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Personality and the Creativity of Frontline Service Employees: Linear and Curvilinear Effects

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Personality and the creativity of frontline service employees: Linear and curvilinear effects

Previous studies have investigated the relationship between the Five Factor model of personality and creativity. As this model has been criticised for providing a limited account of an individual's personality, this study considers additional personality traits that have recently been investigated in the literature as determinants of employee behaviour. Moreover, we also contribute to the existing body of literature by conducting this study in a services setting, for which we predict personality traits will exert differentiated effects on creativity when compared to other settings. Finally, while past research has focused on linear effects, this study examines the existence of non-linear effects between personality and creativity. The results indicate that personality traits apart from the Five Factor model have an impact on creativity and that the effects of several personality traits on the creativity of frontline service employees differ from those obtained in other settings. Lastly, the findings also show that five of the personality traits have non-linear effects on creativity, and this may be a stimulus for a new stream of research in the human resources literature.

Keywords: creativity; personality; service employees; linear and curvilinear effects

Personality and the creativity of frontline service employees: Linear and curvilinear effects

Introduction

Creativity refers to the development of ideas about goods, services, processes, and practices, which are novel and likely to be useful to an organisation (Shalley, Zhou, & Oldham, 2004). Whereas creativity reflects the development of these ideas at the individual level, innovation concerns the organisational implementation of such ideas (Amabile, 1996). Due to the belief that creativity is paramount not only to greater customer experiences and customer satisfaction (e.g. Coelho, Augusto, & Lages, 2011; Daly, Grove, Dorsch, & Fisk, 2009), but also organisational innovation and ultimately performance (Amabile, Barsade, Mueller, & Straw, 2005; Chen, Shih, & Yeh, 2011; Jiang, Wang, & Zhao, 2012; Liu, 2013), employee creativity has been attracting growing research attention (e.g. Probst, Stewart, Gruys, & Tierney, 2007). Creativity is a crucial issue to the human resource management (HRM) literature, as HRM practices can be used to promote creativity through employee training and development (Binyamin & Carmeli, 2010; Sue-Chan & Hempel, 2015). Moreover, by selecting employees who have creative personality traits, HRM is also contributing to a creative workforce (Dul, Ceylan, & Jaspers, 2011).

However, while the relationship between personality traits and creativity has received some attention, past research has mostly focused on the link between the Five Factor model and creativity (for a review, see Feist, 1998). Nevertheless, several authors (e.g. Brown, Mowen, Donavan, & Licata, 2002; Paunonen & Jackson, 2000) not only question whether the differences among individuals, i.e. their personality traits, may be reduced to the Five Factor model, but also suggest that other personality traits should be considered. Accordingly, this study follows the contention that the Five Factor model provides a limited account of an

individual's personality (Block, 1995; Paunonen and Jackson, 2000) by including four additional personality traits from previous research (see Brown et al., 2002; Harris, Mowen, & Brown, 2005), thereby contributing to fill a gap in the personality–creativity literature.

Another important limitation in the literature exists due to the fact that the relationship between personality and creativity has been studied in settings other than frontline service jobs. While the importance and idiosyncrasies of services are acknowledged, the HRM research in this area is still in its infancy and more work is needed (Pugh & Subramony, 2016). This is particularly relevant because a one-size-fits-all approach may not be appropriate in studies of creativity since different types of problems and task demands may require a different set of skills, cognitive strategies, and motivations (Mumford, 2003). In a services setting, frontline employees are frequently responsible for the first, and often the only, interaction with the customer (Hartline, Maxham, & McKee, 2000; Lages & Piercy, 2012). Moreover, a frontline service employee spends most of the working day essentially interacting with customers. This suggests that creativity in services settings should be particularly important. More specifically, creative frontline employees are more likely to identify customers' needs, to personalise communication with customers, and to craft a unique solution to the idiosyncratic needs of customers (Coelho et al., 2011). Hence, employees who are creative should adapt to a greater extent the service experience to customer needs (Wilder, Collier, & Barnes, 2014). As a result, creativity is required in order to develop customised solutions to customer problems (Wang & Netemeyer, 2004). In this process, developing a good rapport with and eliciting information from customers, are crucial for creative endeavours that address their needs, but this is likely to require employees who are, for example, agreeable, extravert, and emotionally stable, as these facilitate employee–customer interactions (Brown et al., 2002). On the contrary, however, Feist (1998) notes that antisocial behaviours are associated with both scientists and artists, as the creative act requires time alone, i.e. individuals must spend some time away from

others in order to develop their own perspective, but this is not possible for frontline service employees. Feist (1988) also notes that emotional instability is, in particular, associated with artists, whose work mostly entails the expression of emotions. In a services context though, when dealing with customers, emotional stability would be preferable and employees are often required to control their emotions.

Moreover, frontline employees are urged to develop relationships with customers in an innovative way as customers' needs in services tend to be heterogeneous, which implies that satisfying customers requires flexibility from employees (e.g. Daly et al., 2009; Dubinsky, Howell, Ingram, & Bellenger, 1986). As such, service firms should encourage their frontline employees to be creative, since opportunities to be creative occur frequently in the services sector due to the greater variability in consumer needs and in the nature of service encounters (Parasuraman, 1987). Not surprisingly, frontline employees' capacity to adapt and customise the service experience to the unique needs of each customer has been deemed crucial for customer satisfaction (e.g. Bitner, Booms, & Tetreault, 1990). In addition, frontline positions demand an ability to handle interpersonal and interorganisational conflict, and often require an employee to make real-time trade-offs between quality and productivity, as well as certain mental and physical skills (Zeithaml, Bitner, & Gremler, 2009). These specificities suggest that findings on the effects of personality on creativity obtained in other settings (such as in arts and science; see Feist, 1998) may not hold in services. Accordingly, some of the hypotheses developed in our study for the effects of personality traits on creativity contradict findings from research conducted in other settings.

Finally, previous research assumed a linear effect between personality traits and creativity, disregarding potential curvilinear effects. This gap is surprising given the mounting evidence of the non-linear effects of personality on a number of other outcomes, such as performance

(e.g. Barrick & Mount, 1991; Vasilopoulos, Cucina, & Hunter, 2007), as well as some inconsistent results regarding the personality–creativity relationship. Together these suggest that this relationship requires further research.

In summary, the contributions of this research are threefold. First, in order to address several authors' contentions (e.g. Block, 1995; Brown et al., 2002; Paunonen & Jackson, 2000), this study investigates the effects of an enlarged set of personality traits on creativity. Second, it innovates by investigating these relationships in a services setting, in which personality traits are predicted to exert differentiated effects on employee creativity. Third, it contributes to the literature by investigating not only the linear but also the non-linear effects of the enlarged set of personality traits on employee creativity.

Theoretical background

Personality and creativity

As previously mentioned, creativity refers to the development of novel and useful ideas about services, goods, practices and procedures (Shalley et al., 2004). Ideas are novel when they involve a considerable recombination of existing materials or relate to the development of completely new materials (Oldham & Cummings, 1996), and they are useful when they are of direct or indirect value to an organisation (Shalley et al., 2004). Frontline employee creativity is key to customer satisfaction and a company's competitive advantage (Agnihotri, Rapp, Andzulis, & Gabler, 2014; Strutton, Pentina, & Pullins, 2009) and, thus, examining the determinants of creativity in service settings should be of the utmost importance (Coelho & Augusto, 2010).

While this study focuses on the effects of personality on creativity (for a review, see Feist, 1998), it goes beyond previous research, which mostly draws on the Five Factor Model of Personality (Costa & McCrae, 1992). This model entails five personality dimensions: agreeableness, extraversion, conscientiousness, openness to experience, and emotional stability. However, Paunonen and Jackson (2000) argue that dimensions of personality beyond the big five need to be considered. They attribute this to the forcing of behaviours apart from the Five Factor model into a five-factor space and to the low representation of some behaviours in language, which in factor analysis results in small factors that tend to be discarded. Accordingly, given the limited role of the Five Factor model in accounting for human personality (e.g. Block, 1995; Brown et al., 2002; Paunonen & Jackson, 2000), this study includes additional personality traits recently investigated in the services literature as influencers of frontline employee behaviour and therefore crucial in this study. These other traits comprise competitiveness, materialism, need for learning, and need for activity (see Brown et al., 2002; Harris et al., 2005).

Additionally, this personality–creativity relationship is investigated in a frontline services setting, where employee creativity should be of great importance and where different effects for personality traits on creativity can be expected. Feist's (1998) meta-analytic review indicates that introversion and lack of agreeableness are associated with creativity. He notes that asocial, or even antisocial behaviours, are characteristics that can be found in both scientists and artists. However, the effects of introversion and agreeableness (and eventually of other traits) on creativity in a services context are likely to be different. The nature of service provision implies a great deal of interaction between employee and customer, due to the simultaneous production and consumption of services (e.g. Daly et al., 2009; Zeithaml et al., 2009), suggesting that being creative might require the opposite traits in this context.

The non-linear effects of personality

A few studies have recently determined curvilinear relationships for personality traits on a range of outcomes (e.g. Cucina & Vasilopoulos, 2004; Le et al., 2011; Vasilopoulos et al., 2007). Le et al. (2011), for instance, determined that both emotional stability and conscientiousness have a curvilinear relationship with task performance, organisational citizenship behaviour, and counterproductive behaviour. One of the potential problems associated with the lack of research on curvilinear effects is that non-significant findings when studying linear relationships might indeed be the result of non-linear relationships among variables. For example, Raja and Johns' (2010) work on the effect of personality on creativity found that, of the Five Factor model dimensions, openness to experience was the only dimension with a significant main effect on creativity. Their findings might be the result of the other relationships being non-linear.

These few studies on the non-linear effects of personality on outcome variables pave the way to hypothesise that personality may also be curvilinearly related to employee creativity. In addition, calls for a paradigmatic shift from linear to curvilinear models should help to advance management theory and practice (Pierce & Aguinis, 2013). In this vein, Grant and Schwartz (2011) argue that there is no such thing as an unmitigated good and that all positive traits have costs that, at high levels, may begin to offset their benefits, producing an inverted U. In this context, Pierce and Aguinis (2013) developed the Too Much of a Good Thing (TMGT) effect meta-theory, according to which too much of any good thing is ultimately bad. That is, a positive trait will produce positive effects up to a certain point, above which negative effects start to emerge.

Theoretical support for the existence of non-linear effects of personality on creativity is also provided by cue utilisation theory. According to Easterbrook (1959), the range of cue utilisation

refers to the total number of environmental cues in any situation that an organism observes and responds to. An increase in arousal leads individuals to focus their attention on task-relevant cues and to neglect peripheral ones, resulting in increased response effectiveness. However, increases in arousal beyond a certain threshold reduce response effectiveness because after all irrelevant cues have been excluded, further reductions in cue utilisation exclude relevant ones (see also Le et al., 2011). Hence, as a personality trait increases, an individual's attention increasingly concentrates in a certain direction, but at a very high level, such concentration becomes undue, with attentional resources dedicated to other important stimuli becoming compromised. For example, openness to experience might be important for generating novel ideas but, when at very high levels, it might reduce the attention to other important issues. Considering the above discussion, we predict personality traits to have non-linear relationships with creativity. In the next section, the respective research hypotheses are developed.

Research hypotheses

Emotional stability refers to the extent to which the individual's emotions vary widely (Brown et al., 2002). Individuals who are emotionally unstable describe themselves as emotional, impatient with others, and intolerant toward ambiguous situations (De Caroli & Sagone, 2009). They are also more likely to experience negative emotions such as anxiety, fear, depression, or irritability (Suls, Green, & Hillis, 1998). Several studies found a positive association between emotional instability and creativity (e.g. Feist, 1998; Strong et al., 2007; Walker, Koestner, & Hum, 1995); a possible reason being that emotional instability provides access to unusually intense and varied affective experiences, which facilitate the creative process (Strong et al., 2007). However, in service settings, we predict this relationship to be negative instead. The argument is that emotional instability appears to negatively interfere with employee customer

orientation, as instability should lead employees to exhibit a fluctuating predisposition, motivation, and ability to serve customers well and satisfy their needs appropriately (Brown et al., 2002). Creativity in a frontline services setting should require the establishment of a good employee–customer interpersonal relationship, so that the employee desires, and is able, to systematically read and serve the unique needs of the customer. This is in line with contentions (e.g. Mount, Oh, & Burns, 2008) that emotional stability helps individuals to mobilise the attentional resources they need to perform their tasks, i.e. serving customers.

Notwithstanding, we predict that these positive effects of emotional stability on creativity should diminish as emotional stability increases. Consistent with this prediction, Eisenberg, Fabes, Guthrie, & Reiser (2000) found a non-linear relationship for emotion regulation (a facet of emotional stability) on social functioning. Eisenberg et al. (2000) explained that emotional regulation enhances social competence but only up to a point; after that point, increases in emotional regulation were associated with decreases in social competence. The reason why the relationship becomes negative is that individuals who are characterised by extreme overcontrol are not as socially competent as individuals who are moderately high in control. Not surprisingly, overcontrol is related to constricted and non-adaptive behaviour (Block, 1994). As creativity levels may be negatively affected by the need for too much control (Raja & Johns, 2010), it is likely that emotional stability is curvilinearly related to creativity. Hence, we propose the following:

H1: Emotional stability and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as emotional stability increases

Extraversion refers to the degree to which a person is outgoing and sociable. Extraverts are described as sociable, talkative, energetic, enthusiastic, assertive, and optimistic (Raja & Johns,

2010). On the contrary, and with regard to introversion, Feist (1998) argues that to be creative it is necessary to spend time alone and that introversion is frequently observed in highly creative people, especially in the arts and sciences. However, we argue that the effect of introversion in services is likely to be different. In this context, frontline employees frequently have to design, produce, and deliver the service in close and continuous interaction with customers, who also participate in the production process (i.e. co-production). Therefore, frontline employees cannot detach from customers either to plan or to execute the service (cf. Daly et al., 2009), making the social interaction an important requirement for creative service delivery. Moreover, social interaction could be an important factor in fostering creative behaviour (Liu, 2013), as individuals who are exposed to new ideas and perspectives tend to exhibit higher levels of creativity (Shalley et al., 2004). In addition, many services require a great deal of interpersonal relationships (Daly et al., 2009; Zeithaml et al., 2009), suggesting that, to deliver creative solutions to the unique needs of customers, individuals must exhibit some degree of extraversion, which will allow them to adequately read customers' needs. In this vein, introverts may be less willing to interact with customers and, therefore, have more difficulties in identifying and satisfying their needs (Brown et al., 2002). Accordingly, the specificities of services described above might lead introversion to have different effects on employee creativity in a services setting when compared to other settings.

However, and following cue utilisation theory, as extraversion increases, creativity returns should decrease. Some degree of introversion might be desirable so that employees gain some distance from customers and obtain time to devise creative solutions to their problems (cf. Feist, 1998). Moreover, and according to the intrinsic motivation perspective (e.g. Oldham & Cummings, 1996; Shalley et al., 2004), individuals are creative when they are excited with job tasks, excitement which, in turn, leads them to play with ideas, stay focused on the heuristic parts of the job, and to nurture ideas and problems for longer. However, extraverts look for

power and status (Raja & Johns, 2010), which brings an external motivation to the execution of job tasks that, at very high levels, might be damaging to creativity. Thus, we propose the following:

H2: Extraversion and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as extraversion increases

Agreeableness refers to the concern and sensitiveness toward others and their feelings (Brown et al., 2002). Agreeable individuals tend to be trusting, flexible, co-operative, supportive, generous, friendly, altruistic, and good natured (e.g. Feist, 1998; Goldberg, 1990; Matzler, Renzl, Mooradian, von Krogh, & Mueller, 2011; McCrae & John, 1992). Some past studies found agreeableness to be negatively related to creativity, since questioning social norms, antisocial behaviour, and independence from others are characteristics of creative individuals (Feist, 1998). In services, however, we expect that the effect of agreeableness on creativity is different. The agreeableness characteristics of empathy, trust, tender-heartedness, and co-operation should promote the required interpersonal skills to elicit and appreciate the contributions of customers (cf. Taggar, 2002; see also Liu, 2013), and gain more and better information from customers, which can help individuals to produce novel and potentially useful ideas. Employees who are more agreeable tend to exhibit a higher empathy towards their customers and the desire to solve their problems, thereby obtaining personal satisfaction from helping customers (Brown et al., 2002). This should enhance their intrinsic motivation and, thus, their creative outcomes are likely to increase (Oldham & Cummings, 1996). In particular, agreeable individuals are suitable for jobs involving a high degree of interpersonal interaction, as they work collaboratively, look for common understanding, and strive to maintain relationships (Barrick, Mount, & Gupta, 2003; Digman, 1990; Matzler et al., 2011), aspects

that are key for arriving at creative solutions which address the unique needs of customers. Thus, contrary to Feist's (1998) meta-analytic study, this study proposes that in a service setting agreeable individuals score higher on creativity.

However, as agreeableness increases, its positive effect on creativity should decrease. An exaggerated focus of employees on others, to whom they demonstrate excessive sympathy and generosity, might diminish employees' creative efforts due to the fear of negative reactions from customers. Designing creative solutions means conceiving original things, which frequently are criticised or resisted by others, namely customers, and employees who are too agreeable are likely to avoid this. As Feist (1998) concludes, expressed creativity and submissiveness are unlikely to make good partners. We thus offer the following:

H3: Agreeableness and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as agreeableness increases

Conscientiousness refers to the extent to which an individual is organised, orderly, and precise (Brown et al., 2002). Feist's (1998) meta-review found a negative link between conscientiousness and creativity. The creativity levels of conscientious individuals may be adversely affected by their need for control, planning, and meticulousness, which is likely to collide with the lower structure involved in creatively solving problems (Raja & Johns, 2010). Although a significant number of studies found this negative link between conscientiousness and creativity (Feist, 1998; Raja & Johns, 2010), this study proposes that conscientiousness has a positive impact on creativity in a service setting instead. Conscientious individuals are more likely to thoroughly and correctly perform work tasks, stay focused on job tasks, remain committed to work performance, and take the initiative in solving problems (e.g. Barrick & Mount, 1993; Mechinda & Patterson, 2011; Witt, Burke, Barrick, & Mount, 2002).

Conscientious individuals are also persistent and, thus, unlikely to give up in the face of difficulty (Colquitt & Simmering, 1998), and that capacity for self-discipline and hard work is key to creative performance (Cropley, 1990). Moreover, conscientious individuals, due to their meticulousness and organised way of thinking and working, are likely to conceive and screen a wider, more systematic range of different combinations of existing ideas for serving customers. This will be particularly important in frontline service settings, where employees might need to put forward an original solution to customer problems at short notice. This is coherent with the systematic processes that have been developed to promote creative problem-solving (e.g. Isaksen, Dorval, & Treffinger, 2011). Given that a novel idea is an original combination of two or more existing ideas, creativity in serving customers is likely to be the outcome of the efforts of conscientious employees, who are likely to draw more systematically on previous experiences and knowledge to provide customised services through an original combination of existing ideas. Thus, low-conscientious individuals, i.e. individuals who are less meticulous, more disorganised, forgetful, careless, and pay less attention to detail (e.g. Mount et al., 2008), should find it more difficult to put forward original value propositions and solutions to customers while serving them.

However, as conscientiousness increases, the creativity returns should decrease. Highly conscientious individuals may become too inflexible and rigid (Le et al., 2011), or too cautious and risk averse (Mount et al., 2008), thus thwarting creative performance. Thus, we offer the following:

H4: Conscientiousness and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as conscientiousness increases

Openness to experience has been described as the extent to which individuals are proactive, have wide interests, and look for novel experiences, and is based on characteristics such as imagination, openness to feelings, curiosity, flexibility of thought, and readiness to indulge in fantasy (Feist, 1998; McCrae & Costa, 1985). People who rate highly on openness to experience have greater access to a variety of thoughts, perspectives, and ideas, and tend to be willing and able to generate and contemplate new ideas that challenge the status quo (McCrae & Costa, 1997), as they are more imaginative, curious and flexible in their thinking (Madjar, 2008). Openness to experience has, at its core, a divergent thinking style associated with the ability to 'think outside the box' (McCrae, 1987), leading to useful, novel, and creative ideas. However, it might be possible that the positive effects of openness to experience on creativity diminish at higher levels of openness. Nettle (2006) notes that openness to experience has been positively related to depression and paranormal beliefs, and that the unusual thinking style characteristic of openness can lead to fictitious ideas about the world and the development of psychosis involving a break with reality. This would suggest that the ideas resulting from higher levels of openness to experience may not be as useful to customers and, thus, as creative. In addition, and considering cue utilisation theory (Easterbrook, 1959), and the view of attention as a resource (e.g. Norman & Bobrow, 1975), at very high levels of openness to experience, employees would concentrate their attentional resources, and neglect relevant cues in addressing customers' needs. Accordingly, we hypothesise the following:

H5: Openness to experience and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as openness to experience increases

Need for activity describes an enduring motivation to stay busy and be continually doing something (Mowen & Sujan, 2005). Creative problem-solving is most likely to arise when

people actively search for relevant facts (Mumford, 2000). In this vein, Shainess (1989) states that the creative person is restless, questions, and constantly searches. Moreover, Brown et al. (2002) found need for activity to be positively associated with customer orientation, reasoning that this trait provides further motivation to fulfil customers' needs. The underlying reason is that need for activity is likely to drive employees to strive further in identifying customers' needs and to devise a solution that better meets the unique needs of each customer (cf. Brown et al., 2002). As a result, an individual who has a disposition to be always active and busy will tend to exhibit more creative behaviours in order to identify and satisfy customers' needs.

However, and consistent with TMGT theory, we expect that as need for activity increases, the positive effects on creativity should have diminishing returns. At high levels of need for activity, individuals tend to perform many tasks at the same time. This multitasking is likely to result in a lack of dedication and effort to each of the performed tasks, thus adversely affecting creativity, which requires employees to focus and work longer on an idea or problem (Oldham & Cummings, 1996). This is also consistent with the view that attention is a limited resource (Norman & Bobrow, 1975). Accordingly, spreading a limited resource across an increasing number of tasks implies that not enough resources are allocated to each of the tasks; i.e. too much need for activity results in an increasing number of activities competing for the limited individual attentional resources of the employee, adversely affecting creativity. Accordingly, we offer the following hypothesis:

H6: Need for activity and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as need for activity increases

Need for learning is defined as a basic motivating factor that leads individuals to obtain information to develop a deep understanding of the environment and to engage in high-level

information processing (Mowen, 2000). This need for learning inspires the individual to focus on increased knowledge and to enjoy learning new things and working on new ideas (Harris et al., 2005), which is essential for creativity (Weisberg, 1999). In addition, individuals with a learning orientation pursue challenging tasks (Ames & Archer, 1988) that ultimately enhance their knowledge, and this acquisition of knowledge and skills enhances creativity (e.g. Gardner, 1993; Gong, Huang, & Farh, 2009; Hayes, 1989). Accordingly, frontline employees with a need to learn should have a higher drive to develop a better understanding of their jobs, of how the organisation functions, of competitive service offers and other market developments, and of customer needs, and this increased knowledge facilitates the development of creative solutions to customer problems.

Notwithstanding, need for learning might have diminishing returns on employee creativity. Need for learning focuses the attention of the individual on knowledge accumulation, and this implies, following cue utilisation theory, that beyond a certain point, further increases in need for learning will reduce the attention to other relevant cues in one's environment. This is likely to be more problematic in complex tasks, which require the utilisation of a larger number of cues (Easterbrook, 1959), and frontline service jobs tend to be complex given the high degree of interpersonal interaction (e.g. Bettencourt, Brown, & MacKenzie, 2005), emotional labour (e.g. Zeithaml et al., 2009), and need for flexibility due to the heterogeneous nature of customers' needs (Dubinsky et al., 1986). Serving customers' idiosyncratic needs implies a number of tasks, and a high need for learning may drive the frontline employee to focus excessively on collecting information and less on devising novel solutions to customers' problems and on creatively communicating with customers. Accordingly, the following hypothesis is proposed:

H7: Need for learning and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as need for learning increases

Materialism is defined as the relevance an individual attributes to worldly possessions (Belk, 1984). This is an innate need for material possessions in an individual's life (Harris et al., 2005) that should be negatively related to employee creativity. Dollinger, Burke, and Gump (2007) suggest that there is a conflict between creativity and the need for wordly possessions, since creative activity is pursued as an intrinsic good while the need for material possessions is extrinsic to the creative act. Materialism can thus be regarded as a motive to enhance resources. Accordingly, materialistic employees would behave in ways to achieve extrinsic goals, and this suggests that materialism is incompatible with employee creativity. This is in line with cue utilisation theory (Easterbrook, 1959), according to which both relevant and irrelevant task cues may be present in the perceptual field of an individual, with the latter interfering negatively in response effectiveness. Hence, materialism can be seen as a motivational force that distracts employees' attention from relevant task cues, thus adversely affecting creativity in satisfying customers. However, this negative relationship between materialism and creativity should attenuate with higher levels of materialism. According to cue utilisation theory (Easterbrook, 1959), there appears to be an optimal range of cue utilisation for each task and, based on the attention as a resource perspective, an optimal level of attention resource is required in order to successfully perform a task (Le et al., 2011). As such, the application of resources beyond a certain level is wasted due to a saturation effect (Le et al., 2011). This suggests that as materialism increases its negative effect should diminish. Accordingly, the following is proposed:

H8: Materialism and creativity are curvilinearly related such that the relationship is initially negative, becoming weaker as materialism increases

Competitiveness refers to a person's desire to excel, to win in interpersonal situations, and be better than others (Spence & Helmreich, 1983). Competitiveness is expected to impact positively on creativity. As competitive individuals tend to focus on the assessment of how their performance compares to that of others, they tend to exert extra effort to exceed others (Brown & Peterson, 1994), and they can accomplish this aim by being creative in service delivery. Additionally, individuals who are highly competitive want to be the best and, as such, are also likely to make an extra effort in finding solutions to customers' problems. In particular, highly competitive employees tend to explore potential solutions to problems for longer, thereby fostering creativity.

As competitiveness increases, we expect its positive effects on creativity to decrease. Following cue utilisation theory (Easterbrook, 1959), too much competitiveness should reduce the range of cues the employee focuses upon, thus neglecting other relevant cues due to an obsessive focus (cf. Le et al., 2011). In addition, considering the perspective of attention as a scarce resource (e.g. Kanfer & Ackerman, 1989; Norman & Bobrow, 1975), competitiveness implies that a significant part of an individual's attentional resources are applied to monitoring peers' activities and performance, as well as to comparing the individual's own performance against the performance of others. Accordingly, at high levels of competitiveness, employees may become too externally focused, which might result in a reduction of the employee attention on the heuristics of the tasks at hand, thus adversely affecting creativity. Hence, we offer the following hypothesis:

H9: Competitiveness and creativity are curvilinearly related such that the relationship is initially positive, becoming weaker as competitiveness increases

Methodology

Sample and data collection procedure

To collect the data we obtained the collaboration of public health centres in Portugal. The health care context was selected since individuals spend a considerable amount of time using this service, which has a strong impact on several aspects of their lives (Anderson & Ostrom, 2015). In addition, health care is simultaneously extremely expensive and complex (Berry & Bendapudi, 2007), and characterised by an increasing demand, limited budgets (Van Dam, 2005), and escalating costs, which puts a mounting pressure on the industry to become more productive and perform effectively (cf. Licata, Mowen, Harris, & Brown, 2003). Given these pressures and the fact that doctors, nurses, and other health care professionals work in collaboration with individual patients (Sweeney, Danaher, & McColl-Kennedy, 2015), creativity is of paramount importance in order to address their individual needs in a sector characterised by scarce resources.

To further assess whether the research setting was appropriate for conducting a study on creativity of frontline employees, we interviewed two nurses and one doctor. Some of their daily tasks involve interacting and developing a relationship with the patient and his/her family, diagnosing the patient's situation, determining a plan of action (including, for example, medication and changes in lifestyle), accompanying the patient over time, and internal administrative tasks. According to the interviewees, creativity can be deployed across all of these tasks as each patient is unique, implying that a one-size-fits-all approach produces far

from maximal returns, both to the patient and the health care system. From the interviews, it also emerged that the personality of health care professionals is an important matter for assuring the best patient outcomes and health centre performance.

In total, 950 questionnaires were distributed to frontline employees, namely doctors, nurses, and clinical administrators. The fact that the individuals in the sample have different occupations contributes to the generalisation of the findings and is coherent with other studies in the literature (e.g. De Jong, De Ruyter, & Lemmink, 2004; Hartline et al., 2000). We received 255 questionnaires back, of which 234 were usable, yielding a net response rate of 24.6%. Of these, 33.8% were nurses, 32.9% doctors, 31.2% clinical administrators, and 2.1% occupied other frontline functions. This compares reasonably well with the breakdown from a broader sample of health centres, of which 36.2% of employees were doctors, 35.7% nurses, and 28.1% clinical secretaries. These figures suggest that non-response bias is not a great concern in this study. Of the respondents, 76.1% were female, 19.7% up to 29 years of age, and 31.6% aged 48 or over.

Measurement

The measures were adapted from established scales in the literature (see Table 1 for scale items and scale sources). We further note that such scales have been used in research on frontline settings. Considering that prior research (e.g. Burroughs & Mick, 2004) has shown that age and gender can be related to creativity, these variables were included as control variables. In addition, autonomy was also included as a control variable as the literature contends that employee creativity is affected by the work context (e.g. Chen et al., 2011; Shalley et al., 2004). The services literature also presents autonomy as a key factor for assuring adequate employee responses to heterogeneous customer needs (e.g. Bell & Menguc, 2002; Bowen & Lawler,

1992). The measure for autonomy is taken from the Job Diagnostic Survey (Hackman & Oldham, 1980).

The scale items were subjected to confirmatory factor analysis (CFA) for psychometric assessment. The initial CFA had to be refined in order to attain a good measurement fit and appropriate psychometric properties, a process that led to the elimination of some scale items. The final CFA model rendered a significant chi-square (chi-square = 1101.2, df = 724, $p < 0.001$). As to the remaining fit indices, they meet conventional cut-off values, and thus the model is deemed acceptable (see Table 1).

INSERT TABLE 1 ABOUT HERE

The CFA results indicate that all items load very significantly on the appropriate construct, which indicates *convergent validity*. As to the coefficient alpha and composite reliabilities, all values, with the exception of openness, exceed the 0.80 mark. As to the average variance extracted, in all cases, this exceeds the 0.50 cut-off point. In addition, the shared variance by any two constructs (i.e. the square of the inter-correlations) is lower than the average variance explained in the items by each construct, indicating discriminant validity (Fornell & Larcker, 1981) (see Table 2). In conclusion, the results provide evidence of convergent and discriminant validity, as well as of scale reliability.

INSERT TABLE 2 ABOUT HERE

Since the study relies on self-reports, we conducted statistical tests to determine the degree to which common method variance could be affecting the results. First, we relied on a procedure that consists of comparing simpler with more complex CFA models (Chaudhuri & Ligas, 2009). If common method variance exists, a simpler model (fewer factors) should fit the data as well as or better than a more complex one. Accordingly, we ran a number of chi-square difference tests and these indicated that larger, more complex models fitted the data better. In addition, we noted that the best fit to the data was obtained when all the factors considered in the model were specified. We have also followed the widely used approach by Lindell and Whitney (2001), namely a correlation-based marker variable technique. Accordingly, we selected a 'marker variable' that has not been theoretically related to the variables of interest, namely the percentage of time employees spend dealing with patients on a daily basis. The correlation of this variable with the variables of interest is non-significant, with the exception of a small correlation, namely with conscientiousness (0.18). Moreover, the average absolute correlation of the marker variable with the remaining variables is 0.08 and with the dependent variable, creativity, is 0.037 (not significant). Next, we used the smallest positive correlation coefficient between the marker variable and any of the variables of interest as an estimate of common method bias (0.037). Subsequently, we adjusted the correlation between the dependent variable and each independent variable by subtracting that estimate from each correlation, and this result was then divided by one minus the estimate of method bias. Finally, we examined the statistical significance of each adjusted correlation, and observed that the correlations that were originally significant still retained their significance after controlling for the method effect. This provides evidence that the relationships observed between the variables of interest hold even after controlling for common method variance (Lindell & Whitney, 2001). Lindell and Whitney (2001) suggest an alternative method to control for common method variance that involves selecting the lowest correlation coefficient (0.02) among the variables

of interest (see Table 2) as an estimate of method bias. Subsequently, this estimate is used to adjust the zero order correlations as previously discussed. Once again, all the correlations between the dependent and the independent variables retained their significance after controlling for method bias. Finally, we applied the regression-based marker variable technique (Siemsen, Roth, & Oliveira, 2010). Accordingly, we included the marker variable (the percentage of time employees spend dealing with patients on a daily basis) in the regressions estimated to test the research hypotheses and observed that, after controlling for method bias, all substantive relationships remained statistically significant. This is further evidence that common method bias should not affect the results in a substantive manner.

Results

Prior to forming the quadratic terms, we mean-centred the variables in order to reduce the multicollinearity resulting from the product terms (Aiken & West, 1991). To test the hypotheses, we relied on hierarchical multiple regression to estimate two nested models, which enabled the assessment of incremental contributions (see Table 3). Model 1 contains the first order terms, i.e. the linear effects for personality dimensions on creativity. The R^2 for Model 1 is 44.3%. The results show a positive, linear effect, for agreeableness, need for learning, need for activity, and openness to experience. In Model 2, we additionally entered all the quadratic terms for the personality dimensions, and determined that not all were significant. Subsequently, we eliminated from the model, step by step, the non-significant quadratic terms. Doing so avoids an increase in the standard errors of the remaining regression coefficients, which would make it more difficult for the significant true effects to emerge (Aiken & West, 1991). These steps resulted in a final Model 2 with R^2 of 51.4%. This implies a change in the R^2 of 7.1%, which is highly significant ($p < 0.01$). In this model, apart from the linear effects

for need for learning, and openness to experience, five quadratic effects emerged, namely for agreeableness, competitiveness, conscientiousness, need for activity, and extraversion. Finally, another model including the traits of the Five Factor model only and the control variables resulted in an R^2 of 38.3%. Thus, when comparing it to Model 1, which contained the nine personality traits, it can be concluded that the four additional traits contributed an additional 6% to R^2, an increase that is highly significant. This corroborates our argument that the four traits contribute with explanatory power beyond the Five Factor model.

INSERT TABLE 3 ABOUT HERE

The results of the hypotheses testing are now described. The nature of the relationship between creativity and each personality trait is indicated by the signal of the first and of the second order variable. When the second order, quadratic term is non-significant, there is no quadratic relationship. If the coefficient for the linear effect is non-significant, but the coefficient for the quadratic effect is significant, than this implies that there is no overall linear trend, i.e. we have a pure quadratic relationship, assuming a U- or an inverted U-shaped relationship, depending on whether the signal of the quadratic effect is positive or negative, respectively. If the coefficient for the linear effect of a personality trait is significant, then this implies that there is an overall positive or negative linear trend (depending on the coefficient being positive or negative), but with increasing or diminishing returns, which depends on the signal of the coefficient of the quadratic effect being positive or negative, respectively. With regard to emotional stability, neither the linear nor the non-linear coefficients are significant. Thus, H1 is rejected. Extraversion is not significant in Model 1 (the linear effect), but it has a U-shaped relationship with creativity in Model 2. Therefore, a pure quadratic relationship

exists between extraversion and creativity. Accordingly, the overall positive effect of extraversion on creativity predicted in *H2* is only observed at high levels of extraversion.

In relation to *H3*, Model 1 reveals that agreeableness has a positive linear effect on creativity. The results of Model 2 indicate that this relationship has diminishing returns when agreeableness reaches higher levels. Thus, *H3* is supported. In relation to *H4* (conscientiousness), Model 1 reveals a non-significant linear coefficient, but inclusion of the non-linear term (Model 2) reveals an overall positive linear trend of conscientiousness on creativity with increasing returns. The overall positive trend is consistent with *H4*, but the curvilinear relationship is opposite the one predicted. Additionally, openness to experience reveals a positive linear relationship with creativity across the two estimated models. This supports the overall positive relationship in *H5*, but not the curvilinear relationship predicted.

Model 1 indicates a positive effect of need for activity on creativity. However, Model 2 yielded a non-significant coefficient for the first (linear) order term, and a significant negative coefficient for the second order (quadratic) term. Thus, an inverted U-shaped relationship was obtained. This result provides some support for *H6*, as it predicted a positive effect with diminishing returns. However, the results further indicate that, more than diminishing, the effects on creativity become negative at higher levels of need for activity.

The findings provide some support to *H7*, in that they indicate a positive linear effect for need for learning, but fail to support the predicted diminishing effects. Moreover, hypothesis *H8* is rejected, since no significant linear or non-linear coefficient was obtained for materialism. Finally, whereas the linear coefficient for competitiveness is non-significant in Model 1, a significant overall positive relationship with diminishing returns emerged in Model 2, indicating that at high levels of competitiveness, its effect on creativity starts to decrease. This finding supports *H9*.

Finally, we note that consideration of linear effects (Model 1) led to the identification of only four traits with an effect on employee creativity, whereas by introducing the quadratic terms we determined seven personality traits significantly related to creativity, with five of these having a non-linear effect. With regard to these non-linear effects, we note that Siemsen et al. (2010) demonstrated that they cannot result from method bias.

Discussion

Previous research on personality has focused on the linear effects of the Five Factor model on creativity. Moreover, the extant studies on personality and creativity have been conducted in fields other than frontline service settings. Our results clearly support the claims that non-linear effects between personality and creativity exist and that the Five Factor model is insufficient when assessing the impact of personality traits on creativity.

Surprisingly, our findings revealed the lack of effect of emotional stability on creativity. We predicted a positive or predominantly positive effect, reasoning that emotional stability would enable employees to have a stable disposition to listen and serve customers' needs well (cf. Brown et al., 2002). However, instability has been associated with creativity namely due to the access it gives to varied affective experiences (e.g. Strong et al., 2007). Thus, it is possible that these two mechanisms are cancelling each other out in this study.

An original result of this study is that the relationship between extraversion and creativity is represented by a U-shaped function. In other words, creativity decreases up to a certain level of extraversion, after which creativity levels increase. Feist (1998) notes that in scientific and artistic environments, introversion is frequently associated with creativity. We predicted, instead, a predominantly positive relationship between extraversion and creativity with

decreasing results, given the high degree of personal interaction and emotional labour involved in frontline settings (Zeithaml et al., 2009). However, this positive effect only emerged at higher levels of extraversion. It is possible that at lower levels of extraversion, the benefits of extraversion do not compensate or overturn the advantages that some degree of introversion might have in the creative process. As the process of creating requires some solitude (Storr, 2005), some introversion might be desirable so that employees gain some distance from customers and obtain time to develop creative solutions to their problems (cf. Feist, 1998).

With regard to the agreeableness–creativity relationship, as predicted, we obtained an overall positive linear trend, with diminishing returns. At lower levels of agreeableness, increases in this variable also enhance creativity, but at higher levels, further increases in agreeableness result in lower creativity returns. This finding contrasts with some previous studies that point to a negative relationship between both concepts (see Feist, 1998). The specificities of service settings, as we argued before, should have contributed to this contrasting result. A similar relationship was also observed between competitiveness and creativity. Both the view that attention is a scarce resource (cf. Norman & Bobrow, 1975), as well as the use of cue utilisation theory (Easterbrook, 1959) provide the rationale for the observed diminishing returns. While individuals who are competitive are more likely to develop new and useful solutions for customers' problems, too much focus on competitiveness may reduce the range of cues the employee focuses upon, thereby neglecting other relevant cues due to an obsessive focus.

The effect of conscientiousness on creativity is also novel, as it is represented by a concave upward curve. Accordingly, conscientiousness has a positive effect on creativity but, against predictions, with increasing returns. This result also contradicts some previous findings in other settings, namely in artistic and scientific settings, where a negative relationship has been

frequently found (see Feist, 1998). The positive effects obtained probably emerge due to the fact that a meticulous employee would be able to devise and screen a more systematic and varied range of different combinations of existing ideas for serving customers in a limited time span, as a result of which new ideas are likely to emerge. Previous studies have also supported the view that conscientious service employees are diligent, develop good work ethics, and are achievement oriented (Auh, Menguc, Fisher, & Haddad, 2011). Based on these characteristics, conscientious service employees are likely to be more motivated and able to search for creative solutions to customers' needs.

With regard to openness to experience and need for learning, both were found to be positively related to creativity in a linear way. The diminishing returns we had predicted were not supported. Apparently, such traits seem to produce effects on creativity through the development of divergent thinking skills and improved knowledge, regardless of their level. In an organisational setting, individuals who rate highly on openness to experience may have a broader range of experience and more of an appreciation for things that are novel and unique, which may cause them to come up with novel solutions to deal with customers' problems (George & Zhou, 2001). Similarly, the need for learning inspires employees to increase their knowledge and to enjoy learning new things and working on new ideas to satisfy customer needs (Harris et al., 2005), which is consistently necessary to encourage creative behaviours.

In relation to need for activity, our findings reveal an inverted U-shaped relationship. At low levels of need for activity, increases in this trait also increase creativity, and at higher levels, further increases in need for activity decrease creativity. At mid to higher levels of need for activity, performing an increasing number of tasks at the same time should result in a lack of dedication to each of the performed tasks, thus adversely affecting intrinsic motivation and, thus, creativity (cf. Oldham & Cummings, 1996). This is consistent with the view of attention

as a scarce resource (e.g. Norman & Bobrow, 1975). More specifically, our results suggest that at high levels of activity there is the danger of an increasing number of activities competing for the employee's limited attentional resources, thereby negatively affecting creativity.

Contrary to expectations, materialism does not have an impact on creativity. We had predicted a negative relationship with diminishing returns based on the idea that creativity involves an intrinsic motivation (e.g. Oldham & Cummings, 1996; Shalley et al., 2004), whereas materialism brings an extrinsic motivation into the performance of work duties (cf. Dollinger et al., 2007). Extrinsic motivation has often been negatively associated with creativity (Kasof, Chen, Himsel, & Greenberger, 2007). However, Deci and Ryan (1991) present different types of extrinsic motivation. In particular, they refer to identified motivation, a particular type of extrinsic motivation that is self-determined, and which results from goals that the individual deems important. Thinking in particular of this type of extrinsic motivation, Kasof et al. (2007) state that 'almost inevitably, at least some stretch of the journey leading to creativity is so unappealing or aversive that extrinsic motivation is necessary to energize forward movement' (p. 112). Materialism is a form of identified motivation. Therefore, the conflicting effects associated with materialism probably resulted in its non-significance.

Conclusion and directions for future research

Our study clearly indicates that traits other than those in the Five Factor model also have an influence on employee creativity, and this provides a more complete understanding of how the set of human personality traits affects creativity. Moreover, past research assumed that the relationship between personality traits and creativity is linear, whereas recent research on the effects of personality on a number of outcomes (e.g. Cucina & Vasilopoulos, 2004; Le et al., 2011) is increasingly challenging such an assumption. This study contributes to this emerging

debate by exploring the non-linear effects of personality on creativity. We have determined the existence of non-linear effects for some personality traits, and this expands current knowledge on this relationship. These results clearly indicate that future research should pay more attention to the quadratic effects of personality on different outcomes, namely on creativity. Thus, our results provide some support to TMGT effect meta-theory (Pierce & Aguinis, 2013). In this vein, cue utilisation theory (e.g. Easterbrook, 1959) and viewing attention as a scarce resource (e.g. Kanfer & Ackerman, 1989; Norman & Bobrow, 1975) look promising avenues for the consideration of non-linear effects.

Finally, we determined that the effects of some personality traits on creativity in services differ from those observed in other settings. Investigating whether the effects of personality traits hold across settings is a relevant theoretical and managerial issue. Although creativity is recognised as playing a crucial role in customer experiences and satisfaction (Coelho et al., 2011; Daly et al., 2009), a better understanding of the enablers and disablers of creativity in services is needed, and this study contributes to this. Hence, our study offers preliminary directions for managerial action. For instance, the results indicate that employees who have high scores on competitiveness and agreeableness will be more creative. Hence, with knowledge on the differential impact personality traits have on creativity, managers are better equipped to compose teams according to such traits and assign roles within teams accordingly. Moreover, firms routinely ask employees and applicants to submit self-reports regarding personality and personality-like traits (Matzler et al., 2011). Hence, human resource and service managers will be better equipped to make more informed decisions about the use of personality traits in the recruitment and selection processes of prospective frontline employees for jobs in which creativity is desired (cf. Jiang et al., 2012). Managers may also use this information for personal placement and retention. Job rotation is a common practice in organisations. Accordingly, creativity-relevant personality traits can be considered in such decisions. In

addition, firms might make extra efforts for retaining employees that hold personality traits valuable for creative endeavours.

This study contains a number of limitations that should be addressed in future studies. As with other studies, we relied on self-reports to assess creativity (e.g. Amabile & Gryskiewicz, 1989; Ganesan & Weitz, 1996; Gilson, Mathieu, Shalley, & Ruddy, 2005; Rice, 2006; Shalley, Gilson, & Blum, 2009; Wang & Netemeyer, 2004). An argument in favour of this is that frontline employees' jobs involve continuous interaction with customers, which might not be fully captured by others, namely supervisors (Gilson et al., 2005; Wang & Netemeyer 2004). Thus, frontline employees may indeed constitute the best possible source for measuring employee creativity. Moreover, this study followed a number of procedural measures and assessed statistically the potential for common method bias, with the results suggesting that this should not be of great concern in this study.

Another possible limitation of this study is that the survey was limited to frontline employees in health centres in Portugal, which could raise questions regarding the extent to which the findings can be generalised. Testing the external validity of our findings would necessitate replication of this study in other industries and countries. The relatively low response rate must also be noted as a potential limitation. The study also employed a cross-sectional research design, which could be criticised for failing to capture the dynamic aspects of the constructs incorporated in the model. Thus, future work should consider adopting a longitudinal design, which would provide insights into these relationships over time. In addition, as the initial CFA yielded some model misspecifications, in line with recommended practices (e.g. Anderson and Gerbing, 1988; Brown and Moore, 2012; DeVellis, 2012; Kline, 2011), some items were eliminated from the measurement scales, which resulted in two scales with two items. Finally, further research is encouraged to build on our results regarding the

non-linearity of personality traits' effects. Most research has neglected the study of such effects, with the consequence being an incomplete understanding of how personality affects outcome variables. Thus, we believe that formal studies of the nature of the relationship between personality traits and outcome variables is a promising area for future research.

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Table 1. Measurement model.

ITEMS	Stand. loads.	*t*-value
Creativity (Ganesan & Weitz, 1996; Wang & Netemeyer, 2004)		
I am always looking for new ideas or methods to apply in my work.	0.831	15.160
I am a good example of a person who is creative at work.	0.753	13.118
I experiment with new ways of approaching users.	0.776	13.670
I look for new ideas and ways to solve problems at work.	0.767	13.687
I try to be as creative as I can in my work.	0.758	13.462
My supervisor feels that I am creative in my work.	0.666	11.084
I am usually among the first people to adopt new trends at work.	0.665	11.063
Extraversion (Brown et al., 2002; Mowen & Spears, 1999)		
I am more shy than other people. (R)	0.810	14.144
I am a quiet person when I am with other people. (R)	0.858	15.323
I am a very reserved/shy person. (R)	0.823	14.458
Agreeableness (Brown et al., 2002; Mowen & Spears, 1999)		
I am tender-hearted with others.	0.743	12.351
I am sympathetic.	0.773	13.024
I am kind to others.	0.845	14.675
Conscientiousness (Brown et al., 2002; Mowen & Spears, 1999)		
I am an organised person.	0.695	11.284
I am an efficient person.	0.767	12.858
I am a rigorous/precise person.	0.769	12.923
I am a careful person.	0.726	11.959
Openness to experience (Brown et al., 2002; Mowen & Spears, 1999)		
I am imaginative.	0.683	9.927
I find original solutions to problems.	0.757	10.879
Emotional stability (Brown et al., 2002; Mowen & Spears, 1999)		
I am more moody than others. (R)	0.691	11.110
I am a very temperamental person. (R)	0.801	13.484
I am envious. (R)	0.712	11.536
I am more testy than other people. (R)	0.656	10.394
Materialism (Harris et al., 2005; Mowen, 2000)		
I enjoy buying expensive things.	0.811	14.735
I enjoy owning luxurious things.	0.966	19.384
Acquiring valuable things is important to me.	0.844	15.608
I like to own nice things more than other people do.	0.545	8.800
Need for learning (Harris et al., 2005; Mowen, 2000)		
I am always looking to learn new things.	0.857	15.135
I like to deal with new ideas.	0.895	16.078
For me it is important to learn from every life experience I have.	0.565	8.910
Need for activity (Brown et al., 2002)		
It is hard for me to keep still.	0.741	11.570
I am very active in my daily life.	0.911	14.381
Competitiveness (Harris et al., 2005; Mowen, 2000)		
For me it is important to outperform others.	0.818	14.325
I like to compete with others.	0.803	13.969
I enjoy competition more than others.	0.799	13.857
Winning is extremely important for me.	0.643	10.359
Autonomy (Hackman & Oldham, 1980).		
I have many opportunities to take the initiative in this work.	0.686	11.180
I am the one deciding what to do in my job.	0.701	11.509
I am allowed to act independently of my supervisor.	0.696	11.411
I have a great deal of freedom to do my job as I find best.	0.830	14.534
I can take many decisions in my work without seeking authorisation.	0.726	12.075

Notes: R denotes reverse scores.

Measurement model fit: $\chi^2 = 1101.2$, df = 724; IFI (incremental fit index) = 0.92; TLI (Tucker-Lewis fit index) = 0.91; CFI (comparative fit index) = 0.92; RMSEA (root mean square error of approximation) = 0.047.

Table 2. Standard deviation, correlation matrix, reliability, and variance extracted estimates.

	SD	**X_1**	**X_2**	**X_3**	**X_4**	**X_5**	**X_6**	**X_7**	**X_8**	**X_9**	**X_{10}**	**X_{11}**	**CR**	**AVE**
Creativity (X_1)	0.60	**0.89**											0.90	0.56
Extraversion (X_2)	0.90	0.21	**0.87**										0.87	0.69
Agreeableness (X_3)	0.39	0.48	0.27	**0.83**									0.84	0.62
Conscientiousness (X_4)	0.38	0.42	0.24	0.54	**0.82**								0.83	0.55
Openness to experience (X_5)	0.47	0.61	0.19	0.25	0.42	**0.68**							0.68	0.52
Emotional stability (X_6)	0.52	0.25	0.44	0.40	0.35	0.09	**0.80**						0.81	0.51
Materialism (X_7)	0.86	0.02	–0.12	–0.02	–0.06	0.27	–0.33	**0.87**					0.88	0.65
Need for learning (X_8)	0.33	0.51	0.35	0.45	0.27	0.39	0.39	–0.05	**0.81**				0.82	0.62
Need for activity (X_9)	0.54	0.47	0.22	0.47	0.52	0.45	0.32	–0.02	0.47	**0.81**			0.82	0.69
Competitiveness (X_{10})	0.68	0.27	0.05	0.09	0.14	0.41	–0.24	0.35	0.13	0.19	**0.85**		0.85	0.59
Autonomy (X_{11})	0.77	0.25	0.02	0.04	0.06	0.11	0.03	0.02	0.23	0.16	0.20	**0.84**	0.85	0.53

Notes: All correlations above 0.12 are significant at the 5% level (two-tailed tests); diagonal entries are Cronbach's alpha coefficients; CR = composite reliability; AVE = average variance extracted.

Table 3. Results.

	Model 1		Model 2	
	Coef.	**Sign.**	**Coef.**	**Sign.**
Constant	3.868	**	3.900	**
Gender	–0.020		–0.044	
Age	–0.007		–0.002	
Autonomy	0.082	*	0.078	*
Emotional stability	–0.020		–0.049	
Extraversion	–0.001		0.025	
Agreeableness	0.231	**	0.262	**
Conscientiousness	0.087		0.161	**
Openess to experience	0.239	**	0.231	**
Need for activity	0.094	*	0.019	
Need for learning	0.241	**	0.246	**
Materialism	–0.026		–0.037	
Competitiveness	0.058		0.070	*
Extraversion^2			0.059	*
Agreeableness^2			–0.191	*
Conscientiousness^2			0.192	**
Need for activity^2			–0.140	**
Competitiveness^2			–0.052	*
R^2	44.3%		51.4%	
ΔR^2			7.1%**	

Notes: * $p \leq 0.05$; ** $p \leq 0.01$ (one-tailed tests).