

Toward a context and feasibility driven entrepreneurial education: evidence from entrepreneurial intention determinants of Malaysian students

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Toward a Context and Feasibility Driven Entrepreneurial Education: Evidence from Entrepreneurial Intention Determinants of Malaysian Students

Abstract: Irrespective of support or opportunities, evidence suggests that most higher education business students in emerging markets are still primarily guided reactively (out of personal need or temporarily) into for-profit entrepreneurship rather than through personal incentive raising doubts on the impact of University entrepreneurial push strategies and programmes. We address the lack of meso level quantitative studies and propose a new student-related context sensitive conceptual model for student entrepreneurial intention in emerging markets exploring the extent to which a context-based and feasibility-oriented conceptual model is required. We propose the components Risk and Innovation, Autonomy, National norms and number of languages spoken all affect entrepreneurial intention. Furthermore, we suggest that education has a moderating effect overall and more so on the risk and innovation component. Our theoretical framework was partially supported as we show compelling evidence that risk and innovation, autonomy, and languages spoken have a significant effect on student entrepreneurial intention. The results indicate that conceptual frameworks differ by context and entrepreneurship education in emerging markets is contingent on specific human capital of students but can be stimulated through improving cognitive institutional structures and curricula focusing on context and attitudes towards risk taking.

Keywords: Entrepreneurial Education; Quality Education; Entrepreneurial Intention; Entrepreneurship; Malaysia; Emerging Markets

1 Introduction

For-profit opportunity entrepreneurship is the most widespread type of venture and is now recognised as being vital for the economic growth and creation of development strategies in emerging markets (Blackburn and Schaper, 2016). Entrepreneurial opportunities exist regardless of who perceives them with entrepreneurial intention (EI) recognized as the tool to act on it (Donaldson, 2019). To foster EI, Higher Education (HE) institutions' regional engagement is increasingly becoming the conduit for policy responses to overall trends in development (Cassol et al., 2022). Nevertheless, one significant global trend, the world's youth cohort's increasing growth, has witnessed limited entrepreneurial opportunities for youth living in emerging markets with the impact of the local EE lagging behind Western counterparts (Wegner et al., 2019; Cassol et al., 2022).

Unlike Western counterparts and despite support, evidence suggests that most HE business students in emerging markets are still primarily guided reactively or out of need into entrepreneurship rather than through EI raising doubts on the impact of University entrepreneurial push strategies (Wegner et al., 2020; Storz et al., 2024). This continued disconnect between support available and EI suggests a low perception of feasibility among students (Gil-Soto et al., 2022; Lim et al., 2023) and risk aversion as opposed to resilience (Roslan et al., 2022). EI, however, is seen in the literature as essential for starting a viable opportunity business and EE as the tool

to shift it from perception of desirability into feasibility and “action” (Baluku et al., 2018; Wegner et al., 2020; Boubker et al., 2021; Yousaf et al., 2021).

When considering countries such as Malaysia, the barrier to entrepreneurship does not appear to lie in the policies that support entrepreneurs specifically, but rather in the mindset of the youth crafted by EE; e.g. perceptions regarding the feasibility of entrepreneurship (Bilgiseven, 2019; Hassan et al., 2020; Nungsari et al., 2023). To address this, the impact of EE on EI in emerging markets needs to be enhanced to respond to regional needs as efficiently as Western counterparts including a model of EE programmes in order to holistically assess the why (objectives), what (content), how (pedagogy) and for whom (audiences) in EE (Donaldson, 2019; Thomasson et al., 2019).

Rates of EI differ between regions and within countries, warranting more context based research particularly between developed and emerging markets (Donaldson, 2019). Necessity entrepreneurship is prevalent in emerging markets; yet is deemed less sustainable in the long run compared to opportunity entrepreneurship, which is driven by perceived desire and feasibility (Zgheib, 2018). As a result, higher exit rates, reduced appeal to HE students, and lower satisfaction levels are observed in local EE as contextual variables associated with perceived feasibility and starting a business are neglected in drafting EE programmes (Gil-Soto et al., 2022).

Languages learnt, enhancing risk and innovation attitudes, increasing autonomy and/or self-efficacy and tackling national/social norm barriers have been recently evidenced to be additional context-sensitive variables that can support the entrepreneur’s long-term success, beyond traditional EI constructs in Western studies (Donaldson, 2019; Shah et al., 2020; Cassol et al.; 2022; Lim et al., 2023). In addition, past research has shown that theoretical frameworks themselves can be transferred

from developed to emerging market contexts to explore conceptual models (Donaldson, 2019; Stouraitis et al., 2022). Despite these discrepancies, and the call for an enriched EI model, the contextual role of emerging markets on student EI and EE programmes is yet to be examined thoroughly (Nakara et al., 2020; Cassol et al., 2022; Khoi et al., 2023). The study thus addresses two recent calls: Firstly, we seek to explore a new framework for defining and working with context in EE, to support comparative analysis (Baluku et al., 2019; Donaldson et al., 2019; Shah et al., 2020). Secondly, to address the lack of student-related context level, and quantitative studies of the individual/student EI construct in emerging markets, we propose student-related context new variables to our framework, focusing on interactions with the local context (Donaldson, 2019; Thomasson et al., 2019; Wegner et al., 2020).

To accomplish the objectives above, we thus developed a new conceptual model applied to 252 students in Malaysian HE, which includes three new variables: Autonomy (focusing on control rather than self-efficacy only), Language level (promoting viable business in global contexts), and Risk and Innovation (enhancing feasibility and reducing risk aversion); also separating autonomy, self-efficacy and risk and innovation as distinct variables as opposed to presenting them as subsets of each other (Thomassen et al, 2019). (Donaldson, 2019). Next, we tested our proposed hypotheses, by building and comparing three competing logit models. Our best fitting model suggests three new main effects on student EI: Autonomy, Languages, and Risk. Finally, we examined and extended the original EI constructs and provided empirical evidence to suggest that the Theory of Planned Behaviour (TPB) is indeed applicable to emerging contexts as well.

1 Literature Review

1.1 *Entrepreneurial Intention*

There is a lack of consensus on empirical evidence to determine which factors have an effect, if any, on emerging market EI; an individual's decision to start a venture and the degree of commitment (Wegner et al., 2020; Cassol et al., 2022). Nevertheless, cognition as focus of individual EI research have attracted interest in the past albeit less on students (Thomassen, 2019) yet less as primary focus of research (Bilgiseven, 2019; Donaldson, 2019). The lack of clarity in this area is partially a result of examining entrepreneurial tendencies from multiple perspectives, including personality trait research and lightly defined entrepreneurial attribute studies focusing on perceived desirability; recent studies (See Donaldson, 2019's review and Bilgiseven, 2019's proposed factors of EI) evidence that EI is a multi-dimension construct composed of many factors of varied effect (principally falling under the categorization of autonomy, competitive aggressiveness, innovation and risk management but varying in the literature) and that the type of each factor may be as important as the amount in varied settings (Bolton and Lane, 2012; Cassol et al., 2022).

As Donaldson (2019) states, progress in EI research will be more effective if studies are able to constructively build upon explicitly recognised common emphases as opposed to dissimilar contributions in a field labelled "troublesome" due to its lack of synthesis (Donaldson, 2019). EI represents the exploration of opportunities (i.e., intention based on knowledge, and access to information) and not exploitation per se (or action, i.e., setting up a business venture based on intention)(Bolton and Lane (2012). However, despite the lack of impact in EE, the causal link between the two has

been proven to be significant (Bilgiseven, 2019; Donaldson, 2019). This novel focus on feasibility over awareness has given new space to researchers to investigate student EI and draft EE in a different setting distinct from EO and general EI of non-student populations (Donaldson et al., 2019; Cassol et al., 2022).

1.2 Entrepreneurial Education and student EI

As learning is socially situated, the actors involved in the learning process, the students, the educators, external stakeholders and social network, all carry significance – this is known as “student-related” context level where “meso” context elements originating outside the classroom are addressed yet taken as fixed (Thomassen, 2019). There is no clear definition however, or universal framework, of individual or student EI and studies have adopted varied versions to adapt to settings, time, or foci (Donaldson, 2019). Some studies allude to individual entrepreneurial intent (aka EI) as a way of referring synonymously to related but clearly different concepts (Douglas and Fitzsimmons, 2013). According to Donaldson (2019) and Bolton and Lane (2012) however, individual/student EI motivators have not been widely validated by other empirical work to date. A lack of coherence regarding findings on student EI and EE programmes continue to pervade the discipline making it difficult to deduce accurately an implicit definition (Donaldson, 2019; Cassol et al., 2022).

Studies have stipulated that EE generally fails to motivate students and translate intention into action (Cassol et al., 2022). EE is, however, linked to enhancing the human capital skills of students, in turn encouraging them to exploit business opportunities (Boubker et al., 2021; Yousaf et al., 2021). Most EE studies have failed to monitor the skills associated with student EI to translate into action

(Cassol et al., 2022). Yet, EE's impact on EI has been seen as more of moderation than direct; i.e., reinforced through EE (Boubker et al., 2021; Yousaf et al., 2021). Furthermore, despite the access to EE in emerging markets, many students do not develop EI as much as their Western counterparts with EE less aligned to market orientation (Baluku et al., 2019; Cassol et al., 2022).

The link between EI and action or setting up a business is why holistic EE programs require catering to EI and focusing on risk and innovation (Donaldson, 2019). Yet, EE and EI in emerging markets have been examined less than most entrepreneurship fields regardless of their significance (Nabi et al., 2017; Donaldson, 2019). Even though HE can support EI, EE and the creation of entrepreneurship in many ways, it is important to measure students' perception of the support that they receive to understand the extent of its impact (Saeed et al., 2015). A primary reason for the lack of understanding on the link between determinant factors and EI in emerging markets may be the absence of an effective means to measure student perceptions of EI (Bolton and Lane, 2012; Cassol et al., 2022).

1.3 Context and student EI

There is a clear lack of literature focusing on a micro-level (individual-based) analysis in an emerging market context, and less so in quantitative studies (Baluku et al., 2019; Donaldson, 2019; Cassol et al., 2022). However, researchers argue that in addition to supply-side variables, predicting EI at the national level requires the inclusion of context (Jia and Zhang, 2018). **Entrepreneurial intentions, and opportunities affect the speed and scope of entrepreneurial entry rates (Iakovleva et al. 2014; Cassol et al., 2022).** As Fairlie and Fossen (2018) state, individuals who are enrolled in EE, or are not actively seeking employment before starting businesses, are defined as being

opportunity entrepreneurs rather than necessity entrepreneurs, making perceived feasibility even more critical to enhance EI.

As EI is defined through formal or informal EE; contextual factors such as national norms, language ability, and risk and innovation aversion will inevitably play a role in the EI construct and perceived feasibility (Cassol et al., 2022). Comparing U.S. and Turkish EE students, Ozaralli and Rivenburgh (2016) showed that despite their positive attitude towards entrepreneurship, both displaying a low level of EI. In Indonesia despite the high level of government support, EE and entrepreneurial support were not found to be significant in raising student EI (Nuringsih, 2019).

Despite the progress in the field of entrepreneurship, there is limited evidence on how the role of different factors deriving from context-specific EE differs across entrepreneurship types (Welter, 2019). Based on the above, we propose the following factors as having an effect on the decision to start a business: Risk and Innovation, Autonomy, National norms and No. of languages spoken. **Meanwhile**, highlighting the gap between intention and action, **EE itself has been evidenced as a moderator in recent emerging market studies including Malaysia often intermediating the above factors and EI rather than directly impacting it** (Shah et al., 2020; Sancho et al., 2022).

2 Theoretical Framework

We built a theoretical model based on the seminal Theory of Planned Behaviour (TPB) the most widely used mode on EI research (Cassol et al., 2022) and recent conceptual frameworks used in emerging market EI studies (Ajzen, 1991; Feola et al., 2019; Shah et al., 2020; Maheshwari et al., 2022). The TPB presents greater analytical capability, designed to predict specific behaviour or attitude (in our case EI) in specific contexts (Raut, 2018; Cassol et al., 2022). The TPB specifically encompasses intention as one

of the vital determinants of an individual's behaviour and is determined by three psychological constructs: attitude towards a behaviour, subjective norms and perceived behaviour control (Ajzen, 1991; Kumar and Das, 2019).

Perceived Behavioural Control (PBC) is defined as the ease or difficulty in performing the task (starting a business) at hand (Ajzen, 1991). More specifically, this construct refers to the perceived ease or difficulty of performing the behaviour, or raising EI (Ajzen, 1991; Tkachev and Kolvereid, 1999). The effort expended to conclude a course of behaviour is likely to increase with PBC (Ajzen, 1991); the PBC concerns the individual's control beliefs regarding the behaviour in question. It is important to note that PBC, in previous studies, was found to explain more of the variations in intention than attitudes towards the behaviour and subjective norms (Solesvik, 2019). Just like autonomy, PBC distinguishes itself from the associated concepts of self-efficacy and feasibility by encompassing not only the belief in one's capability but also the perception of the feasibility of the intention itself (Khoi et al., 2023). Subjective norms (or National norms) are the disparities in the perceived social expectations relevant to EE students in a specific society (Kumar and Das, 2019). Finally, attitude towards the behaviour (or towards EI) denotes the level to which an individual has a positive or negative personal valuation towards the behaviour (i.e., entrepreneurship), its feasibility and risk level (Kumar and Das, 2019; Pérez-Fernández, 2020).

The TPB has been found to generate significant predictive accuracy with regard to EI reported by students in established Western market economies (Solesvik, 2019). According to Ajzen (1991) they are the best predictor of planned behaviour and are predicted by attitudes. According to our modified TPB, perceived behavioural control (PBC) can be used directly to predict behavioural intention (BI) (Yurtkoru et al., 2014).

According to the TPB, BI is defined as “a measure of the strength of one’s intention to perform a specified behaviour” (Ajzen and Fishbein, 1975, p. 288). In this study, as in other previous entrepreneurial studies, BI is replaced by EI, which refers to a conscious goal to become an entrepreneur (e.g., Yurtkoru et al., 2014).

Therefore, as in previous work on EI (e.g., Raut, 2018; Kumar and Das, 2019), we adapt the TPB model to examine the factors above, extending it and inserting our proposed variables. Based on Ajzen (1991)’s definition of PBC, subjective norms and attitude towards the behaviour, we adopt the following conceptual model as seen in Figure 1.

[Figure 1]

We propose the variables Risk and Innovation, Autonomy, National norms and No. of languages spoken all affect the decision to start a business in our model and are mapped onto the adapted TPB (Table 1).

[Table 1]

The six hypotheses derived from the student-related contextual model are presented below.

Risk-taking and innovation propensity can be defined as a person’s orientation to take risks and innovate; Risk taking propensity is one of several specific enduring personality characteristics — traits (Rauch and Frese, 2007). “Risk and Innovation” is presented as one variable in recent literature and distinct from being a subset of self-

efficacy in our model (Fernández Fernández et al., 2015; Thomassen, et al., 2019). Evidence suggests that EE reduces the perceived risk of engaging in opportunity entrepreneurship allowing for higher EI (Fernández Fernández et al., 2015). Therefore, education appears to moderate the relationship between risk and innovation and EI. A propensity for “Risk and Innovation” can be defined as the perceived probability of getting the compensations related to the accomplishment of specific goals or an inclination to take risks, and hence innovate (Thomassen, 2019). An individual may have a proactive attitude towards taking risks, but after a significant loss due to risk-taking, its attitude may change to a negative one which can be potentially reversed by education as empowerment (Santos et al., 2019). In low uncertainty avoidance cultures, potential entrepreneurs develop strategies to deal with the characteristic market uncertainties and therefore should be risk prone by trait (Ozaralli and Rivenburgh, 2016).

H1: A propensity for Risk and Innovation has a positive effect on the perceived likelihood of one day starting a business.

Autonomy refers to self-organization and self-regulation in pursuit of goals, or control beliefs (Lumpkin et al., 2009; Thomasson, 2019). Eudaimonic ideas such as autonomy have been evident in entrepreneurial studies guided by self-determination theory (Ryan and Deci, 2001), which is a formulation of three innate motivational needs: autonomy, competence, and relatedness. The proactiveness factor seen within autonomy is considered as a driving force of entrepreneurship rather than just financial gain (Dess and Lumpkin, 2005). Autonomy serves as a channel for proactiveness, which subsequently paves the way for venturing into “for-profit” entrepreneurship. This

journey requires not only self-belief but also the creation of practical tools (Taggar and Kay, 2018).

Few studies have investigated autonomy as a motivator of EI of students and in emerging markets (Al-Jubari et al., 2017; Mohamed et al., 2023), even though the role and importance of some types of autonomy have been studied in prior management research (Bolton and Lane, 2012). EE has the potential to motivate students into entrepreneurship through mediator factors such as self-efficacy (Piperopoulos and Dimov, 2015; Baluku et al., 2019); yet, they stipulate that a motivator such as autonomy can satisfy psychological needs and strengthens or weakens the effect of EE directly. Autonomy is an ability to take charge beyond judgement and feasibility of starting a business, stemming from an external motivator (e.g. education), and its direct effect on EI has often been the main focus of previous studies (Maddux, 2016).

Focusing on the development of autonomy is thus a suggested strategy for those interested in educating entrepreneurs and enhancing feasibility of entrepreneurship in education (Baluku, et al., 2019). Research has shown that self-employed individuals' motivations are more highly associated with autonomy as a trigger for EI than other forms of employment (Schneck, 2014). Motivation implies that they are willing to risk and invest into learning or actually starting a new venture (Sato and Csizer, 2021). The role of, and space for proactive autonomy declines as firm size increases, hence in individual entrepreneurship autonomy is seen as a critical factor in Western settings (Augusto Felício et al., 2012). In later stages of the development process, high-income countries have been seen to also benefit from a cultural environment characterized by autonomy which stimulates the pursuit of feasible/viable opportunities (Liñán and Fayolle, 2015). Students who have limited capability to act

autonomously may not develop EI, even with access to education and self-efficacy beliefs, even in emerging markets (Baluku et al., 2019).

H2: Autonomy has a positive effect on the perceived likelihood of one day starting a business.

Self-efficacy is defined as a judgment of one's capabilities to execute courses of action required to attain designated types of performances (Kyrgidou and Petridou, 2013; Piperopoulos and Dimov, 2015). Individual self-efficacy, which had been defined as a person's perception in his or her capability to perform a task, influences the development of EI and can (Elnadi and Gheith, 2021). Although autonomy is measured already in H2, self-efficacy is part of our construct as independent variable for several reasons. Firstly, examining both can present disparities in their effect. Secondly, self-efficacy has been examined in many studies on EI in the past and has also been part of the EI constructs presented earlier (albeit as moderator) (Piperopoulos and Dimov, 2015). Finally, self-efficacy denotes a belief while autonomy denotes a potential understanding of perceived feasibility rather than desirability only (Mohamed and Sheik Ali, 2021). As Fitzsimmons and Douglas (2011) show, EI depends on perceptions of desirability and feasibility. Adding both self-efficacy and autonomy can allow us to examine the difference between desirability (wanting to start a business due to positive EI yet unsure how) and feasibility (wanting to start a business while having a clear plan how and with a positive attitude to commit) (Wibowo et al., 2019).

H3: Self-efficacy has a positive effect on the perceived likelihood of one day starting a business.

National norms (or social norms or “culture” in some EI literature, e.g. Donaldson, 2019) represent the unwritten norms, perceived pressures, and views towards entrepreneurship in the country of study presented by both the family, institutions and society (Roman and Maxim, 2017; Donaldson, 2019). Unwritten norms at both the individual and national institutional levels affect the creation of an internationally reliable EE and EI metric (Thompson, 2009). More specifically, as Cacciotti and Hayton (2017) propose, “fear of failure” as one of the main cognitive variables able to capture the impact of national norms on EI making the role of context more significant in EE. Accessing EE is a determinant factor when choosing an entrepreneurial career and the national culture can influence the relationship between feasibility, motivation and EI (Roman and Maxim, 2017; Thomassen, 2019). Likewise, the mechanisms of national culture represent a basis in the development of a nation’s attitudes, also regarding EI and can inspire innovation or inertia at the individual level too. Abebe and Alvarado (2015) similarly present a clear link between social norms and EI following, for example, involuntary redundancies. Donaldson (2019) in his review of EI literature also presents “context” and “culture” as clear research priority themes along with (and also within) EI education.

H4: National Norms in support of an entrepreneurial culture have a positive effect on the perceived likelihood of one day starting a business.

EI is strengthened through education (Livieris et al., 2012) and additionally through language ability (De Costa et al., 2020; Shah et al, 2023), both important context sensitive variables fundamental in overcoming subjective norms. Language aptitude and understanding enables the practice of education to occur within certain subjective norms; language and education jointly strengthen one another in enhancing impact

(Johnstone et al., 2018). Language ability and education as entrepreneurial competences are resources borne from the domestic context, context-sensitive, which positively moderate EI or what is also known as “linguistic entrepreneurship” – learning a language as entrepreneurial tool (De Costa et al., 2020). They are seen as essential resources for opportunity entrepreneurs expanding their business options in intensified landscapes of internationalisation and globalisation. Few studies have analysed the influence of EE and language aptitude on EI, more so in emerging markets (De Costa et al., 2019; De Costa et al., 2020; Shah et al., 2023).

H5: The number of languages spoken has a positive effect on the perceived likelihood of one day starting a business.

Education level has been evidenced in the EI literature as a moderator (non-motivational factor) in emerging markets (Shah et al., 2020; Cassol et al., 2022). The extent to which educators should emphasize the risk of failure or the risk of missing an opportunity, and stimulate analysis and planning or intuition and action has been discussed recently in EE effectiveness (Donaldson, 2019). The advantage of integrating cognition and risk taking in the EI model is that it points to a significant issue often disregarded in emerging market EE (Cassol et al., 2022). If perceptions of feasibility are affected by attractiveness, then enhancing merely attitudes and attractiveness of EE may result in the launching of ventures that will fail, due to estimations of feasibility that may be biased or exaggerated (Shah et al., 2020; Cassol et al., 2022).

H6: Education moderates the effect of Risk and Innovation on the perceived likelihood of one day starting a business.

3 Research Methods

3.1 Sample Characteristics

Having received a favourable ethical review by Glasgow Caledonian University, following similar studies in Malaysia (e.g. Al Mamun et al., 2017; Hassan et al., 2020; Lim et al., 2023), and to avoid any possible complications arising from a small sample size, we successfully secured access to six higher education institutions in Malaysia (aka Tertiary institutions) to recruit a total of 252 undergraduate and postgraduate business programme students. As can be seen in Table 3 in the next section, the vast majority (87%) of participants were aged 18-29 or above and 65% were female in line with the literature on EI in emerging markets stating women create proportionately more enterprises in resource-scarce contexts (Nicolàs and Rubio, 2016).

As stated by Cassol et al. (2022) in similar research in Brazil, the geographical expansion and the diversity of types of HEIs both public and private do not allow local studies to provide an overview of the determining and driving factors in EI. To cater for this, and as not all education systems have specific individual entrepreneurship programmes per se, we focused also on business programs with entrepreneurship modules within them to maximize responses. In addition, as in similar studies on Malaysia (e.g. Al Mamun et al., 2017; Hassan et al., 2020; Lim et al., 2023) we ensured the institutions were multiple, all equally public universities, included business schools with entrepreneurship embedded in the curriculum as distinct course and all similarly delivered undergraduate and postgraduate programs. Students were recruited for the experiment through calls for participants in module forums on the online learning site 'Blackboard'. A total of 252 usable questionnaires were returned.

3.2 Malaysia — The context

Malaysia is classified as an “emerging” economy by most analysts — from the IMF to the Dow Jones index ranking 21st in Nominal GDP with an expected incremental GDP on the rise (Amoah et al., 2022). The perceived importance of entrepreneurship to the growth of Malaysia’s economy is evidenced by the sheer amount of supporting mechanisms and policies that exist for entrepreneurs, including funding, physical infrastructure, and business advisory services (United Nations Development Programme, 2020). However, it seems that a paradigm shift and improvement in entrepreneurship education processes is needed as the support does not translate into EI (Robuan et al., 2017; [Shah et al., 2020](#)). Despite the positive environment and growing levels of Total Entrepreneurial Activity (Global Entrepreneurship Monitor, 2022), Malaysia’s EI rate (i.e., prospective entrepreneurs) stands below the regional average at 17 compared to 26, lower than neighbouring Thailand (31), Vietnam (24) and Indonesia (26) (Global Entrepreneurship Monitor, 2022). Despite the support, local Malaysian youth are not embracing opportunity entrepreneurship as rapidly as in other countries, raising questions over the effectiveness of EE with a “fear of failure” rate again higher (45) than the regional average (40) (Global Entrepreneurship Monitor, 2022).

Thus, Malaysia is an apt context for EI and EE research ([Al-Suraihi et al., 2020](#); [Hassan et al., 2020](#)) as it experiences low levels of youth participation in opportunity enterprising regardless of high levels of government support (Din et al., 2017; Robuan et al., 2017). An example of this support is the “Young Entrepreneurs Fund”; a financing fund allocated by the Malaysian government as part of its continuous strategy of acculturation and creation of new entrepreneurs among Malaysian youth (United Nations Development Programme, 2020) and the general policy for

development “Shared Prosperity Vision 2030” (<https://www.pmo.gov.my/2019/10/shared-prosperity-vision-2030-2/>). The United Nations Development Program has also created toolkits for young entrepreneurs in Malaysia, mostly focusing on financing (e.g. United Nations Development Programme, 2020).

3.3 Apparatus

Our survey is based on the questions and constructs of Bolton and Lane (2012), Covin and Miller (2014) and Yousafzai et al. (2015). It is has been adopted also by recent studies in emerging markets (Cassol et al., 2022; Lim et al., 2023) It was designed using a combination of Likert-scaled questions (with scores ranging from 1-7) and categorical questions (used as independent variables in our study). The survey was composed of five sections - (a) personal information, (b) entrepreneurial experience, (c) national norms, (d) autonomy, and (e) work environment. The sections and questions were constructed to reflect the five focal factors selected from the recent EI literature (Cassol et al., 2022; Maheshwari et al., 2022), i.e., risk and innovation, national norms and close environment, self-efficacy, and autonomy, no.of languages and adding education as moderator. The survey was uploaded online onto Google forms. Questions were answered through clicks only, there was no need to type, making our survey instrument simple to use on touchscreen interfaces as well. Age was not factored into the analysis, as we did not have a large enough sample for any meaningful comparisons for participants over 29 years of age. There is general consensus that there is a lack of replicability of findings in the social sciences (Donaldson, 2019). Therefore, for the sake of transparency, we have made the survey publicly available online at:

<https://github.com/markoskyritsis/entrepreneur/blob/master/Collection%20Data.xlsx>.

Student participants were asked to click on the link on their module page if they agreed to participate in the study. Informed consent was taken by asking participants to click on a checkbox that indicated they have read and understood the information sheet provided at the top of the survey. Participants were made aware that the survey was anonymized, no information could be traced back to them, and they could withdraw at any time by simply closing the browser tab.

3.4 Survey validity and reliability

We opted to use Principal Component Analysis (PCA) to validate the proposed conceptual model (Figure 1) with the help of the ‘pca()’ function found in the ‘psych’ R library (Revelle, 2018), using the standard orthogonal varimax rotation. The Kaiser, Meyer, Olkin (KMO) measure of sampling adequacy was used to confirm that there is sufficient dimensionality in our survey to support the use of PCA — this was indeed confirmed (KMO = 0.92). Item loadings $> |0.4|$ were used as the threshold for identifying which items contributed to the construction of the components. The PCA component “self-efficacy”, as discussed above, was not a significant predictor of the response variable “perceived likelihood of one day starting a business” and is therefore not discussed further in the context of this study.

Horn’s parallel analysis (Horn, 1965) was used as an objective measure of component retention for PCA, which was done with the help of the R ‘paran’ library (Dinno, 2009). After 1500 iterations, the Eigen decomposition of the correlation matrix suggested we retain four components, as shown in Table 2.

[Table 2]

Next, we ruled out common methods bias by applying Harman's one factor test using PCA without rotations. The unrotated model resulted in three components and did not show evidence of one general component (30% of the variance was explained by the largest factor, which is less than the expected 50% for this test). Finally, we checked the reliability of questions in our survey using Cronbach's alpha. Our results suggested very high internal consistency ($\alpha = 0.95$), with no increase in alpha if any of the items are dropped. **Finally, we have included the summary statistics for the variables used in this study (except for the latent variables that have a mean of 0 and a standard deviation of 1) in Table 3.**

[Table 3]

5 Results and Discussion

5.1 Results

To test our proposed hypotheses, we built and compared three competing logit models. The response variable was set as: 'Do you think you will ever start a business?' (binomial, i.e., yes or no - as in Alvedalen and Boschma, 2017). The first model included the control variables as the independent variables, these were i) languages spoken, ii) current level of education (college level was set as the base level), iii) sex (female was set as the base level) and, iv) work experience (Employed fixed term was set as the base level). The second model introduced the four latent variables. The third model introduced the proposed moderation effect of education on risk and innovation. Finally, the fourth model was a stepwise model that was generated using backwards stepwise regression with a scale value of 0 (the default in R), and the number of degrees (k) set to $\log(n)$ --which forces the model to use Bayesian Information Criterion (BIC) as the penalty term to reduce the number of redundant parameters in the model. By extracting the BIC scores, we were able to compare the models using Bayes Factor analysis with the formula suggested by Wagenmakers (2007):

$$BF10 = e^{(BIC1 - BIC2)/2} \quad (i),$$

where BIC1 is the BIC of model 1, and BIC2 is the BIC of model 2.

Bayes factors are ratios comparing two competing models in the form of $P(\text{Data}|\text{Model1}) / P(\text{Data}|\text{Model2})$. The resulting Bayes factor can be interpreted as the likelihood of the first model fitting the data, over the second model fitting the data.

As shown in Table 4, the stepwise model (model four) was 1.97×10^{10} times more likely to fit the data than the model three (the model that was least likely to fit the data), which, according to Kass and Raftery (1995) is decisive evidence in favour of the stepwise model. This is despite model three having the highest pseudo-R2. On the other hand, model two, which included the latent variables but did not include the moderation of education on risk (as per our proposed conceptual model) was 36.77 times more likely to fit the data than the proposed conceptual model (model three), which leads us to conclude that there is insufficient evidence to support our framework.

The coefficients of the models are presented as log odds in Table 4, while the coefficients and model statistics are shown in Table 5. To extract the percentage change from a numerical predictor, one would simply have to (i) take the exponent of the coefficient, (ii) subtract one from the result if the coefficient is positive, or subtract from one if the coefficient is negative, and (iii) multiple by 100. So, for example, if the coefficient of a hypothetical predictor x was 0.3, then by taking the exponent, we would get $e^{0.3} = 1.35$. Since the coefficient is positive, we would then subtract 1, so that $1.35 - 1 = 0.35$. Finally, by multiplying by 100 we would find a 35% increase. We would interpret this as a unit increase in x results in a 35% increase in the likelihood of y . The same process is followed for predictors that are categorical (i.e., factors with n levels), except the interpretation would be different. Because of the way categorical predictors are coded in generalised linear models using dummy variables, one of the levels of the factor is set as the intercept. We would use this level for comparison purposes. However, our final (stepwise) model did not result in any significant categorical predictors, therefore, we will not discuss the interpretation of results, as it would be outside the scope of the findings.

Our final model proposes three main effects: Autonomy, languages, and Risk and Innovation. We failed to validate our initial theoretical framework, since we did not find a significant moderation effect of education on risk and innovation, although we did find evidence of a main effect of national norms. However, according to Bayes Factor analysis, retaining these coefficients did not lead to a sufficiently better model fit when included in the logit model. Therefore, our contribution is a new conceptual model (i.e., the stepwise model) generated via exploratory research, which would then need to be validated through an independent data set.

[Table 4]

[Table 5]

5.1 Risk and Innovation has a positive effect on perceived likelihood of one day starting a business (H1)

Our final model suggests that factor 'risk and innovation' has a positive effect on the perceived likelihood of one day starting a business. The log model coefficients, which are log-odds, indicate that an increase in the unit score of risk and innovation is associated with a 72% increase in the likelihood that a person would perceive themselves as one day starting a business [95% confidence interval: 15.0% to 168.4%]. This is in line with the work of Reyad et al., (2019) on Egypt, and of Ozaralli and Rivenburgh (2016) on the US and Turkey, and of [Lim et al. \(2023\) on Malaysia validating the link between risk/innovation and EI](#). [As Din et al. \(2017\) evidences on Malaysian HE graduates', despite student perceptions on entry to the programme, risk-thinking \(or risk and innovation\), the need for achievement, and locus of control](#)

significantly contributed towards the effectiveness of the EE program above the concept of financial support alone. The extent to which educators should emphasize the risk of failure or of missing an opportunity, and stimulate and develop planning, intuition and action, remains a key issue of EE that is often overlooked with a focus on stimulating an interest for entrepreneurship alone.

5.2 Autonomy has a positive effect on perceived likelihood of one day starting a business (H2)

Our final model suggests that the factor 'autonomy' has a positive effect on the perceived likelihood of one day starting a business. The log model coefficients indicate that an increase in the unit score of autonomy is associated with a 91.5% increase in the odds that a person would perceive themselves as one day starting a business [95% confidence interval: 30.0% to 189.75%]. This result follows the results in the literature calling for extra emphasis placed on autonomy, to define it and assess it in relation to EE (Shir et al., 2019).

Entrepreneurial activity, by definition, is self-initiated and fundamentally tied to EE, autonomy and independence. According to Shir et al., (2019) active entrepreneurs show autonomy to be more appropriate in meeting basic psychological and motivation needs of entrepreneurs compared to other types of employment. In addition, Van Gelderen and Jansen (2006) observed that running an independent business does not inevitably provide the entrepreneur with boundless autonomy since continual efforts (including HE and re-training) must be made to achieve and maintain autonomy and viability in the long-run. It is not financial gain, but the element of autonomy that is most often mentioned as the most important educational motivator for generally setting

up a business venture in the Western setting (Van Gelderen and Jansen, 2006) and also as economic development tool (Baluku et al., 2019).

The findings are in line with the literature; even though opportunity entrepreneurship is considered a choice based on attitudes and beliefs, and the importance of understanding entrepreneurial attitudes and traits (e.g. autonomy, affect) is acknowledged in EI research (Pérez-Fernández, 2020), there is surprisingly little empirical research that focuses on the effectiveness of those in EE programmes (Cassol et al., 2022).

5.3 Self-efficacy has a positive effect on perceived likelihood of one day starting a business (H3)

Our final model did not show evidence to support our initial hypothesis that self-efficacy has an effect on the perceived likelihood to one day start a business. This is also in line with the literature (e.g. Yu et al., 2019); that emerging market EE ideally should enhance not only perceptions of self-efficacy, but mostly the actual ability to control (i.e. Autonomy) and entrepreneurial feasibility to avoid the “illusion of control” (Cassol et al., 2022).

5.4 National Norms have a positive effect on perceived likelihood of one day starting a business (H4)

Our final model did not show evidence to support our initial hypothesis that national norms have an effect on the perceived likelihood to one day start a business. However, national norms only had a moderating effect as postulated by Roman and Maxim (2017) and Ting and Ying (2013) or none at all as per Cassol et al. (2022). As Roman and Maxim (2017) show, in their work on Romania, receiving entrepreneurial

training over the course of HE is a determinant factor when targeting opportunity entrepreneurship, and national norms likely have a moderating influence over the relationship between feasibility and EI. The high level of power distance in Malaysia (e.g. necessary mentoring from an experienced figure), and the lack of significance of national norms, suggest this moderating effect is not unexpected, however not as binding or significant on student EI as imagined (Ting and Ying, 2013). **EE courses should be created to adapt and cater to such norms rather than as their effect is less than presented in the other settings (Shah et al., 2020; Cassol et al., 2022).**

5.5 Number of languages spoken have a positive effect on perceived likelihood of one day starting a business (H5)

Our model suggests that an additional spoken language is associated with a 153% increase in the odds of someone perceiving themselves as one day starting a business [95% confidence interval: 25.30% to 475.58%]. This is in line with the work of Johnstone (2018) in Finland, Portugal and Sweden, and Clarke et al. (2019), who state language ability is seen as a source of competitive advantage from the entrepreneurs' perspective and should be part of EE. **The studies in those countries discuss the importance of language skills for viable market entry strategies in the form of legitimacy and opportunity, as well as its potential for new foreign market selection, extended options, exit strategies and second business chances (Munawaroh et al., 2023).**

Entrepreneurship can be considered a cultural movement reinforced through education and language ability (Johnstone et al., 2018); both fundamental to entrepreneurial action and success. It is founded upon domestic EE and has the potential to reduce the liability of “foreignness”, but needs to be a part of EE and

promoted as EI tool (Zhang and Harzing, 2016). However, national norms and institutions dictate the level of EE and such access for students. According to Clarke and Cornelissen (2011) it is important to recognize the formative role of language in conceptualizing venture opportunities and in influencing stakeholders about the feasibility of a venture, rather than discounting its influence or reducing it to a secondary process.

5.6 Education moderates the effect of Risk and Innovation on the perceived likelihood of starting a business (H6)

The stepwise model removed the moderation effect as it was considered redundant in terms of contributing to the model fit. Interestingly, education itself failed to pass the significance threshold in the final, stepwise model as well, indicating that its overall effect on the perceived likelihood of starting a business was dwarfed by the other explanatory variables. **However, it seems in terms of attitudes towards risk and innovation specifically, and taking charge, the effect of EE is not as pronounced, even as moderator as suggested in recent literature (Din et al., 2017; Cassol et al., 2022).** It is the element of feasibility and bias avoidance through study that makes EE critical in EI. As Macko and Tyska (2009) show in their study there is no evidence that potential entrepreneurs or actual entrepreneurs were more risk prone than students with no EE. However, they did show more risk tolerance and more understanding of feasibility which EE should provide.

6 Conclusions

By proposing a new conceptual model for student EI in emerging markets taking student-related contextual variables as focus this paper explored the extent to which a new context-based and feasibility-oriented conceptual model is needed for Malaysian students and EE. To find evidence in support of the conceptual model we built and compared four competing logit models and used Bayes Factor analysis to highlight select the one that demonstrates the best model fit (Donaldson, 2019). In the end, our best fitting model proposes three new main effects: Autonomy, Languages, and Risk and Innovation. Finally, our findings extend the original EI construct and provide empirical evidence that the TPB is indeed applicable to emerging contexts as well (Welter et al., 2019).

6.1. Theoretical implications

The study began by summarizing previous research on student EI. We evidenced a lack of research and consensus on emerging market EI and emerging market EE. The new proposed variables autonomy, risk and innovation, and number of languages spoken were all confirmed as significant for the Malaysian setting denoting the importance of the student-related context variables in local EE. Education itself, interestingly, failed to pass the significance threshold in the final stepwise logit model warranting further research on the impact and suitability of current EE courses in Malaysia (Khoi et al., 2023). The findings obtained challenge established patterns in the literature on EE and student EI in the West (Donaldson, 2019). In addition, the results confirm and expand the TPB's applicability beyond Western settings (cf. Donaldson, 2019; Stouraitis, 2022). The lack of significance of National Norms and

Self-efficacy also clarify the impact, potential and need for drafting “feasible” EE at student-related context level in emerging markets (Thomassen, 2019; Gil-Soto, 2022).

Our findings call for further exploration in the design of EE in emerging markets with a focus on creating a viable long-term entrepreneurial route for the potential student entrepreneur. They also contribute to increase the potential for undertaking localized context-based syllabus with global prospects for students. Finally, the evidenced role of feasibility and risk can strengthen the connection between EE and starting a business as action. . .

6.2 Practical implications

Predominant views on supporting economic development in emerging markets have often neglected the possible contribution that EE, beyond the support of existing necessity entrepreneurs, can make in attaining the United Nations Sustainable Development Goals (SDGs) (Fiedler, 2020). Practitioners are concerned that the impact of EE is unclear or that EE does little to enhance entrepreneurship skills (Shah et al., 2020). The results indicate that EI and viable business start-up can indeed be stimulated through updated EE curricula considering local context and attitudes (Trivedi, 2016; Thomassen, 2019). The findings can assist to ensure targeted support is fully absorbed and EE translates into viable businesses and a feasible tool for economic development (Fiedler, 2020). Clarifying and comprehending the type of EE available can provide clarity to future business owners and business incubators (Khoi et al., 2023).

6.3 Limitations and Future Research

As expected from principal component analysis, component retention is often subjective and prone to both under-factoring and over-factoring. We opted to use a more objective approach for determinant component retention –namely parallel analysis—which we anticipate is less prone to effects of experimenter bias. However, the current study needs to be followed up by a confirmatory factor analysis, on a new data set, to ensure construct validity, using, e.g., SEM. Future research could test our model in other countries with similar GEM values in South Asia, with a non-student sample, and finally longitudinally from EE to having set up a business venture. Finally, it is worth noting that despite finding significant effects, only a small amount of the variance was explained by the model, indicating, perhaps, that random effects and individual differences, as is often the case in social science research, explain a much larger amount of the variance in the dependent variable. The R² changes were small, but Bayes Factor Analysis indicates the final model is the best fitting model

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