resid) # Using the Shapiro-Wilk test
```

The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(Score ~ Timepoint, data = expwordslong)
# The null hypothesis of homoscedasticity is rejected.
```

#Produce co-efficeints of base model4.
```{r}
# Get the summary table with t-values and degrees of freedom
# Load the necessary packages
install.packages("lme4")
install.packages("broom.mixed")
install.packages("sjPlot")
library(lme4)
library(broom.mixed)
library(sjPlot)

# Extract the coefficients table using broom.mixed
coeff_table <- tidy(base4, effects = "fixed")
coeff_table
```

```{r}
library(car)
Anova(base4, type = 3)
```

```{r}
# Extract the random effects for ID
re_effects <- ranef(base4)

# Extract the variance and SD for participant
participant_var <- attr(re_effects$ID, "postVar")[1]
participant_sd <- sqrt(participant_var)

# Extract the variance and SD for residual
residual_var <- summary(base4)$sigma^2
residual_sd <- sqrt(residual_var)

# Print the results
cat("Participant random effect variance: ", participant_var, "\n")
cat("Participant random effect SD: ", participant_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
# Extract the random effects for Item

```
re_effects <- ranef(base4)

# Extract the variance and SD for item
item_var <- attr(re_effects$Item, "postVar")[1]
item_sd <- sqrt(item_var)


# Extract the variance and SD for residual
residual_var <- summary(base4)$sigma^2
residual_sd <- sqrt(residual_var)


# Print the results
cat("Item random effect variance: ", item_var, "\n")
cat("Item random effect SD: ", item_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
library(MuMIn)
# Calculate conditional and marginal R-squared for base4
r.squaredGLMM(base4) #conditional_r2
r.squaredGLMM(base4, which = "fixed") #marginal_r2 <-
```

```{r Confidence intervals}
confint.merMod(base4)$coefficients
```
#post hoc tests for overal score model
#compare Timepoint 3 to the other timepoints instead of comparing Timepoint 1 to the other timepoints,

```{r}
# Change the reference level of Timepoint to level 3
expwordslong$Timepoint <- relevel(expwordslong$Timepoint, ref = "3")

# Fit the linear model with the new reference level
base4 <- lmer(Score ~  Group * Timepoint + TOWKSynRSCEN +    (1| Item) + (1 |ID), data = expwordslong, REML = TRUE)
```

```{r}
library (emmeans)
lsmeans(base4, pairwise ~ Timepoint * Group , adjust = "tukey")
```
#Exploring the other dependent variables.
```

#Definition - First, the target word appeared and was presented orally and in written form to the child, and the child was asked "this word is X. Can you tell me what X means?" #If they defined it correctly, they got 2 points.
# Irrespective of whether the correct definition was provided at the first stage, the child was then shown and read a sentence with the target word in before being asked "what #do you think X means now?." If the child was now able to define the word, after being given a sentence for context, they got 1 point.
#If they still couldn't define the word with the help of a sentence, they got 0 points.

#Decomposition - could the child break the word down into smaller bits of meaning? 1 point per morpheme identified. (max = 2 points)
#"With the test item and example sentence displayed on screen, the child was asked "can you break the word down and find bits of meaning? "

#Morpheme Meaning - could the child define the morphemes that they identify? "what do those words mean?" 1 point per correct meaning. (max = 2 points) n.b. some children only identified one morpheme so only #attempted to define one.

#Bonus
#The child also received up to four bonus points for using grammatical terminology such as part of speech, using the term 'prefix' or 'suffix', using the term 'compound word' and using the term 'root word'.

#Load in data file for sub scores.
```{r}
#Load in data file for sub scores.
library(readr)
expwordssub <- read_csv("C:/Users/bc813168/OneDrive - University of Reading/PhD/Data/explaining words/expwordssub.csv")
View(expwordssub)
```

```{r}
expwordssub <- na.omit(expwordssub)
View(expwordssub)
```

```{r}
#change time 1 age years to numerical scale.
expwordssub$Time1AgeYears <- as.numeric(expwordssub$Time1AgeYears)
#change timepoint to factor
#MUST do or EM means and model don't work accurately.
expwordssub$Timepoint <- as.factor(expwordssub$Timepoint)
```

#Descriptive data - overall DEFINITION total for each group at each timepoint.
#Compute summary statistics for the variable Explaining words score by groups and timepoints.
#Load package for summary SE

```{r}
expwordssubdef <- summarySE(expwordssub, measurevar = "TotalDef", groupvars = c("Timepoint", "Group"))
```

expwordssubdef
```

#Draw a line graph for the Explaining Words DEFINITION Total
```{r}
expwordsdefplot <- ggplot(expwordssubdef, aes(x = Timepoint, y = TotalDef, colour = Group)) +
  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Explaining words tasks - Mean Definition score") +
  geom_line(aes(group = Group), size = 1) +
  geom_point(aes(color = Group), size = 3, shape = 20, fill = "black") +
  geom_errorbar(aes(ymin = TotalDef - se, ymax = TotalDef + se), width = 0.1) +
  scale_x_discrete(limit = c("1", "2", "3")) +
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
      legend.box = "horizontal")
  #ggtitle("Explaining words tasks - Mean Definition score")

expwordsdefplot  #display the plot
```

#Descriptive data - overall DECOMPSITION Total for each group at each timepoint.
```{r}

expwordssubdec <- summarySE(expwordssub, measurevar = "TotalDec", groupvars = c("Timepoint",
"Group"))
expwordssubdec
```

#Draw a line graph for the Explaining Words DECOMPSITION Total
```{r}
expwordsdecplot <- ggplot(expwordssubdec, aes(x = Timepoint, y = TotalDec, colour = Group)) +

  geom_line(aes(group = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter
children", "Non Young Interpreter children")) + #add color scale to the plot
  geom_line(aes(color = Group),size = 1) +
  geom_point(aes(color = Group), size = 3) +
  xlab("Timepoint") +
  ylab("Explaining words tasks - Mean Decomposition score") +
  geom_line(aes(group = Group), size = 1) +
  geom_point(aes(color = Group), size = 3, shape = 20, fill = "black") +
  geom_errorbar(aes(ymin = TotalDec - se, ymax = TotalDec + se), width = 0.1) +
  scale_x_discrete(limit = c("1", "2", "3")) +

```
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+
  theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
  theme(legend.position = "bottom",
       legend.box = "horizontal")
 #ggtitle("Explaining words tasks - Mean Definition score")

expwordsdefplot  #display the plot
```

#Descriptive data - overall MORPHEME Meaning Total for each group at each timepoint.
```{r}
expwordssubmorph <- summarySE(expwordssub, measurevar = "TotalMorph", groupvars =
c("Timepoint", "Group"))
expwordssubmorph
```

#Make a line graph for mean morpheme meaning score
```{r}

 expwordsmorphplot <- ggplot(expwordssubmorph, aes(x = Timepoint, y = TotalMorph, group = Group,
colour = Group)) +
  scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young  Interpreter
children", "Non Young Interpreter children")) + #change the main line colours
  geom_line(aes(color = Group),size = 1) +  #make the line thicker
  geom_line(aes(color = Group),  size = 1) + #repeat to make the other line thicker
     geom_point(aes(color = Group), size = 3) + #add points to end of lines in same colour as
  xlab("Timepoint") + #label for x axis
  ylab("Explaining Words Morpheme meaning Total Score") +  #label for y axis
  geom_errorbar(aes(ymin = TotalMorph - se, ymax = TotalMorph + se), width = .1, postition =
expwordssubmorph) + #add error bars
            geom_line(postition = expwordssubmorph)+  #error bar formatting
            geom_point(postition = expwordssubmorph, size=2, shape=20, fill="black") + #error bar
formatting
  scale_x_discrete(limit = c("1", "2", "3")) + #manipulate bins on x axis
  theme_classic() +
  theme(text = element_text(family = "Calibri", size = 11))+ #add font type and size
   theme(plot.background = element_rect(fill = "white")) +
  theme(panel.background = element_rect(fill = "white")) +
   theme(legend.position = "bottom",
       legend.box = "horizontal")
 # ggtitle("Explaining Words Morpheme meaning total scores") #add title
expwordsmorphplot
```
#Descriptive data - overall BONUS total for each group at each timepoint.
```{r}

expwordssubbonus <- summarySE(expwordssub, measurevar = "TotalBonus", groupvars =
c("Timepoint", "Group"))
expwordssubbonus
```

#Make a line graph for bonus scores

````{r}
expwordsbonusplot <- ggplot(expwordssubbonus, aes(x = Timepoint, y = TotalBonus, group = Group, colour = Group)) +
 scale_color_manual(values = c("darkviolet", "cornflowerblue"), labels = c("Young Interpreter children", "Non Young Interpreter children")) + #change the main line colours
  geom_line(aes(color = Group),size = 1) +  #make the line thicker
 geom_line(aes(color = Group),  size = 1) + #repeat to make the other line thicker
    geom_point(aes(color = Group), size = 3) + #add points to end of lines in same colour as
 xlab("Timepoint") + #label for x axis
 ylab("Explaining Words Bonus Total  Score") +  #label for y axis
 geom_errorbar(aes(ymin = TotalBonus - se, ymax = TotalBonus + se), width = .1, postition = expwordssubbonus) + #add error bars
           geom_line(postition = expwordssubbonus)+  #error bar formatting
           geom_point(postition = expwordssubbonus, size=2, shape=20, fill="black") + #error bar formatting
 scale_x_discrete(limit = c("1", "2", "3")) + #manipulate bins on x axis
 theme_classic() +
 theme(text = element_text(family = "Calibri", size = 11))+ #add font type and size
  theme(plot.background = element_rect(fill = "white")) +
 theme(panel.background = element_rect(fill = "white")) +
 theme(legend.position = "bottom",
     legend.box = "horizontal")
 # ggtitle("Explaining Words Bonus total scores") #add title
expwordsbonusplot
````

#Model building for sub scores.

#reload sub file
````{r}
#Load in data file for sub scores.
#rename file to explaining words sub2
library(readr)
expwordssub <- read_csv("C:/Users/bc813168/OneDrive - University of Reading/PhD/Data/explaining words/expwordssub.csv")
View(expwordssub)
````

````{r}
#change time 1 age years to numerical scale.
expwordssub$Time1AgeYears <- as.numeric(expwordssub$Time1AgeYears)
#change timepoint to factor
#MUST do or EM means and model don't work accurately.
expwordssub$Timepoint <- as.factor(expwordssub$Timepoint)
````

#Center the baseline variables in the sub data frame.
````{r}
expwordssub$Time1AgeYearsCEN <- scale(expwordssub$Time1AgeYears, center = TRUE, scale = TRUE)
expwordssub$RavensSSCEN <- scale(expwordssub$RavensSS, center = TRUE, scale = TRUE)

```
expwordssub$BPVSRSCEN <- scale(expwordssub$BPVSRS, center = TRUE, scale = TRUE)
expwordssub$TOWKWORSCEN <- scale(expwordssub$TOWKWORS, center = TRUE, scale = TRUE)
expwordssub$TOWKSynRSCEN <- scale(expwordssub$TOWKSynRS, center = TRUE, scale = TRUE)
View(expwordssub)
```

#MODEL BUILDING FOR explaining words DEFINITION SCORE
#Definition  model - beyong optimal. All random and baseline fixed effects.
```{r}
def.base <- lmer(DefScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN + LanguageStatus + Time1AgeYearsCEN + Gender +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(def.base)
#Effects  of group B, synonyms and anotnyms and being monolingual.
```

#Definition  model - beyong optimal. Only fixed effects.
```{r}
def.base1 <- lmer(DefScore ~   Group * Timepoint + TOWKWORSCEN + TOWKSynRSCEN   +
LanguageStatus  +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(def.base1)
#Effects  of group B, synonyms and anotnyms and almost being monolingual.
```


```{r}
anova(def.base, def.base1)
```


#Decompostion model - beyong optimal. All random and baseline fixed effects.
```{r}
dec.base <- lmer(DecScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN +
TOWKSynRSCEN + LanguageStatus + Time1AgeYearsCEN + Gender +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(dec.base)
#Effects  of timepoint, and synonyms, almost males and B*timepoint interaction.
```

#Decompostion model - beyong optimal. Only fixed effects.
```{r}
dec.base1 <- lmer(DecScore ~  Group * Timepoint +  TOWKSynRSCEN  +
         (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(dec.base1)
```


```{r}
anova(dec.base, dec.base1)
```

#Morpheme model - beyong optimal. All random and baseline fixed effects.
```{r}
morph.base <- lmer(MorphScore ~   Group * Timepoint + RavensSSCEN + BPVSRSCEN +
TOWKWORSCEN + TOWKSynRSCEN + LanguageStatus + Time1AgeYearsCEN + Gender +
```

```
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(morph.base)
#Effects  of timepoint, and synonyms,  males and almost BPVS
```

#Morpheme model - beyong optimal. Only fixed effects.
```{r}
morph.base1 <- lmer(MorphScore ~  Group * Timepoint + TOWKSynRSCEN  + BPVSRSCEN + Gender +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(morph.base1)
#Effects  of timepoint, and synonyms,  males and almost BPVS
```

```{r}
anova(morph.base, morph.base1)
```
#MODEL BUILDING FOR explaining words BONUS SCORE
#Base bonus model - beyong optimal. All random and baseline fixed effects.
```{r}
bonus.base <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN + BPVSRSCEN + TOWKWORSCEN
+ TOWKSynRSCEN  +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base)
#Effect of Ravens standard score.
```

#Base model - All random and baseline fixed effects + gender
```{r}
bonus.base1  <-  lmer(BonusScore  ~   Group  *  Timepoint  +  RavensSSCEN  +  BPVSRSCEN  +
TOWKWORSCEN + TOWKSynRSCEN  + Gender +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base1)
#Gender doesn't add anything.
```

#Model comparison base and base + gender
```{r}
anova(bonus.base, bonus.base1)
#No significant difference. Gender not kept in model.
```

#Base model - All random and baseline fixed effects + age
```{r}
bonus.base2  <-  lmer(BonusScore  ~   Group  *  Timepoint  +  RavensSSCEN  +  BPVSRSCEN  +
TOWKWORSCEN + TOWKSynRSCEN  + Time1AgeYearsCEN +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base2)
#Age doesn't add anything.
```

#Model comparison base and base + age
```{r}
anova(bonus.base, bonus.base2)
```

#No significant difference. Age not kept in model.
```

#Base model - All random and baseline fixed effects + language status
```{r}
bonus.base3  <-  lmer(BonusScore  ~   Group  *  Timepoint  +  RavensSSCEN  +  BPVSRSCEN  +
TOWKWORSCEN + TOWKSynRSCEN  + LanguageStatus +
        (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonus.base3)
#Language status doesn't add anything.
```

#Model comparison base and base + language status
```{r}
anova(bonus.base, bonus.base3)
#No significant difference. Language Status not kept in model.
```

#Base model retaining only sig baseline fixed effects.
```{r}
bonusbase4 <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN +
            (1| Item) + (1 |ID), data = expwordssub, REML = TRUE)
summary(bonusbase4)
```

```{r}
#Compare base model to base with only sig fixed effect
anova(bonus.base, bonusbase4)
#No sig difference.
#Optimal model is model 4 (baseline, interactions, random effect and fixed effect of Ravens.)
```

```{r}
confint.merMod(bonusbase4)
```

```{r}
# Change the reference level of Timepoint to level 3
expwordssub$Timepoint <- relevel(expwordssub$Timepoint, ref = "3")

# Fit the linear model with the new reference level
bonusbase4 <- lmer(BonusScore ~  Group * Timepoint + RavensSSCEN +   (1| Item) + (1 |ID), data =
expwordssub, REML = TRUE)
```

#post hoc tests for overal bonus score model
```{r}
library (emmeans)
lsmeans(bonusbase4, pairwise ~ Timepoint * Group , adjust = "tukey")
```

#Checking assumptions
```{r}
# Checking that the residuals are normally distributed
bonusbase4.resid <- resid(bonusbase4) # Extracting the residuals
shapiro.test(bonusbase4.resid) # Using the Shapiro-Wilk test
```

# The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(BonusScore ~ Timepoint, data = expwordssub)
# The null hypothesis of homoscedasticity is accepted.
```

```{r}
install.packages("MuMIn")
library(MuMIn)
# Calculate conditional and marginal R-squared for bonus.base4
r.squaredGLMM(bonusbase4) #conditional_r2
r.squaredGLMM(bonusbase4, which = "fixed") #marginal_r2 <-


```
```{r}
# Extract the random effects for participant
re_effects <- ranef(bonusbase4)

# Extract the variance and SD for participant
participant_var <- attr(re_effects$ID, "postVar")[1]
participant_sd <- sqrt(participant_var)

# Extract the variance and SD for residual
residual_var <- summary(bonusbase4)$sigma^2
residual_sd <- sqrt(residual_var)

# Print the results
cat("Participant random effect variance: ", participant_var, "\n")
cat("Participant random effect SD: ", participant_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

```{r}
# Extract the random effects for Item
re_effects <- ranef(bonusbase4)

# Extract the variance and SD for item
item_var <- attr(re_effects$Item, "postVar")[1]
item_sd <- sqrt(item_var)


# Extract the variance and SD for residual
residual_var <- summary(bonusbase4)$sigma^2
residual_sd <- sqrt(residual_var)

```
# Print the results
cat("Item random effect variance: ", item_var, "\n")
cat("Item random effect SD: ", item_sd, "\n")
cat("Residual variance: ", residual_var, "\n")
cat("Residual SD: ", residual_sd, "\n")
```

#Exploring why post-hoc do not show where the interraction comes from
```{r}
install.packages("multcomp")

library(multcomp)
# Generate estimated marginal means
emmeans_diff <- emmeans(bonusbase4, ~ Group:Timepoint)

# Perform pairwise comparisons between the means
interaction_diff <- pairs(emmeans_diff, adjust = "tukey")

print(emmeans_diff)
print(interaction_diff)
```

#Checking assumptions
```{r}
# Checking that the residuals are normally distributed
bonusbase4.resid <- resid(bonusbase4) # Extracting the residuals
shapiro.test(bonusbase4.resid) # Using the Shapiro-Wilk test
# The null hypothesis of normal distribution is rejected: there is a significant difference (p < 0.05) from
a normal distribution
```

```{r}
# Checking for homoscedasticity

bartlett.test(BonusScore ~ Timepoint, data = expwordssub)
# The null hypothesis of homoscedasticity is accepted.
```

    #End.