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**Intercultural Exposure, Intercultural Empathy, Creative Cognitive Processes,
and Creative Behaviour in South African Employees**

Juniper Jade Naidoo

1064791

Research Supervisor: Dr Nicky Israel

A research report submitted in partial fulfilment of the requirements for the Degree of Master of Arts in the field of Organisational Psychology in the Department of Psychology, School of Human and Community Development, Faculty of Humanities, at the University of the Witwatersrand, Johannesburg, 30 April 2021.

Plagiarism Declaration

I, Juniper Jade Naidoo, declare that this research project (Ethics clearance number: MAORG/20/03) is my own, unaided work. It has not been submitted before for this or any other degree or for examination at this or any other university.

Signed:

A handwritten signature in black ink, appearing to read 'Juniper', enclosed within a circular scribble.

Date: 30 April 2021

Abstract

The current research investigated whether intercultural exposure, intercultural empathy, and creative cognitive processes are related to creative behaviour — a factor that is integral to organisational growth, ingenuity, competitiveness, and success (Ghosh, 2014; Rios et al., 2020; Waight, 2005). Literature suggests that intercultural exposure bears little significance if intercultural empathy is not taken into consideration (Hwang & Han, 2018). This research therefore also aimed to establish whether intercultural empathy moderates the relationship between intercultural exposure and creative behaviour. Furthermore, creative cognitive processes were identified as an antecedent to creative behaviour (Dunne, 2017; Lu et al., 2017; Lubart, 2001; Miller & Dumford, 2014), and therefore, this research aimed to further this understanding and establish whether creative cognitive processes use moderates the relationship between intercultural exposure and creativity. The study employed a quantitative, non-experimental, cross-sectional, and correlational design in order to determine the aforementioned relationships and predictions. 129 South African employees responded to a self-report questionnaire, through non-probability, convenience and snowball sampling. A self-developed demographic questionnaire attempted to capture the complex nature of intercultural exposure in terms of its breadth and depth. Additionally, the final questionnaire included an adapted questionnaire to assess intercultural empathy, the Creativity Scale (Tsai et al., 2015a) to assess creative behaviour in the workplace, and the Cognitive Processes Associated with Creativity Scale (CPAC) to assess creative cognitive processes use (Miller, 2014b). Descriptive statistics, Spearman's Rho, simple regression, hierarchical multiple regression, and two-way ANOVA's were used to evaluate the data.

The results indicated various significant relationships between the variables, and intercultural empathy and one social component of intercultural exposure significantly predicted creative behaviour. There were five significant hierarchical multiple regressions which showed that creative cognitive processes use significantly altered the relationship between certain intercultural exposure variables and creative behaviour, such that those with higher levels of intercultural exposure and higher levels of creative cognitive processes use had significantly higher levels of creative behaviour compared to those individuals with lower levels of creative cognitive processes use. There were two significant two-way ANOVA's which demonstrated

that intercultural empathy facilitated creative behaviour when there were high levels of intercultural exposure and high levels of empathy, but inhibited creative behaviour when levels of intercultural empathy were low and intercultural exposure was high. Thus, intercultural empathy was shown to be a crucial component in the relationship between intercultural exposure and creative behaviour. The findings also demonstrated the importance of social intercultural contact in altering the relationships between creative cognitive processes use and intercultural empathy with creative behaviour. While there were strengths to this research, such as the importance of intercultural exposure in South Africa and the lack of existing research, as well as crucial findings regarding the role intercultural empathy plays in altering the relationship between intercultural exposure and creativity, there were also some limitations. The non-experimental design prohibited causal conclusions, the sample size could have been larger, and the measurement of intercultural contact may not have been precise enough to yield consistent and thorough information regarding intercultural exposure. Despite this, the findings from the study provide valuable additional insight into the relationships between creative behaviour in the workplace and intercultural exposure, intercultural empathy, and creative cognitive processes.

Keywords: creative behaviour, intercultural exposure, intercultural empathy, creative cognitive processes, South Africa

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Chapter 1: Introduction and Literature Review

Introduction

The aim of this study is to explore the nature of the associations between intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour in a sample of South African employees. Moreover, it aims to explore whether creative cognitive processes moderate the relationship between intercultural exposure and creative behaviour, and whether intercultural empathy moderates the relationship between intercultural exposure and creative behaviour.

Creative behaviour, or more simply, creativity is defined as the process of discovering and implementing novel and useful solutions, ideas or products (Lu et al., 2017, Leung et al., 2008; Obiri et al., 2018; Waight, 2005). In the workplace, creative behaviour includes both identifying and continuously searching for novel ideas which can improve performance, develop new technology, and promote innovation (Dunne, 2017; Tsai et al., 2015a). Furthermore, creativity is useful to assist adaptation, flexibility, and evolution which helps the organisation remain competitive and profitable (Sternberg & Lubart, 1999). Creativity is perceived as a more essential attribute than integrity and global thinking for leaders to possess (Lu et al., 2017).

Creativity has been a vastly studied concept in a range of fields, including psychology, sociology, human behaviour, leadership, management, team dynamics, and technology (Glaveanu et al., 2020). In terms of industrial and organisational psychology, research has shown that creativity and innovation are crucial for organisational success and growth (Lu et al. 2017; Obiri et al., 2018; Waight, 2005). There are many factors that have been shown to relate to creative behaviour in the workplace, including individual and environmental factors and job characteristics (Hammond et al., 2011). Creativity is essential to individuals and society (Glaveanu et al., 2020). This is because it expands the thought processes and problem-solving ability of individuals, it aids in growing the economy, creating new products and services, and it can increase the creation of jobs (Alzghoul et al., 2018). Due to the importance of creativity in society and the extent to which the concept has been studied, there are many different factors which are seen to affect creative behaviour.

One factor that is shown to be associated with creativity and is receiving increasing attention in international literature is exposure to diversity, particularly exposure to different cultures (Aytug et al., 2018; Cheng & Tan, 2017; Dunne, 2017; Lee et al., 2012; Leung & Chiu, 2010; Lu et al., 2017; Puente-Diaz et al., 2020). South Africa is characteristically diverse and has unique demographics which include an array of different races, religions, cultures, languages, and nationalities (Stats SA, 2016). As a result of this, as well as South African Affirmative Action laws which encourage diversity, intercultural exposure varies tremendously, especially in organisations (Zhuwao et al., 2019). Intercultural exposure is defined as the physical, verbal, emotional, and even virtual convergence of people from two or more cultural backgrounds (Dunne, 2017). It extends to individuals being exposed to diverse ethnicities, nationalities, food, apparel, languages, cultures, traditions, and religions (Leung et al., 2008).

It is important to note the precarious nature of this concept. Intercultural exposure is difficult to measure, as it can mean different things to different people. It can be measured in terms of the number of different cultures exposed to or the depth of those relationships (Carpenter et al., 2001; Dias et al., 2017; Reuber & Fischer, 1997; Takeuchi et al., 2005; Tarique & Takeuchi, 2008; Tay et al., 2008). However, what one individual deems as a social interaction with someone from another culture, another individual may not. This is due to the subjectivity of firstly identifying a culture different to one's own and then deeming the interaction as meaningful or not (Keil & Koshare, 2020). Therefore, this is an interesting concept to research further. Additionally, despite the prevalence of intercultural exposure in South Africa, there is very little empirical research that has explored this association - this is a particularly important gap in the literature to address due to the diversity in this country and the inevitability of intercultural exposure.

Intercultural empathy is another important aspect which is related to creativity as well as intercultural exposure. This is defined as the ability to empathise with someone from a different cultural background, comprehend their perspective, empathise with their emotional experience, and communicate effectively (Mallinckrodt et al., 2014a; Wang et al., 2003). Intercultural empathy can present itself in a variety of ways, as some individuals have a high amount of empathy for other cultures and others have lower levels (Crowne, 2013). This is dependent on a

variety of factors such as level of intercultural exposure, knowledge of different cultures and intercultural competency, attitudes towards human rights, and gender (Crowne, 2013; Solhaug & Osler, 2018). Intercultural empathy may play an important role in moderating the relationship between intercultural exposure and creative behaviour, as those employees with more intercultural empathy might be able to benefit more from the enhancing effect of exposure to different cultures than those with less empathy. Intercultural empathy has been shown to be determined by past experiences which evoke an empathetic response and the use of observation, verbal information, or other types of observation from memory to comprehend the emotional state of an individual and to act in an empathetic manner (González-González et al., 2015). It is thus important to explore this as a potential moderator to expand existing understanding of the association between intercultural exposure and creativity (Dandy & Pe-Pua, 2015; Hwang & Han, 2018). Overall, culture and diversity are embedded in South African society, and therefore understanding how this important factor is related to employee creativity in the South African context can expand theoretical knowledge as well as support practical interventions to enhance the benefit of these concepts in organisations.

Creative cognitive processes have been identified as an antecedent to creative behaviour (Dunne, 2017; Lu et al., 2017; Miller, 2014a). Creative cognitive processes support the generation of creative ideas and can be defined as the “sequence of thoughts and actions that leads to a novel, adaptive production” (Lubart, 2001, p. 295). These processes may be important moderators of the relationship between intercultural exposure and creative behaviour because when an individual is in a new environment, they are exposed to new concepts, ideas, thought processes, and perceptions (Miller & Dumford, 2014). These experiences enhance an individual’s creative cognitive processes, and when faced with challenges, they can increase the ability to quickly and flexibly draw upon these resources which are learned from other cultures to solve for current problems or to create novel ideas (Leung & Chiu, 2010). Thus, an inclination to use certain creative cognitive processes might enhance the positive relationship between intercultural exposure and creativity, and therefore this research will explore the link between intercultural exposure and creativity, and whether creative cognitive processes use might act as a moderator.

There is some existing literature which shows overt links between intercultural exposure and intercultural empathy and creative or innovative behaviour, but there is less research available about moderators between these variables (Aytug et al., 2018; Dias et al., 2017; Dunne, 2017; Lu et al., 2017). Additionally, there is sparse research on creative cognitive processes use and whether this can act as a moderator. A moderation model will be able to provide information that can contribute to developing an in-depth understanding into why intercultural exposure and empathy are linked to creative behaviour, as well as how creative cognitive processes use may be associated. Based on the results of this, processes to increase an individual's level of intercultural empathy and creative cognitive processes can possibly be considered.

This study will aim to explore these different variables in a South African context, and the nature of the links between them. The results of this study will further contribute to understanding ways in which to promote creativity in diverse environments (Leung et al., 2008). Additionally, empathy is a frequently desired outcome of multicultural programs which are implemented in institutions to increase creative problem solving, and by highlighting the link between intercultural contact, empathy, and creativity, both theoretical and practical knowledge can be expanded (Mallinckrodt et al., 2014a).

Pragmatically, the findings could help to demonstrate that intercultural exposure and empathy are useful mechanisms to spur creative behaviour in workplaces, and should therefore be encouraged and developed. Culturally, the study is important because South Africa is multicultural, and therefore gaining a better understanding of the outcomes of intercultural exposure and empathy is vital in our unique context. Additionally, due to globalisation and technological advancement, exposure and connecting to diverse cultures is bound to continue to rise (Leung et al., 2008). The rate of change in our society and the need to adapt to uncertain situations and a changing knowledge economy highlight the importance of creativity and harnessing it in both organisations, and individuals (Waight, 2005). This is especially important, considering the drastic adjustments to the world of work based on factors like the fourth industrial revolution, and more recently, the Coronavirus (Covid-19) pandemic which has required agile and creative solutions (Mishra & Vladova, 2021). A study like this does not

appear to have been carried out in a sample of South African employees, despite our diverse range of cultures and the importance of creative behaviour in organisations.

Defining Culture

Prior to understanding intercultural exposure, intercultural empathy, creative cognitive processes or even creative behaviour, a definition of culture should be provided. This fairly commonly used word is described by Singer (1998) as ‘...a pattern of learned, group-related perceptions – including both verbal and non-verbal language, attitudes, values, belief systems, disbelief systems, and behaviours – that is accepted and expected by an identity group’ (p. 30). Culture can also be defined as a group of organised ideas and practices which both produce and are reproduced by interconnected individuals (Leung et al., 2008). Thus, culture is dynamic and constantly shifting. Culture can have different meanings for different people and can be described in a reified manner where it is synonymous with an ethnicity or nationality; or a politicised manner where it assumes differences and can even create and legitimise hierarchies (Glaveanu, et al., 2020). Cultures can differ according to their race, ethnicity, nationality, language, values, and beliefs and this can ultimately influence behaviour (Lee et al., 2012).

Culture has both positive and negative connotations. An individual’s culture can facilitate their social behaviour through a set of conventional, learned routines which they leverage in order to understand experiences (Chiu & Hong, 2006). This enables people to know how, and when, to behave and respond to situations. For example, in the Chinese culture, if a guest leaves food on their plate, it is indicative of enjoying the food and means that they have been sufficiently catered for. On the other hand, in the Taiwanese culture, the same sentiment is offensive and shows that the guest did not enjoy the food (Leung et al., 2008). In some ways, these learned behaviours also have negative connotations as they are able to limit a person’s behaviours and creativity. The pre-existing, mundane, and easily acceptable ideas in one’s own culture can potentially reduce the generation of creative thoughts and ideas (Leung et al., 2008). This is especially prevalent when individuals are more detached or disengaged with learning, communicating with or understanding other cultures and therefore maintain their pre-existing ideas and behaviour (Leung & Chiu, 2010). Conversely, if individuals are more engaged with new cultures and environments, their cognitive structures and processes are susceptible to

expanding, resulting in new and unique ways of thinking and behaving (Glaveanu et al., 2020). This is relevant to a person's individual behaviour, as well as work behaviours (Hammond et al., 2011).

Additionally, an individual's work environment or job characteristics have the ability to expand or limit their creativity (Singh & Chaudhary, 2018). An organisational culture which encourages transformational leadership, diversity, a wide range of thoughts, and varied opinions tends to foster creativity in its employees (Odetunde & Ufodiama, 2017). Organisational culture is a set of elements which determine the organisation's values. In particular, it is an organisation's philosophy, intrinsic assumptions, expectations of employees, and meanings which all determine organisational performance and behaviour (Zeraatkar et al., 2020). A diverse organisational culture combines different demographics, nationalities, linguistic origins and social backgrounds of its employees. A study in South Africa (n= 258) found that diversity, in particular different genders and ethnicities, was significantly related to employee performance (Setati et al., 2019). On the other hand, an organisational culture which is prescriptive, homogenous, and hierarchical can negatively impact the level of creativity that an employee demonstrates (Ogbeibu et al., 2018).

Creative Behaviour

Creative behaviour in the workplace is often described as important for organisational success and growth (Choi, 2007; De Clerq & Belausteguigoitia, 2018; Lu et al., 2017; Lubart, 2001). Creativity can be thought of as "capital of the human mind", as it is integral to generating new and substantial ideas, research, theory, and strategies (Leung et al., 2008; Zhang et al., 2020 p1). Creativity or creative behaviour, is a process of discovering and implementing both novel and useful ideas, products, or solutions to address problems or needs (De Clerq & Belausteguigoitia, 2018; Lu et al., 2017, Leung et al., 2008; Obiri et al., 2018; Waight, 2005). Thus, creative behaviour often centers on original ideas which are either useful, appropriate, or effective (Dunne, 2017).

Creativity comprises of creative personalities, behaviours, processes, products, and environments (Dunne, 2017). It is essential for both societal and individual tasks. In society, creativity can expand scientific knowledge, inventions, and social programs. Individually, creativity can help a person to excel in their personal and work lives and enhances their perception of the world

around them (Sternberg & Lubart, 1999). In organisations, creativity is becoming an ever-increasing significant competency as all employees, in any job and at any level in the organisation, can generate creative behaviour which adds value to the business (Waight, 2005).

Creativity and innovation have historically been used interchangeably and are closely linked.

Whereas creativity is often defined as the action of doing something for the first time or discovering new knowledge, innovation is about adapting products or processes to facilitate problem solving (Scott & Bruce, 1994). In the existing literature, creativity has historically been purported to be linked to two measurable cognitive processes, namely convergent and divergent thinking (Eysenck, 2003; Guilford, 1967; Müller-Wienbergen et al., 2011; Zhang et al., 2020).

Divergent thinking is described as a thinking style focused on idea generation. It often occurs in contexts where there are vague criteria and multiple solutions could be correct; it also requires the generation of several possible solutions and therefore a more creative approach (Runco, 2010).

Divergent thinking is associated with flexible thought processes (Beaty et al., 2016;

Zhang et al., 2020). On the other hand, convergent thinking often involves a well-defined problem whereby persistence and focus is required to discover a single solution (Runco, 2010).

Historically, divergent thinking constitutes two stages: preparation, where the problem is investigated; and incubation, where the problem is thought about in an unconscious manner.

Convergent thinking focuses on illuminating the problem and forming ideas. Thereafter there is a process of verification, where a solution is chosen (Wallas, 1926, as cited in Runco, 2010). More specific creative cognitive processes will be discussed in the section to follow.

Creativity and culture are inextricably linked. Creativity uses signs or tools from culture to produce new cultural resources, which can then lead to other creative behaviour in the future (Glaveanu, et al., 2020). Culture also constitutes the mind and society and provides resources for individuals to think, perceive, remember, imagine, and most importantly, create (Glaveanu, et al., 2020). Not only does creativity lead to progress in society through the development of notable discoveries and unique problem solving, it also progresses society by shaping and changing the way individuals relate to the world around them, to other people, and towards themselves. This makes them more open to new diverse perspectives and increases the likelihood of applying this diverse mindset to problems (Solhaug & Osler, 2018). A study conducted by Erez and Nouri (2010) also noted that different cultures tend to accentuate different aspects of creativity.

Cultures which possess low power distance, low uncertainty avoidance, and individualism tend to focus on the development of novel ideas. This is evident in the competitive nature of individualist societies. On the other hand, cultures which have higher power distance and are more collectivist in nature highlight the importance of creative useful ideas and building upon already existing products (Erez & Nouri, 2010). Creative behaviour in the workplace includes both identifying and actively searching for novel ideas or methods to achieve goals and improve performance; developing new techniques, technologies and products; taking risks; and promoting innovation (Dunne, 2017; Tsai et al., 2015a).

There are many factors that have been shown to relate to creative behaviour in the workplace, including individual and environmental factors and job characteristics (Hammond et al., 2011). For example, organisations which enable greater decision-making latitude, employee autonomy, and creative leadership can spur creative behaviour in employees (Hammond et al., 2011). A study conducted by Alzghou et al. (2018) with 345 participants concluded that a culturally diverse workplace climate can increase creativity. This environment can foster enthusiasm amongst colleagues to solve problems, think of and present creative ideas, and leverage creative opportunities to benefit the organisation. A diverse work climate can also improve job satisfaction and create a more favorable environment which spurs engagement (Alzghou et al., 2018). Due to the prevalence and benefit of creativity in organisations, it is not surprising that there has been extensive research into the antecedents of creativity.

The diverse mindset which results in creative behaviour is beneficial, and it is often a required competency for employees to possess. Creativity enhances the organisation's culture, their flexibility, their ability to adapt to unplanned crises, and the creation of new ideas, products, and solutions which all impact the sustainability and competitive advantage of one organisation over another (Ghosh, 2014). The importance of creativity in organisations is demonstrated by a content analysis conducted by Rios et al., (2020). It was found that creativity was one of the top ten skills which employers search for in candidates when recruiting. Other skills included adaptability, communication, problem solving, and cultural sensitivity (Rios et al., 2020). Cultural sensitivity, which is synonymous with intercultural empathy, is defined in the study as the "ability to learn from and work collaboratively with individuals representing diverse cultures, races, ages, gender, religions, lifestyles, and viewpoints" (Casner-Lotto & Barrington, 2006, p.

16, as cited in Rios et al., 2020). The connection between intercultural empathy and creativity will be expanded upon further into the discussion.

Intercultural Exposure

One proposed antecedent for creative behaviour is exposure to other cultures (Dias et al., 2017, Lu et al., 2017; Ribeiro & Fleith, 2018). Intercultural exposure is most simply defined by the physical, verbal, emotional, and even virtual convergence of people from two or more cultural backgrounds (Dunne, 2017). Moreover, it is the direct or indirect exposure to different experiences or elements from someone in a culture other than one's own (Leung & Chiu, 2010). It can further be described as experiences with living in foreign countries or interacting with foreign cultures. This includes diverse language, food, apparel, traditions, and religions (Leung et al., 2008). Intercultural exposure varies in terms and definition. It can be labelled intercultural experience (Dunne, 2017; Maddux et al., 2009), multicultural experience (Leung, 2008; Leung & Chiu, 2010), or multiculturalism (Ribeiro & Fleith, 2018).

Intercultural experience defines exposure in terms of its scope; either larger forms of intercultural exposure such as living in a foreign country or milder forms of exposure such as receiving cross-cultural information at home (Maddux et al., 2009). Multicultural experience defines exposure more broadly, in terms of all direct and indirect experiences with either elements or people in foreign cultures (Leung, 2008; Leung & Chiu, 2010). Multiculturalism reflects a variety of races or ethnic origins in a society, which specifically produces social meanings which can be related to political policies or programmes and the equitable access and application of these (Ribeiro & Fleith, 2018). This term is more complex in nature and aims to identify the effects of exposure to other cultures (Ribeiro & Fleith, 2018). Furthermore, it highlights the subjectivity associated with perceived multiculturalism, which first stems from one's understanding of culture and then from its interpretation of day-to-day events (Ribeiro & Fleith, 2018). For example, an individual may not perceive that someone is from another culture as they both have similar skin tones and speak the same language, however other factors to consider include religion, ethnicity and nationality.

Literature has demonstrated the complexity involved in conclusively defining and measuring intercultural exposure (Crowne, 2013; Dias et al., 2017; Lu et al., 2017). Various measurements of intercultural exposure have been implemented, including whether an individual has worked abroad or not, the number of experiences with other cultures, or the length of time spent with other cultures (Carpenter et al., 2001; Reuber & Fischer, 1997; Takeuchi et al., 2005; Tarique & Takeuchi, 2008; Tay et al., 2008). However, Dias et al. (2017) highlighted the importance of measuring intercultural exposure in its totality, in terms of its breadth and depth. The breadth of intercultural exposure is defined as the number of different cultures exposed to, for example, the number of countries someone has visited. The depth of exposure would encapsulate the number of years one has been exposed to different cultures or visited other countries. Other literature has discussed a similar distinction in measuring intercultural exposure and further identifies that the depth of intercultural exposure is a stronger predictor of creativity than the breadth of intercultural exposure (Cao et al., 2014; Dias et al., 2017; Godart et al., 2015; Lu et al., 2017). Dias et al. (2017) also noted the challenge of measurement and states that this can create difficulty when wanting to integrate intercultural exposure into organisations, especially when recruiting or implementing developmental practices.

Another factor which aids in the complexity of accurately capturing an individual's intercultural exposure is that it is often a subjective measure. Keil and Koshare (2020) performed two studies which aimed to understand the threshold at which individuals view an encounter as intergroup contact. The first qualitative study (n=17) showed that the definitions of intergroup contact were subjective, and the responses were very diverse. The second study (n=498) once again demonstrated a range of ratings. Experiences which were positive, verbal, and face-to-face were more often rated as intercultural contact, whereas negative contact or contact online was less likely to be deemed intercultural contact (Keil & Koschare, 2020). Online intercultural contact is a significant concept in light of the current Coronavirus pandemic and its impact on how people interact. Therefore, further research into this concept is necessary.

Although there are variations in how intercultural contact and exposure are defined and operationalized, there is agreement that contact with other cultures can initially cause culture shock, anxiety, and disorientation (Ward et al., 2001). In an organisation, it can lead to stereotyping, prejudice, and conflict (Dias et al., 2017). However, once an individual becomes

accustomed to the new environment or exposure to a different culture, they can acquire new perspectives, expand their creative thinking, and develop new ways to approach tasks and problems (Ward et al., 2001). Ultimately, the adaptation to environments with diverse cultures demand that individuals utilise novel patterns of thoughts and behaviour, which can result in enhanced creative thinking (Kim et al., 2020).

Intercultural exposure can also lead to increased creativity and performance in the workplace (Van Knippenberg & Schippers, 2007, as cited in Dias et al., 2017). Additionally, literature demonstrates that individuals who have rich, multicultural contact may be more psychologically apt to access diverse ideas and to implement these in creative processes (Kim et al., 2020; Leung & Wang, 2015; Shao et al., 2019). Godart et al. (2015) conducted a longitudinal study which spanned over 11 years. The study researched executives in the fashion industry and the results demonstrated that executives with greater depths of intercultural exposure experienced higher levels of creativity and innovation. Thus, multicultural experience was related to firm-level creativity, which was a factor in the sustainability of those fashion industries (Godart et al., 2015). Furthermore, in certain cases, cultural diversity has been shown to broaden the perspectives of different individuals in a group, which aids in team creativity (Leung & Wang, 2015).

Intercultural Empathy

Intercultural empathy expands upon intercultural exposure. The simplest definition of empathy and rationalisation for including it in this study is represented in the following definition by Pedwell (2014), namely that empathy is "...an affective bridge between social and cultural differences and an emotional means of achieving social transformation on an international scale" (p. 21). Pedwell (2014) thus suggests that intercultural empathy facilitates understanding between different cultures and can lead to change on a global scale. Thus, it is important that empathy proceeds intercultural contact (Angeles & Pratt, 2017).

In a multicultural country such as South Africa, intercultural contact is highly likely. Thus, it is important to understand the deeper significance beyond simple exposure to other cultures. Exposure or contact with other cultures bears little positive significance unless it results in

something which expands an individual's thought processes, emotional capacity, or behaviour (Hwang & Han, 2018). In fact, negative cultural exposure or an individual who is dismissive of diversity and learning about other cultures can result in stereotyping, prejudice, racism, and conflict (Dandy & Pe-Pua, 2015). Intercultural empathy can be a key differentiator between positive and negative intercultural exposure. It is the ability to empathise with someone who has a different cultural background to one's own (Mallinckrodt et al., 2014a). Furthermore, it stipulates an individual's ability to comprehend another person's cultural perspective, to understand and empathise with another person's emotional experience, and to be able to communicate effectively and empathetically understand one another's view point (Wang et al., 2003). As a result of this, empathy is often essential for positive, meaningful intercultural interactions that go beyond simple exposure (Choi, 2007).

Intercultural empathy begins with being exposed to diverse cultures. Once in contact with a diverse culture, it is necessary for an individual to possess certain competencies to experience intercultural empathy (Angeles & Pratt, 2017). Cultural competence is a key proponent of intercultural empathy. It enables an individual to draw on cultural knowledge to adapt to changing environments and circumstances (Crowne, 2013, Hwang & Han, 2018). It is comprised of the intellectual integration of values from different cultures, openness to learning and experiencing other cultures, prudence in one's reactions to other cultures, and, lastly, acknowledging an array of perspectives when viewing the environment (Hwang & Han, 2018). Research conducted by Solhaug and Osler (2018) demonstrated that cultural and diversity knowledge and understanding significantly predicted intercultural empathy in a sample of 1106 people. Exposure to an array of cultures also led to knowledge generation, which was shown to positively predict empathy. In particular, information on other cultures was shown to significantly predict feelings and expressions of empathy ($r = .26$), empathetic awareness ($r = .20$), acceptance of differences ($r = .19$), and perspective taking ($r = .19$) (Solhaug & Osler, 2018).

In terms of the operationalisation of empathy for the present study, Mallinckrodt et al. (2014a) describe intercultural empathy using a similar term, ethnocultural empathy. This is comprised of the following concepts: the ability to be open to other cultures and learn from them, feelings of superiority or equality, anxiety or comfort with other cultures, the ability to see other cultures' perspectives, awareness of racism and privilege, and feelings of empathy or acting as an ally to

other cultures. In this study, the concept of intercultural empathy will be adapted from this framework to focus on openness to other cultures and learning about other cultures (cultural knowledge and understanding), levels of anxiety and/or comfort with other cultures, and the ability to see other cultures' perspectives (Mallinckrodt et al., 2014a; Wang et al., 2003).

Creative Cognitive Processes

In order to understand the concept of creativity, and even the concept of cultural competence, the mental processes that underlie these constructs need to be explored. Creative cognitive processes have been identified as integral to creative behaviour (Dunne, 2017; Lu et al., 2017; Miller, 2014a). These processes support the generation of ideas which are novel and useful (Beatty et al., 2016). More specifically, creative processes can be understood as the “sequence of thoughts and actions that leads to a novel, adaptive production” (Lubart, 2001, p. 295); thus, they are often used while studying or measuring creativity and creative problem solving. A study by Miller and Dumford (2014) found that creative cognitive processes can be categorised into deliberate processes or intuitive processes. This distinction draws on the amount of cognitive control an individual exerts towards a task. An example of a deliberate cognitive process would be when an individual actively attempts to produce as many ideas as possible when faced with a task (Miller & Dumford). This is reflective of divergent thinking processes (Beatty et al., 2016; Runco, 2010). Intuitive processes are where an individual has less control and may be more unconsciously immersed in a problem. Both of these processes are precursors to creativity and the creation of solutions (Miller & Dumford, 2014).

Creative cognitive processes are one way in which problem solving can occur; there are other factors that contribute to the ability to solve a problem or generate solutions, for example, individual motivation, perseverance, experience, and perceived pressure regarding the task (Lubart, 2001; Miller, 2014a). Although creative cognitive processes are not the only way to problem solve, they do often result in innovative, substantial, and broad ideas to address issues (Leung et al., 2008). Creative cognitive processes are comprised of various elements, which facilitate creative behaviour. Some of these include how concepts are organised in the mind, memory retrieval, and the ability to process information (Miller, 2014a). Moreover, creative thinking, and therefore creativity, relies on cognitive processes. Other concepts include the

process of recruiting ideas from divergent sources to expand one's ideas and retrieving unconventional knowledge from one's memory (Leung et al., 2008).

More specifically for this study, creative cognitive processes which result in creative thinking include brainstorming, metaphorical and analogical thinking, perspective-taking, imagery, incubation, and flow (Miller, 2014a). Brainstorming entails producing as many potential solutions to a problem as possible, regardless of whether they are plausible or not. Emphasis is placed on quantity, rather than quality, of ideas (Miller, 2014a). Metaphorical and analogical thinking involves thinking broadly and connecting one idea or concept to another (Miller, 2014a). Perspective-taking requires a person to intentionally shift their thought processes to view problems in another way, to think of them unconventionally, and to invent new ways of addressing issues (Miller, 2014a). Imagery refers to when a person visualizes, both internally and with their other senses, to think about problems and viable solutions (Miller, 2014a).

Incubation occurs unconsciously, when a person does not actively engage with a problem. Instead, they occupy their mind with other thoughts and activities and leave the problem momentarily (Doyle, 2017). Lastly, flow is also implicit and is best explained by Csikszentmihalyi (1996) as an “almost automatic, effortless, yet highly focused state of consciousness” (p. 110). It is difficult to demonstrate empirically and requires expertise and practice to fully exercise (Miller, 2014a). An example of flow would be “while working on something I enjoy, the work feels automatic and effortless” (Miller, 2014b). While incubation and flow cannot necessarily be taught, certain environments may be conducive to the process. When an individual is exposed to new environments, the unfamiliarity and diversity can spur unconscious, creative thoughts and solutions to previous problems (Miller & Dumford, 2014). Moreover, multicultural experiences aid in the ability for individuals to quickly and flexibly access intellectual resources which are learned from other cultures, to solve for the current problem. By recognising and integrating an array of viewpoints and ideas from other cultures, one's creative cognitive processes and cognitive complexity are developed (Leung & Chiu, 2008).

Creative Behaviour, Intercultural Empathy, Intercultural Exposure, and Creative Cognitive Processes

Creativity is a very widely researched topic. Amabile (1996), a prolific author in the field of creativity, has stipulated four major antecedents of creativity: existing skills related to the field to foster creative behaviour, task motivation, mental processes associated with breaking perceptions and habits, and context (specific situations and social environments). This research draws on two of these antecedents, namely; mental processes (in the form of creative cognitive processes) and context (in the form of intercultural exposure).

In terms of intercultural exposure, a wide body of international literature exists which indicates its relationship with creativity (Cheng & Tan, 2017; Choi, 2007; Dias et al., 2017; Dunne, 2017; Leung et al., 2017; Lu et al., 2017; Obiri et al., 2018; Reiter-Palmon et al., 2008; Wang et al., 2013). A study by Leung et al. (2017) was able to empirically show that exposure to different cultures has the ability to increase creative thoughts and behaviour. Through their research, the authors were able to demonstrate a positive relationship between experience with other cultures and creative performance, as well as the use of creative cognitive processes. These included recruiting foreign ideas, retrieving unconventional knowledge, generating ideas, and insightfully learning. Moreover, this relationship was shown to be stronger when individuals were deeply immersed in foreign cultures (Leung et al., 2017). This finding is supported by Lu et al. (2017) who demonstrated that close intercultural social relationships, which are more voluntary, intimate and empathetic, are more likely to foster creativity. This research showed that there was a significant, positive, weak relationship between creativity and the duration of intercultural relationships ($r= 0.23$), however, the number of intercultural relationships were not significantly related to creativity (Lu et al., 2017).

There is a need to differentiate between forms of intercultural exposure and its effect on creativity. Intercultural exposure can occur serendipitously or intentionally, it can be positive or negative, and it can occur in social settings and work environments (Keil & Koschate, 2020). It was found that deeper, more intentional intercultural contact was indicative of both intercultural empathy and creativity (Lu et al., 2017). Additionally, closer intercultural friendships and romantic relationships have been shown to be stronger predictors of creative behaviour,

compared to work relationships (Lu et al., 2017). Moreover, there has been other literature which discusses the benefit of close intercultural romantic relationships on creativity (for example, Allen, 2018; Lu et al., 2018; Traudt, 2018). Erez and Nouri (2010) found that different types of contexts impact the type of creativity experienced by an individual. A social context was able to prime the individual's cultural norms and make their thoughts more relevant to the current situation, while drawing on past experiences. This enabled the individuals to generate novel, unique ideas. On the other hand, it also created the tendency for the person to conform to the surrounding group and elaborate on existing ideas for consensus (Erez & Nouri, 2010).

Interestingly, this study also differentiated between an individualistic culture's propensity to express their unique, new ideas and a collectivist culture's propensity to comply with the group norms and ideas (Erez & Nouri, 2010). Additionally, it was found that in social relationships which existed outside of the context of the work environment and that allowed for the depth of the relationship to be advanced, creative behaviours were higher than those observed in the context of social relationships at work (Erez & Nouri, 2010). These findings demonstrate the importance of considering context when exploring the nature of the association between intercultural contact and creative behaviour.

Creativity is associated with diverse cultures because creative behaviour is often described as a "serendipitous encounter between cognitive processes and external events" (Bertacchini & Santagata, 2010, p.307). Therefore, diverse environments, lived experiences, and external events from other people have the capacity to increase both creative cognitive processes and creative behaviour (Dunne, 2017). To understand this theoretically, the creative cognition approach is proposed. Creative cognition is characterized by a set of cognitive processes that facilitate creative ideas (ideas which are novel and useful). These processes are often self-generated, directed by goals, and require some level of cognitive control (Beatty et al., 2016). An individual with expansive creative cognition delves into divergent thinking more frequently and utilizes broader cognitive processes. This, in turn, develops creativity and the exhibition of creative behaviour (Beatty et al., 2016). To expand on this, intercultural exposure results in cultural learning and creative cognition is augmented.

Cultural learning occurs when an individual acquires new information from another culture about their beliefs, norms, values, language, and customs. This can occur through virtual and physical

experiences (Lu et al., 2017). Intercultural exposure strengthens cultural learning and this affects both the content and processes of creative cognition. Individuals can learn about diverse concepts, which they can recall and synthesize to create novel and valuable solutions (Leung et al., 2008). Additionally, exposure to various cultures can increase creativity as shared experiences and interactions can enable individuals to integrate these learned traits and perspectives into their own self-concepts, broadening their perspectives (Lu et al., 2017). Thus, intercultural exposure has the capacity to increase creative cognitive processes. These processes include conceptual organisation, visualization, memory retrieval, imagery, information processing, and metaphorical and analogical thinking (Miller, 2014a).

Moreover, creativity can be enhanced through intercultural relationships as they have the ability to improve a person's cognitive flexibility (Wang et al., 2003). Cognitive flexibility is the ability for an individual to adapt their cognitive processing strategies in new and unanticipated contexts (Wang et al., 2003). This flexibility results in an individual effectively and efficiently changing from different behaviours and strategies in new environments which have different demands (Gocłowska et al., 2012 as cited in Wang et al., 2003). Intercultural exposure can thus result in cognitive flexibility, which can benefit an organisation's strategy, creativity, and performance; however, cultural diversity can also lead to categorisation and stereotyping if it is not harnessed in a positive way (Dias et al., 2017).

In order to fully understand the proposed link between intercultural exposure and creativity, intercultural empathy needs to be carefully considered. This is because exposure to diverse cultures without understanding, interest, and acceptance will have either little effect or damaging effects on individual creativity (Choi, 2007; Dias et al., 2017). Intercultural contact enables people to take different ethnic perspectives. Ethnic perspective-taking relies on the theory of social perspective and ethnic cognition. Essentially, it is the ability for an individual to develop cognitively as they are faced with different cultures (Dias et al., 2017). As people are aware of different ethnicities, discrimination, prejudice, attitudes, and experiences, their ability to understand the perspective of another culture increases.

The Current Study

It has been established with prior research that close intercultural relationships are likely to result in creative behaviour (Choi, 2007; Dias et al., 2017; Lu et al., 2017; Mallinckrodt et al., 2014a). However, the research that is available is largely international. To date, despite its unique cultural diversity, there appears to be no research that has explored the relationships between intercultural exposure and creative behaviour in a South African context. This study will thus seek to confirm whether there are positive relationships between different forms of intercultural exposure and creative behaviour in the workplace in a South African sample, as well to establish which forms of intercultural contact are most strongly associated with creative behaviour in the workplace.

Furthermore, in a country such as South Africa where intercultural exposure is frequent, simply measuring exposure and creativity will not yield an accurate understanding of the relationship (Dandy & Pe-Pua, 2015; Hwang & Han, 2018). Thus, the current study will aim to explore the tentative links between not only intercultural exposure and creativity, but also intercultural empathy and creativity. Specifically, the study will aim to establish if there is an association between higher levels of intercultural empathy and increased creative behaviour in the workplace, as well as whether the relationship between intercultural exposure and creative behaviour is moderated by intercultural empathy. For this moderation, the study will specifically aim to identify whether higher levels of intercultural empathy enhance the strength of the association between intercultural exposure and creative behaviour.

Lastly, the study will also aim to explore the nature of the relationship between creative behaviour in the workplace and creative cognitive processes, specifically, if there is an association between higher levels of creative cognitive process use and higher levels of reported creative behaviour. The study will also explore whether the use of creative cognitive processes moderates the relationship between intercultural exposure and creative behaviour, specifically whether higher levels of creative cognitive process use enhance the strength of the association between intercultural exposure and creative behaviour.

Research Questions

1. What are the nature of the relationships between intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour in the workplace?
2. To what extent do intercultural exposure, intercultural empathy, and creative cognitive processes predict creative behaviour in the workplace?
3. Do creative cognitive processes moderate the relationship between intercultural exposure and creative behaviour?
4. Does intercultural empathy moderate the relationship between intercultural exposure and creative behaviour?

Chapter 2: Methods

The purpose of the methods chapter is to discuss the research design of the current study and the characteristics of the sample and how it was collected, to provide detail regarding the instruments used to gather data, to discuss the procedures implemented to collect the data, to highlight any ethical considerations, and to discuss how the data was analysed.

Research Design

This study utilised a quantitative research design as concrete and tangible data was collected which represented real-world phenomena (Goertzen, 2017). The data was numerical and analysed statistically. The study was non-experimental as no variables were manipulated and information was only recorded and analysed. Furthermore, it was cross-sectional as participants were only questioned once, in a once-off questionnaire (Field, 2013). The data received aimed to explore the various relationships and tentative links between intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour in the workplace in a sample of South African employees, and thus was correlational in nature.

Non-experimental research has its limitations, as no causal claims can be made because there is no manipulation of variables, comparison of groups, or randomisation (Babones, 2016). Thus, this research cannot establish causality between the variables and explain why variables are related (Stangor, 2011). However, this study could identify and explore the possible relationships between the variables and predictions can be tested. Additionally, it allows for the assessment of an individual's behaviour in its natural setting and certain ethical dilemmas can be mitigated (Stangor, 2011). Overall, the quantitative design's strength lies in its ability to produce generalisable outcomes and data that is consistent, precise and reliable. Weaknesses include the lack of nuanced, personal information, which could provide an understanding of the context of the phenomenon; and that the collected data from quantitative research may not be robust enough to explain complex issues (Choy, 2014).

Sample and Sampling

Quantitative research relies on selecting a sample which approximates the characteristics of the population. Thus, the sample and the method of sampling is an important foundation for the research which will follow (Laher & Botha, 2012). Due to the nature of quantitative research, the sample aimed to be as large as possible (Babones, 2016). The aim was to acquire at least 100 to 150 responses through volunteer participation. Potential participants were invited to take part in the study using an online snowball method. All participants were employees over the age of 18 who work in white-collar employment. Traditional corporate workspaces were the targeted sample, however any white-collar employee in South Africa who had access to a computer and the internet could be included in the study.

The sampling strategy was non-probability, volunteer and convenience sampling (Laher & Botha, 2012). Non-probability sampling occurs when a limited proportion of individuals from the target population participate in the study. Thus, not every individual in the population has a non-zero probability of being selected to participate in the study. This is due to the voluntary nature of the study, which means that ethically, not all sought after individuals can be forced to participate in the study (Salkind, 2016). Convenience sampling includes all volunteer and snowball sampling, and is based on the accessibility, availability, and willingness of individuals to respond (Rosnow & Rosenthal, 2012). Furthermore, the desired characteristics of the sample were identified, and only those who met the criteria were included in the study (Rosnow & Rosenthal, 2012). The sampling method was economical and easy to implement, however it was impossible to ensure an equal selection of people to provide a representative sample of the population (Salkind, 2016). Overall, due to the broad selection criteria of the targeted sample, this sampling strategy was appropriate.

To obtain the sample, a few organisations were approached to request access to disseminate the questionnaire on their employee database. However, this proved to be unsuccessful. Therefore, the sample was collected by approaching people on social media and via email and thereafter, a snowball method was relied on. This is where respondents who were initially sampled are asked to refer the questionnaire to other people who they believe meet the criteria for the study

(Johnson, 2014). This sampling strategy resulted in 153 responses, however after cleaning the data and identifying duplicated, incomplete, and unfit responses, a total of 129 individuals were included in this study. A larger sample would have been ideal; however, the response rate was slower than anticipated. The cleaned data was analysed using frequencies and descriptive statistics to describe the characteristics of the sample (Canning, 2014).

Frequencies indicated that the sample was disproportionate as there were more females ($n = 79$ (61.2%)) than males ($n = 49$ (38%)), with only 1 participant who identified as non-binary (0.8%). The average age of the sample was approximately 36, with a standard deviation of approximately 12, and the youngest and oldest participant were 18 and 66, respectively. The racial characteristics of the sample were 46 participants who identified as White (35.7%), 34 participants who identified as Indian (26.4%), 30 participants who identified as Black (23.3%), 14 participants who identified as Coloured (10.9%), 4 participants who identified as Asian (3.1%), and 1 respondent did not indicate their race (0.8%). The sample demonstrated a high level of education overall, with 29.5% ($n = 38$) of participants having achieved a post-graduate degree. Only 2 (1.6%) participants had below Matric. Nationality, ethnicity, home language, other languages spoken, and religion were other demographic variables which were asked to capture the intricacies of the participants' cultures. The full details regarding the demographics of the sample can be found in Table 1 of Appendix I.

Respondents worked in a diverse range of industries; these were therefore coded into categories. The most common industry that participants worked in was finance ($n = 18$ (14%)), followed by information technology ($n = 13$ (10.1%)), marketing ($n = 12$ (9.3%)), health ($n = 11$ (8.5%)), and the creative industry ($n = 10$ (7.8%)). The retail, media, legal and education industries each accounted for 5.4% ($n = 7$) of the sample. 4.7% ($n = 6$) of the sample worked in administration and 3.9% ($n = 5$) in telecommunications. The rest of the industries can be seen in Table 1 of Appendix I. The average number of years that participants had been working for was approximately 13, with a standard deviation of approximately 11. The least and most amount of years working were six months and 43 years, respectively.

Instruments

To capture the data necessary to answer the research questions, four instruments were used. This included a self-developed demographic questionnaire which also asked questions to gauge the respondent's degree of intercultural contact, a revised scale to assess intercultural empathy, the Creativity Scale to assess creative behaviour in the workplace, and the Cognitive Processes Associated with Creativity Scale (CPAC) to assess creative cognitive processes.

Self-developed Demographic Questionnaire

A self-developed demographic questionnaire (please see Appendix D) was used to capture information about the participants' age, occupation, industry/field of work, time in full-employment, gender, race, nationality, home language, other languages spoken, religion, ethnicity, and description of their cultural identity. It also measured intercultural exposure based on a variety of questions. Participants were asked to self-report the number and duration (in hours per week) of intercultural contacts at work and at home/socially. They were asked to report the number of romantic relationships and friendships with other cultures and the duration thereof (in years). They were also asked to estimate their level of contact and familiarity with other cultures, based on a 1-10 Likert-type scale, ranging from no contact at all/no familiarity to an extremely high level of contact/extremely familiar. This resulted in ten main variables to establish intercultural contact.

Additionally, eight composite scores were created to provide alternate variables which could be utilised for analysis. These were: the total number of romantic relationships and friends from other cultures and the total number of people in contact with at work and socially per week (DTNP), the total number of people and hours spent with other cultures at work per week (TWRK), the total number of people and hours spent with other cultures socially per week (TSOC), the total number and years spent in romantic relationships with other cultures (TROM), the total friends and years spent in friendships with other cultures (TFRD), a total score (TOTES) (combining the self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number and time spent in romantic intercultural relationships and total number and time spent in intercultural friendships), a total score (TOTT) (combining the total hours spent with other cultures at work and socially per week, and total

years in romantic relationships and friendships with other cultures), and lastly, a total score indicating the total number of romantic relationships and friends from other cultures and the total number of people in contact with at work and socially per week (TNP). Thus, in total there were eighteen intercultural contact variables, ten which were directly taken from the questionnaire, and eight of which represented a combination of scores from these.

Revised scale to assess intercultural empathy

Intercultural empathy was measured using an adapted version (please see Appendix E) of a pre-existing scale called the Revised Scale of Ethnocultural Empathy (Mallinckrodt et al., 2014b). This scale was chosen as it is the first empirical measure to support the theoretical construct of empathy in multicultural contexts (Wang et al., 2003). The adapted scale consisted of 18 items drawn from three of the existing subscales - cultural openness and desire to learn (10 items); anxiety and lack of multicultural self-efficacy (5 items); and empathic perspective taking (3 items). These 18 items were chosen based on their applicability to the current study and certain items were omitted because they were specific to the United States context. In this study, the empathy and anxiety subscale were combined and a total score was created, to represent all three subscales. The response format was a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree), with reverse scoring applied as appropriate. An example of an item is: "I think it is important to be educated about cultures other than my own". (Mallinckrodt et al., 2014b). In general, higher scores were indicative of more intercultural empathy.

The internal consistency reliability of the instrument's scales determines the extent to which the items all measure the same underlying construct (Henson, 2001). Cronbach Alpha coefficients are used to establish this and produces a value ranging from 0-1. A value of 0.7-1 demonstrates that the scale has good-to-excellent reliability (Field, 2013). In the development of the original Scale of Ethnocultural Empathy, the validity and the reliability of the scale was reported. The scale had Cronbach Alpha coefficients ranging from .73 to .91 for the various subscales, illustrating that the scale had moderate to excellent internal consistency reliability (Field, 2013; Mallinckrodt et al., 2014). Furthermore, confirmatory factor analysis was conducted and revealed that all the factor loadings were significant, demonstrating satisfactory convergent validity and therefore good internal validity. Additionally, there were significant correlations

between this scale and other scales of empathy. The original scale was, however, tested in a sample lacking in cultural diversity and does not seem to have been utilised on a South African sample (Wang et al., 2003). The reliability of the revised scale was therefore investigated for this study (please refer to Table 2 in the Results chapter).

Creativity Scale

Creative behaviour in the workplace was measured using a scale created by Tsai et al. (2015a) (please see Appendix F). The Creativity Scale has 13 items and no subscales. The questions were answered on a self-report, seven-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Self-report was deemed appropriate as respondents are likely to be aware of the intricacies of their own creative behaviour and can report it relatively accurately (Tsai et al., 2015a). An example of an item from this scale is: “I come up with new and practical ideas to improve performance” (Tsai et al., 2015b). In the study, the overall score was calculated such that a high score indicated more creative behaviour. Cronbach Alpha coefficients for the scale have previously been calculated as ranging between .88 and .94, indicating excellent internal consistency reliability (Horng et al., 2016; Tsai et al., 2015a). Furthermore, the Creativity Scale was based on an instrument created by Zhou and George (2001) which also verified that the scale has good validity and reliability, with a Cronbach alpha of .96. This scale does not appear to have been used before in a South African context. The Cronbach Alpha coefficients for the scale were calculated in this study (please refer to Table 2 in the Results chapter).

Cognitive Processes Associated with Creativity Scale (CPAC)

Creative cognitive processes were measured with the Cognitive Processes Associated with Creativity Scale (CPAC) created by Miller (2014b) (please see Appendix G). There are six subscales, each with 3 to 6 items (28 items in total); these are: idea manipulation, imagery/sensory, flow, metaphorical/ analogical thinking, idea generation, and incubation. The response format was a self-report, five-point Likert-type scale from 1 (never) to 5 (always). An example of an item from this scale is: “If I get stuck on a problem, I try to apply previous solutions to the new situation” (Miller, 2014b). A higher score indicated that the respondent had a higher degree of creative cognitive processes. As previously done by Miller (2014a), the subscales were combined to produce one overall score representing the level of creative cognitive processes.

Previous Cronbach Alpha coefficients for the subscales range from .38 to .74 (Miller, 2014b). This indicates very poor to good internal consistency reliability for the subscales (Field, 2013). The subscale with a Cronbach Alpha of .38 only has three items. The original scale had an overall Cronbach Alpha of .86 which illustrates an acceptable internal reliability between all of the items. The scale does not appear to have been used in a South African sample previously, thus new internal consistency estimates were established for the sample (please refer to section X in the Results chapter).

Procedure

Ethics clearance was applied for from the University of the Witwatersrand Human Research Ethics Committee (Non-Medical) and was granted (ethics clearance number: MAORG/20/03, Appendix H). Once this was granted, an online survey was created on Google Docs that included a participant information sheet (please see Appendix A), the self-developed demographic questionnaire, the revised scale to assess intercultural empathy, the Creativity Scale, and the Cognitive Processes Associated with Creativity Scale. Requests were made to disseminate the questionnaire through three different organisations, however due to security measures which prohibited this, the requests were denied (Appendix C). Therefore, snowball sampling was solely relied on. A brief invitation to participate voluntarily in the study (please see Appendix B) with a link to the online survey was circulated electronically on social media and through email. Snowball sampling was carried out by asking potential participants to forward the invitation to anyone else who might be interested in taking part (Field, 2013). Participants were asked to complete the survey within two weeks of receiving it, however because the response rate was low, the collection period spanned over approximately four months. Once as many responses as possible in the maximum timeframe that could be allowed were received, data collection ceased and the data was transferred onto a Microsoft Excel spreadsheet, cleaned, reverse-scored and coded. Thereafter, the data was imported into SPSS and analysed.

Ethical Considerations

Ethical clearance was requested and obtained from the University of the Witwatersrand Human Research Ethics Committee (Non-Medical) before the study was carried out (clearance protocol number: MAORG/20/03, Appendix H). A brief electronic invitation (please see Appendix B) with a link to the questionnaire and a participant information sheet (please see Appendix A) attached was sent out online and via email. The participant information sheet provided the participants with the necessary information pertaining to the nature of the research, the voluntary nature of participation, requirements for participation (completion of the online survey), contact information of the researcher and supervisor, right to withdraw from the study without any negative consequences, confidentiality, anonymity, feedback, and data storage (Rosnow & Rosenthal, 1997). Participants were asked for consent to store their data, with no identifying features, in a password-protected file, for possible future analysis. There was a tick-box indicating consent, and participants were clearly informed that submission of the completed questionnaire was regarded as informed consent to participate in the study.

There were no direct benefits nor risks associated with participating in this study. This study had low to no risk because the topic was not sensitive, participants volunteered to participate, and there were no vulnerable people included in the sample. All participants remained anonymous and no individually identifying information was requested. Participants were informed that individual feedback was not possible due to the anonymous nature of the data, however a general summary of the findings could be obtained if requested. These steps ensured that the fundamental elements of ethics were adhered to, including informed consent, protection of the welfare of participants, right to withdraw from the study, anonymity, data storage and debriefing (Salkind, 2016).

Data Analysis

Once the deadline for data collection was reached, the raw data from Google Docs was exported into a Microsoft Excel spreadsheet. This data was cleaned, reverse-scored as needed, and coded and categorised. The data set had numerous duplicated responses and responses that did not meet the required criteria, and these were deleted. All data, including nominal and ordinal variables as

well as scores, was coded into numbers to facilitate statistical analysis of the data. The data was then imported into the IBM Statistical Package for the Social Sciences (SPSS) Version 26 for further analysis (IBM Corp, 2015).

Firstly, frequencies were run for categorical data (Field, 2013). These variables were occupation, industry, education, gender, race, nationality, home language, other languages spoken fluently, religion, and ethnicity. Secondly, the internal consistency reliability of the instrument's scales was important to identify as it establishes the extent to which items measure the same underlying construct (Henson, 2001). Cronbach Alpha Coefficients were run for each scale used in the study, where the reliability of the scales was measured on a scale of 0 to 1. A reported value of .7 to 1 shows that the scale has good-to-excellent internal consistency reliability. This ensures the consistency of the scales in assessing the constructs of interest (Field, 2013). Descriptive statistics were then run for all interval variables (including scale scores). These included measures of central tendency (mean and median) and measures of spread and distribution (standard deviation, variance, skewness, and kurtosis) (Field, 2013). The interval variables which were measured in this way were age, years working, intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour. The descriptive statistics also provided information for establishing the normality of the data, thus checking for an assumption to run parametric tests (Canning, 2014).

Before specific tests were run, a variety of assumptions were checked. Normality of the distribution of the data is essential for many parametric tests and indicates that the majority of the scores lie around the center of the distribution (Fields, 2013). This can be determined through the Central Limit Theorem (CLT), histograms, skewness, kurtosis, and normality tests. The CLT specifies that the greater the size of the sample, the more likely the normality of the data can be assumed. This is because as the data set increases in size, its distribution will approach a normal distribution. According to the CLT, a sample greater than 30 can be deemed sufficiently normal (Brase & Brase, 2012). A histogram provides graphical information about the normality of the data as it shows the shape and pattern of the spread of the data around the mean (Peck & Devore, 2012). Skewness measures the symmetry of the data around the mean and can be measured with the skewness coefficient. This compares the size of the median and the mean, taking the standard deviation into account (Black, 2012).

If the distribution is symmetrical, or normal, the coefficient would be 0. However, an acceptable range which indicates normality lies within -1 and +1 (Shenoy et al., 2005). Alternatively, data which lies outside of this range can either be positively skewed or negatively skewed and rectified through transformations (Field, 2013). On the other hand, kurtosis measures how peaked the spread of data is and describes how the scores may or may not accumulate at the tails of the distribution. Ideally, a normal kurtosis would lie within a range of -3 to +3, however the distribution may be leptokurtic or platykurtic and fall outside of this range (DeCarlo, 1997). Leptokurtic distributions are more peaked than normal and many scores are clustered around the center. Platykurtic distributions are flatter than normal and scores are more widely spread (Antonius, 2003). To some extent, these too can be rectified through transformations (Field, 2013). The last measure of normality is normality tests, such as Shapiro–Wilk test, whereby a significant result indicates that the data is significantly different to normal. It must be noted that these types of tests are highly sensitive to slightly skewed data and may produce a significant result even if the data is sufficiently normal (Field, 2013). Thus, the results of the CLT, histograms, skewness coefficients, kurtosis estimates, and normality tests were amalgamated in order to come to a conclusion about the normality of the data in this study.

Ultimately, certain variables within the data were deemed sufficiently normal, such as the creative cognitive processes scale. However, the other variables, namely creative behaviour, certain variables representing intercultural exposure and certain variables representing intercultural empathy were non-normal. To mitigate this, the creative behaviour scale was transformed and squared, and the intercultural exposure and empathy subscales were dummy coded for the modelling research questions and non-parametric tests were used for the research question regarding relationships (Feng et al., 2014). Thus, Spearman’s Rho was used to determine the nature of the relationships between all of the main interval variables, to establish both the strength and the direction of the relationship. Spearman’s Rho (r_s) results in a correlation coefficient ranging from -1 to +1. Values closer to -1 or +1 reflect a stronger relationship, either negative or positive, respectively, and values closer to 0 reflect a weaker relationship. A value of +1 or -1 would indicate a perfect linear relationship (Johnson, 2014). A negative relationship is indicative of an inverse relationship, so that when one variable increases, the other decreases. A positive relationship shows that as one variable increases, the other

variable does so too. A value of 0 would indicate that there is no correlation between two variables (Field, 2013).

The research question that aimed to investigate whether intercultural exposure, intercultural empathy, and creative cognitive processes predicted creative behaviour was addressed using multiple regression (Field, 2013). This technique not only investigates if two variables are related, but also whether the independent/criterion variables predict the dependent/ outcome variable. The stronger the resultant correlation, the more precisely the independent/ criterion variables predict the dependent variable (Bewick et al., 2003). For the multiple regressions to be run, the variables which were not dummy coded were mean-centered. Centering is a process which transforms the variable into deviation around any chosen fixed point, but often the grand mean. It is useful as it combats multicollinearity between the predictor variables and helps interpretation when the predictors do not have a meaningful zero point. Furthermore, centering helps the model to be more stable and the estimates can be treated as independent from one another (Field, 2013). Along with normality, multiple regression requires other assumptions to be met, including variables which are at least interval, linearity, no significant outliers, independent observations, and homoscedasticity (Schneider et al., 2010). All variables were at least interval in nature or dummy-coded and this helped to mitigate the non-normally distributed variables.

To assess whether creative cognitive processes moderated the relationship between intercultural exposure and creative behaviour, a moderation was carried out through SPSS. Before the hierarchical multiple regression was run, the various assumptions needed to be tested through a multiple regression. These assumptions were normal distribution of scores, absence of outliers, linearity, independence of observations, homoscedasticity, no multicollinearity, normal distribution of residuals, and an absence of influential cases and outliers from the regression line (Field, 2013). The non-normal variables were dummy-coded and outliers were tested through the standardised residuals which needed to be less than 3. Linearity was determined through a scatterplot. Independence of observations were determined through the Durbin-Watson statistic which produces a value from 0 to 4. A value of 2, or close to 2 indicates that there is independence of observations. Homoscedasticity is where the error variances are the same for all

combinations of independent and moderator variables and is tested through the residual plots in the regression or through the Levene's test of homogeneity of variance (Field, 2013).

Multicollinearity is where two or more predictor variables are highly correlated with each other. If multicollinearity is present, it proves difficult to assess the individual importance of the predictor (Huck, 2012). Multicollinearity can be ruled out by analysing the correlations between the predictors (a correlation of .80 or more could be problematic), more precisely, a variance inflation factor (VIF) is produced by SPSS and the value should be greater than 0.2 and less than 10 (Field, 2013). There was an absence of influential cases if Cook's Distance was between -1 and +1 (Field, 2013). Once all these assumptions were tested and sufficiently met, the hierarchical multiple regressions were performed. If a significant interaction existed, a simple slopes analysis can be created to demonstrate the nature of the moderated relationship between the variables.

To test whether intercultural empathy moderated the relationship between intercultural exposure and creative behaviour, a two-way ANOVA was run. The two-way ANOVA compares the mean differences between groups of two independent variables. Its purpose is to understand if there is an interaction between the two independent variables on the dependent variable. The interaction term helps to establish whether the effect of intercultural exposure on creative behaviour is influenced by intercultural empathy (Lund & Lund, 2018). The assumptions to run this test were a dependent variable which was at least interval in nature, the independent variables had two or more categorical, independent groups, and there needed to be independence of observations, no significant outliers, approximately normal distribution of the dependent variable, and homogeneity of variances (Field, 2013). The dependent variable, creative behaviour, was interval in nature and tested for normality. The independent variables, intercultural exposure and intercultural empathy, were dummy-coded and thus had two categorical, independent groups. Outliers were tested with the standardised residuals and homogeneity of variances were tested with the Levene's test for homogeneity of variances (Lund & Lund, 2018). Once all the assumptions were sufficiently met, the two-way ANOVA was run. If interaction effects were present, a pairwise analyses of the simple main effects was carried out.

Chapter 3: Results

The results chapter presents the statistical findings from the data which were calculated using IBM SPSS Statistics 22 software (IBM Corp, 2015). It will discuss the reliabilities of the scales, descriptive statistics, frequencies, the results of the relationships between the variables, the assumptions needed to run the predictions, and the results of the multiple regressions, moderation analyses, and two-way ANOVAs.

Internal Consistency Reliability

Before tests could be run on the data, the reliability of the scales needed to be established. An instrument needs to be reliable in order to produce credible data which yields meaningful results (Hagan, 2014). The scales used to test for intercultural empathy, creative cognitive processes, and creative behaviour were analysed using Cronbach Alpha coefficients. The Cronbach Alpha coefficients for each of the scales are presented in Table 2 below.

Table 2

Cronbach Alpha coefficients for the revised scale to assess intercultural empathy, the Cognitive Processes Associated with Creativity Scale (CPAC), and the Creativity Scale

	Cronbach Alpha	Number of Items
ICE_OPEN	.951	10
ICE_ANX	.654	5
ICE_EMP	.502	3
IC_TOT	.897	18
CGPR_TOT	.860	28
CB_TOT	.955	13

Key: ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_EMP= intercultural empathy empathy; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

The results presented above are indicative of a range of Cronbach Alpha coefficients, some of which were weak. The Cronbach Alphas for the items in the Cognitive Processes Associated with Creativity Scale (CPAC) ($\alpha = .86$) and the Creativity scale ($\alpha = .95$) demonstrated good-to-excellent internal consistency reliability (Murphy & Davidshofer, 2005). The intercultural

empathy openness subscale ($\alpha = .95$) also had excellent internal consistency reliability (Field, 2013). However, the intercultural empathy anxiety ($\alpha = .65$) had low-to-weak internal consistency reliability. This means that the items in this subscale measured the same general construct to a lesser extent (Henson, 2001). This lower Cronbach Alpha is not ideal, but the scale was still deemed sufficiently acceptable to use in the study (Hair et al., 2014). The intercultural empathy ‘empathy’ subscale was not acceptable due to its very low internal consistency reliability. The overall scale to assess intercultural empathy, with 18 items, was deemed acceptable because the total score showed a good internal consistency reliability ($\alpha = .89$) (Field, 2013). Overall, all of the scales used in this study were deemed acceptable in testing for the same underlying constructs, except for the empathy subscale, and further analysis could be conducted.

Descriptive Statistics

Descriptive statistics provide detailed characteristics of the sample. This includes measures of central tendency (the mean, median, and mode) as well as measures of distribution (standard deviation, variance, range, skewness, and kurtosis). These statistics provide an understanding of the nature of the sample, as well as whether normality can be established for the data (Field, 2013). In the current study, the mean, standard deviation, range, skewness coefficients, and kurtosis estimates were calculated for each of the continuous variables – these are presented in Table 3 below.

Table 3

Descriptive statistics for age, years working, intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour (n= 129)

	N	Mean	Std.Dev.	Min.	Max.	Skewness	Kurtosis
Age	129	35.97	11.78	18	66	.69	-.67
Years working	129	12.91	11.13	0.5	43	.87	-.2
WNW	127	19.43	37.23	1	375	7.39	66.99
WTW	126	18.30	15.07	0	50	.546	-1.01
WNS	128	8.52	12.40	0	100	4.43	25.78
WTS	127	14.59	21.02	0	100	2.62	7.1
ROCN	129	4.12	9.482	0	100	8.51	83.6
ROCT	129	5.48	8.94	0	50	2.64	7.63
FOCN	122	25.82	52.79	0	500	6.86	56.51
FOCT	127	14.76	11.86	0	50	1.19	1.10
SRCNT	129	8.19	1.87	0	10	-1.36	2.63
SRFAM	129	6.84	1.82	2	10	-.30	-.12
TNWS	129	27.59	41.97	0	415	6.63	57.27
TWRK	129	37.01	43.58	0	415	5.55	44.30
TSOC	129	22.82	26.16	0	121	2.16	4.25
TROM	129	9.60	14.80	0	130	4.87	34.44
TFRD	129	38.95	56.55	0	533	6.20	48.54
TOTES	129	123.41	96.62	17.20	699	3.26	14.60
TOTT	129	52.244	38.07	1	186	1.21	1.61
TNP	129	56.13	77.08	0	566	4.64	4.64
ICE_OPEN	129	60.86	12.36	10	70	-2.53	6.85
ICE_ANX	129	31.03	4.61	6	35	-2.04	7.38
ICE_TOT	129	106.61	12.16	32	126	-2.01	5.16
CGPR_TOT	129	108.43	11.30	78	140	-.118	-.142
CB_TOT	129	74.02	14.00	29	91	-1.16	1.24

Key: WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years);

SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Firstly, to capture the extent to which participants were exposed to other cultures, a range of questions were posed. Table 3 above demonstrates that there was a very large range of answers from the respondents regarding their perceived level of intercultural exposure. For example, participants reported that they were exposed to between 1 and 375 people from different cultures at work per week, with an average of 19 people per week. Additionally, the sample reported that they had between 0 and 500 friends from other cultures, with a mean of 26. The sample's mean number of years of friendship with people from other cultures was 14 years, with a minimum of 0 years, and maximum of 50 years. The vast differences in answers may accurately demonstrate the perceived level of intercultural exposure that the participants experienced, however intercultural exposure is an obscure concept to measure and it is likely that the questions were interpreted differently by different individuals.

For the revised scale to assess intercultural empathy, respondents could score between 18 and 126. A higher score was indicative of more intercultural empathy. Taking into account reverse scoring, the minimum score was 32 and the maximum reported score was 126, with an average score of 106.61. This indicates that the sample, in general, reported a high degree of intercultural empathy. For the Cognitive Processes Associated with Creativity (CPAC) scale, the participants' scores ranged from 28 to 140. The minimum and maximum scores that participants reported were 78 to 140, respectively. A high score demonstrated higher levels of creative cognitive processes use. On average, the sample reported a score of 108.43, which demonstrated a moderate level of creative cognitive processes use, nearing slightly lower levels of creative cognitive processes use. Lastly, for the Creativity scale, the participants could report between 13 and 91, with higher scores representing more creative behaviour. The minimum and maximum

score that were indicated were 29 and 91, with an average score of 74. This represents a slightly higher level of creative behaviour. According to the information provided from the skewness and kurtosis values, only age, years working, the amount of time spent with other cultures at work per week (WTW), the self-rated familiarity with other cultures (SRFAM), and the total creative cognitive processes (CGPR_TOT) scores appeared to be normally distributed.

Normality

In addition to the information provided by the kurtosis and skewness scores, normality was also assessed through the use of histograms (please see Appendix K). For the main variables, amount of time spent with other cultures at work per week (WTW), self-rated familiarity with other cultures (SRFAM), and total creative cognitive processes (CGPR_TOT) were once more deemed acceptably normal. However, the rest of the exposure variables, the other intercultural empathy subscales and total, and the creative behaviour scale were not sufficiently normal (i.e. the data for these variables was skewed). Due to the fact that many statistical tests require normality of the data as an assumption, this presented some concern. Some tests have non-parametric alternatives, and the non-parametric version of Pearson's r correlations, namely Spearman's Rho correlations, was used to test the nature of the relationships between the variables in the study instead where necessary. However, the regressions, moderation analyses, and ANOVAs needed the data to be sufficiently normally distributed in order for these to be run effectively (Field, 2013).

As a result of this requirement, the data was transformed (Field, 2013). The Creativity scale was squared and this resulted in a sufficiently normal distribution. The skewness and kurtosis value changed from -1.16 and 1.24 to -.62 and -.26 respectively. Furthermore, the histogram (please see Appendix L), also demonstrated that the transformation resulted in a sufficiently normal distribution. The intercultural exposure and intercultural empathy scales did not respond well to transformations and thus the decision to dichotomise (dummy-code) these variables was made. Dummy coding is the process of transforming data into binary categories (i.e. 0 and 1). These values are able to convey all the necessary information about group membership (Salkind, 2010). Moreover, by converting the data to these two values, it minimizes the large range of scores and

helps to normalize the data (Salkind, 2010). Overall, the sample size of 129 also provided some assurance of normality, according to the Central Limit Theorem (Field, 2013).

Research Questions

Relationships

Table 4

Spearman's Rho correlation coefficients for intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour (n= 129)

	CB_TOT	CGP_TOT	ICE_OPEN	ICE_ANX	ICE_TOT
WNW	-.058	-.059	.119	.043	.096
WTW	.124	-.023	.110	.155	.091
WNS	.230**	-.059	.285**	.344**	.359**
WTS	.178*	-.003	.073	.197*	.133
ROCN	.215*	-.046	.295**	.266**	.357**
ROCT	.125	-.113	.147	.189*	.157
FOCN	.207*	.	.282**	.289**	.342**
FOCT	.165	-.007	.097	.114	.156
SRCNT	.230**	-.027	.314**	.446**	.430**
SRFAM	.137	-.046	.201*	.237**	.331**
TNWS	.099	-.049	.159	.127	.209*
TWRK	.057	-.059	.117	.153	.111
TSOC	.222*	-.023	.148	.248**	.232**
TROM	.186*	-.096	.207*	.252**	.260**
TFRD	.192*	.006	.174*	.187*	.260**
TOTES	.185*	-.068	.182*	.247**	.262**
TOTT	.179*	-.045	.113	.207**	.179*
TNP	.165	-.057	.271**	.271**	.320**
CB_TOT		.481**	.351**	.229**	.391**
CGPR_TOT			.147	.009	.130
ICE_OPEN				.380**	.845**
ICE_ANX					.686**

Key: * = Correlation is significant at the 0,05 level; ** = Correlation is significant at the 0.01 level ; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures

social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Spearman's Rho correlation coefficients, a non-parametric equivalent of the Pearson's correlation coefficient, were used to establish the nature of the relationships between the intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour variables. Due to the fact that normality is not an assumption for this test, the data for the original non-normal variables were used (Field, 2013). The results can be seen in Table 4 above.

Table 4 above demonstrates that there were numerous significant correlations between the intercultural exposure variables, intercultural empathy variables, and creative behaviour. An exception to this was the creative cognitive processes use variable, as it was not significantly related to any of the other variables except for creative behaviour ($r = .48$; $p = .00$). This represented a weak to moderate, positive relationship between creative cognitive processes and creative behaviour (Field, 2013). Other significant relationships which had greater strengths were established between the intercultural empathy subscales and the total intercultural empathy score. In particular, the openness subscale was strongly and positively related to the total score ($r = .85$; $p = .00$) and the anxiety subscale was moderately and positively related to the total score ($r = .69$; $p = .00$).

Creative behaviour was significantly and positively related to all of the intercultural empathy subscales, and there was a weak relationship between creative behaviour and total intercultural empathy ($r = .39$; $p = .00$). Interestingly, creative behaviour was not significantly related to the

number of people from other cultures exposed to at work ($r = -.06$; $p = .52$) or time spent with other cultures at work ($r = .12$; $p = .17$), however creative behaviour was significantly related to the number of other cultures exposed to socially per week ($r = .23$; $p = .01$) and the amount of time spent with other cultures socially per week ($r = .18$; $p = .05$). These were weak, positive relationships (Field, 2013). Creative behaviour and self-rated contact with other cultures were positively and significantly related ($r = .23$; $p = .01$), however the relationship between creative behaviour and self-rated familiarity with other cultures was not significant ($r = .14$; $p = .12$).

A number of the primary exposure variables that were assessed were only weakly correlated with one another (please see Table 5 in Appendix J); this was expected given that each primary exposure variable assessed a different aspect of contact (e.g. number of people, amount of time spent, number of relationships, etc...) in a different context (e.g. work, social contact, romance, friendship, etc...). Also as expected, there were moderate to strong relationships between many of the core exposure variables and composite exposure variables (please see Table 5 in Appendix J) and between the composite variables with each other (please see Table 6 in Appendix J); this was anticipated as the primary variables were used as the basis from which to form the composite variables. For example, the number of other cultures exposed to at work per week (TNWS) was related to the number of people exposed to per week at work and socially (WNW) ($r = .88$; $p = .00$), and the total number of people from other cultures and hours spent with other cultures at work per week (TWRK) was related to the amount of time spent with other cultures at work per week (WTW) ($r = .88$; $p = .00$), to name a few. A full list of the relationships can be located in Appendix J.

Results of the tests of assumptions to ensure a moderation could be run

Normality of the variables was assessed using skewness coefficients and kurtosis estimates, histograms, and Central Limit Theorem. As most of the variables were non-normal, various transformations were carried out (creative behaviour was squared and various intercultural exposure and empathy variables were dichotomised). The standardised residuals for the predictor variables – the intercultural exposure variables, the intercultural empathy total variable, and the creative cognitive processes use variable, demonstrated that there were no outliers as none of the

values were above 3 (please see Appendix M). The linearity between the predictor variables and the outcome variables were sufficiently determined through the Spearman Rho correlations, as shown above. Durbin-Watson statistics for the variables illustrated independence of observations (please see Appendix N). The Cook's Distance values were all between -1 and +1 and this showed that there was an absence of influential cases (please see Appendix O).

Lastly, multicollinearity between the predictor variables was tested by measuring the inter-relationships between intercultural exposure, intercultural empathy, and creative cognitive processes. Tables 4, 5 and 6 in Appendix J demonstrate that there was no correlation above .7 for any of the main predictor variables (the intercultural exposure variables, the intercultural empathy total variable, and the creative cognitive processes variable). Furthermore, Table 10 in Appendix P shows that the VIF values produced by SPSS were within the acceptable range and multicollinearity was therefore not present; thus the assumption of no multicollinearity between the predictor variables was met (Field, 2013).

Simple regression

Before any other tests were carried out, simple regression analyses were performed with each of the predictor variables to understand whether they predicted the outcome variable (creative behaviour). The summary results for each regression are presented in Table 11 below.

Table 11*Model summaries for the simple regressions results (n=129)*

Model	R	R²	Adjusted R²	Std. Error	Sig.
DWNW	.065	.004	-.004	1872.414	.465
DWTW	.042	.002	-.006	1878.409	.643
DWNS	.146	.021	.014	1855.616	.100
DWTS	.133	.018	.010	1865.877	.137
DROCN	.201	.040	.033	1834.444	.002
DROCT	.127	.016	.008	1857.656	.152
DFOCN	.087	.008	-.001	1878.255	.342
DFOCT	.156	.024	.016	1856.673	.081
DSRCNT	.157	.025	.017	1849.440	.075
DSRFAM	.108	.012	.004	1861.891	.225
DTNWS	.056	.003	-.005	1869.784	.527
DTWRK	.002	.000	-.008	1872.745	.983
DTSOC	.106	.011	.004	1862.127	.230
DTROM	.155	.024	.016	1850.048	.079
DTFRD	.122	.015	.007	1858.870	.170
DTOTES	.067	.004	-.003	1868.581	.453
DTOTT	.117	.014	.006	1859.805	.185
DTNP	.093	.009	.001	1864.581	.293
ICE_TOT	.283	.080	.073	1796.027	.001
CGPR_TOT	.476	.226	.220	1647.199	.000

Key: D= dummy; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact,

total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Table 11 above shows that when each of the predictor variables were tested for predicting creative behaviour, only three variables were significant – total intercultural empathy ($p = .00$), creative cognitive processes use ($p = .00$), and the number of romantic relationships with other cultures (DROCN) ($p = .00$) significantly predicted creative behaviour. The number of romantic relationships with other cultures ($R^2 = .04$), intercultural empathy ($R^2 = .08$), and creative cognitive processes ($R^2 = .23$) accounted for 4%, 8%, and 23% of the variance explained in creative behaviour respectively. Table 12 below provides the coefficients for these three significant models.

Table 12

Coefficients for the number of romantic relationships with other cultures (DROCN), intercultural empathy, and creative cognitive processes

Model	Unstandardized		Standardized		
	B	Std. Error	Beta	t	Sig.
(Constant)	4548.661	511.953		8.885	.000
DROCN	747.823	323.037	.201	2.315	.022
(Constant)	4081.378	503.668		8.103	.000
Intercultural empathy	1053.114	316.348	.283	3.329	.001
(Constant)	-2845.65	1404.969		-2.02	.045
Creative cognitive processes	78.569	12.889	.476	6.096	.000

The number of romantic relationships with other cultures (DROCN) significantly predicted creative behaviour ($t = 2.32; p = .02$). For every one-unit change in the number of romantic relationships from other cultures, there was a .20 positive change in creative behaviour ($B = .20$). Intercultural empathy significantly predicted creative behaviour ($t = 3.33; p = .00$) and indicated that for every one-unit change in the total amount of intercultural empathy that a participant had, there was a .28-unit change in creative behaviour ($B = .28$). Lastly, creative cognitive processes significantly predicted creative behaviour ($t = 6.07 p = .00$) and as there was a one-unit change in the amount of creative cognitive processes, there was a .48 positive change in creative behaviour ($B = .48$) (Field, 2013).

Moderation

The next research question aimed to investigate whether creative cognitive processes moderated the relationship between intercultural exposure and creative behaviour. Only certain intercultural exposure and creative behaviour relationships were significantly moderated by creative cognitive processes, as follows: the amount of time per week spent in contact with people from other cultures socially (DWTS); the number of friends from other cultures (DFOCN); the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK); the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC); and overall intercultural exposure (DTOTES); represented by the combination of the overall number of people from other cultures, time spent with people from other cultures, number of relationships (friendship and romantic) with people from other cultures, and self-rated contact and familiarity with people from other cultures).

The amount of time spent in contact with people from other cultures socially (DWTS), creative cognitive processes, and creative behaviour.

The output in Table 13 and Table 14 below provides the results for the moderation analysis for the amount of time per week spent in contact with people from other cultures socially (DWTS).

Table 13

Model summary for the amount of time per week spent in contact with people from other cultures socially, creative cognitive processes, and creative behaviour

Model	R	R ²	Adjusted R ²	Std. error	df1	df2	Sig.	Durbin-Watson
1	.493	.243	.231	1644.01	2	124	.000	
2	.526	.277	.259	1613.67	1	123	.018	2.52

Table 14

Coefficients for the amount of time per week spent in contact with people from other cultures socially, creative cognitive processes, and creative behaviour

Model	Unstandardized		Standardized		
	Unstd. B	Std. Error	Beta	t	Sig.
(Constant)	-738.666	453.906		-1.627	.106
CGPR_TOT	-13.718	40.810	-.083	-.336	.737
DWTS	500.202	286.399	.134	1.747	.083
CGPRxDWTS	60.869	25.482	.587	2.389	.018

Key: CGPR_TOT = creative cognitive processes total; DWTS = weekly time social

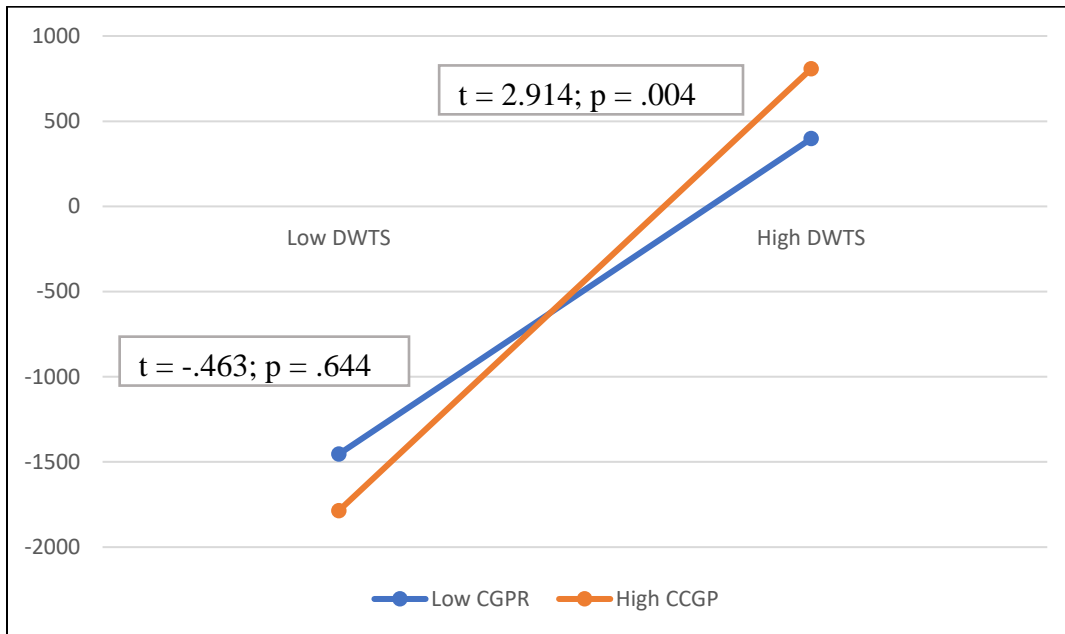
Table 13 shows that the overall model was significant ($F = 15.71$; $p = .00$) and that 28% of the variance in creative behaviour was as a result of the variance in the amount of time per week spent in contact with people from other cultures (DWTS) and creative cognitive processes ($R^2 = .28$). While neither the amount of time per week spent in contact with people from other cultures (DWTS) or creative cognitive processes use were significant, the interaction between these two variables on creative behaviour was significant ($t = 2.39$; $p = .18$). This demonstrates that the moderator, creative cognitive processes use, significantly altered the nature of the relationship between the amount of time per week spent in contact with people from other cultures (DWTS) and creative behaviour.

As shown in Figure 26 below, a simple slopes analysis was conducted by plotting high levels of creative cognitive processes use one standard deviation above the mean and low levels of creative cognitive processes use one standard deviation below the mean. For participants who spent low amounts of time per week in contact with people from other cultures socially, there was no significant difference in creative behaviour scores between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use ($t = -.46$; $p = .64$). For participants who spent high amounts of time per week in contact with people

from other cultures socially, those with higher levels of creative cognitive processes use had significantly higher creative behaviour scores than those with lower levels of creative cognitive processes use ($t = 2.91$; $p = .00$). This suggests that for individuals who spent more time in contact with people from other cultures socially, the use of more creative cognitive processes facilitated creative behaviour.

Figure 26

Simple slopes analysis of the interaction between amount of time per week spent in contact with people from other cultures (DWTS) and creative cognitive processes (CGPR) on creative behaviour



The number of friends from other cultures (DFOCN), creative cognitive processes, and creative behaviour.

The output in Table 15 and Table 16 below provides the results for the moderation analysis for the number of friends from other cultures (DFOCN).

Table 15

Model summary for the number of friends from other cultures, creative cognitive processes, and creative behaviour

Model	R	R²	Adjusted R²	Std. error	df1	df2	Sig.	Durbin-Watson
1	.483	.234	.221	1657.41	2	119	.000	
2	.511	.261	.242	1634.53	1	118	.039	2.48

Table 16

Coefficients for the number of friends from other cultures (DFOCN), creative cognitive processes and creative behaviour

Model	Unstandardized		Standardized		
	Unstd. B	Std. Error	Beta	t	Sig.
(Constant)	-370.451	462.167		-.802	.424
CGPR_TOT	-.075	39.714	.000	-.002	.998
DFOCN	245.677	296.640	.066	.828	.409
CGPRxDFOCN	54.967	26.340	.504	2.087	.039

Key: CGPR_TOT = creative cognitive processes total; DFOCN: number of friends from other cultures

Table 15 shows that the overall model for the number of friends from other cultures (DFOCN), creative cognitive processes use, and creative behaviour was significant ($F = 13.89$; $p = .00$) and that 26% of the variance in creative behaviour could be explained by this model ($R^2 = .26$).

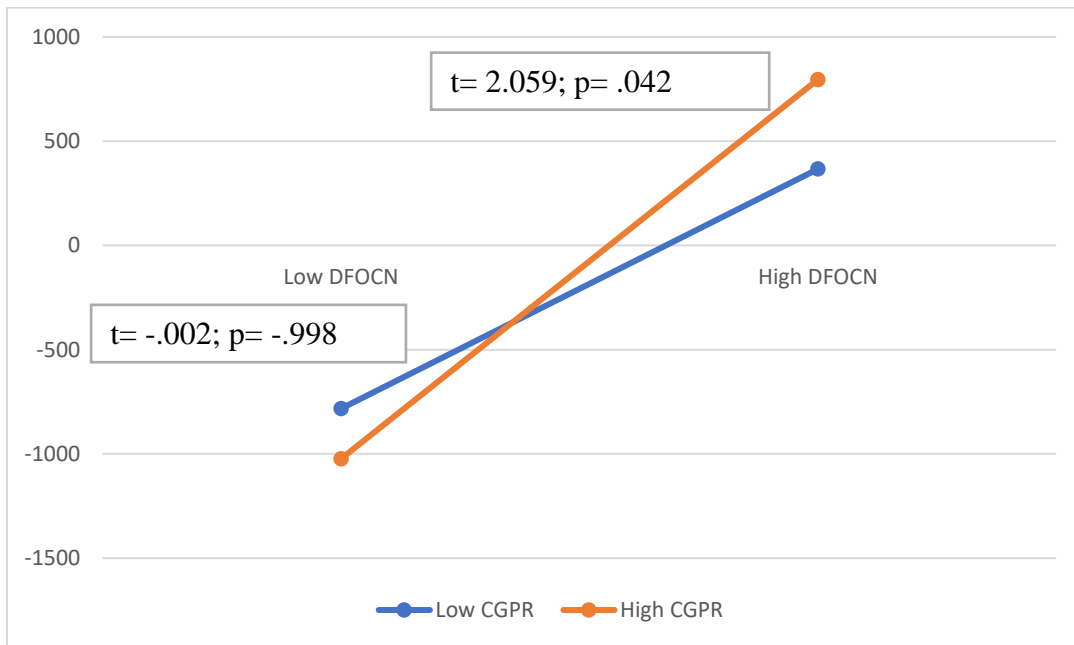
While neither the number of friends from other cultures (DFOCN) nor creative cognitive processes use significantly predicted creative behaviour alone, the interaction between these two variables did significantly predict creative behaviour ($t = 2.08$; $p = .04$). Thus, creative cognitive processes use significantly altered the nature of the relationship between the number of friends from other cultures (DFOCN) and creative behaviour.

A simple slopes analysis was conducted by plotting high levels of creative cognitive processes use one standard deviation above the mean and low levels of creative cognitive processes use one standard deviation below the mean. This is shown in Figure 27 below. For participants who had low numbers of friends from other cultures, there was no significant difference in creative behaviour scores between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use ($t = -.00$; $p = 1.0$). For participants with a high number of friends from other cultures, those with higher levels of creative cognitive processes use had significantly higher creative behaviour scores than those with lower levels of creative

cognitive processes use ($t = 2.06$; $p = .04$). This suggests that for participants with a high number of friends from other cultures, the use of more creative cognitive processes facilitated creative behaviour.

Figure 27

Simple slopes analysis of the interaction between number of friends from other cultures (DFOCN) and creative cognitive processes (CGPR) on creative behaviour



The total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK), creative cognitive processes, and creative behaviour.

The output in Table 17 and Table 18 below provides the results for the moderation analysis for the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK).

Table 17

Model summary for the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK), creative cognitive processes, and creative behaviour

Model	R	R ²	Adjusted R ²	Std. error	df1	df2	Sig.	Durbin-Watson
1	.476	.227	.215	1653.02526	2	126	.000	
2	.520	.270	.252	1612.81344	1	125	.008	2.601

Table 18

Coefficients for the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK), creative cognitive processes and creative behaviour

Model	Unstandardized		Standardized		
	Unstd. B	Std. Error	Beta	t	Sig.
(Constant)	-111.240	446.830		-.249	.804
CGPR_TOT	-29.963	42.037	-.181	-.713	.477
DTWRK	89.844	284.558	.024	.316	.753
CGPRxDTWRK	69.278	25.534	.690	2.713	.008

Key: CGPR_TOT = creative cognitive processes total; DTWRK: the total amount of time per week spent with people from other cultures at work

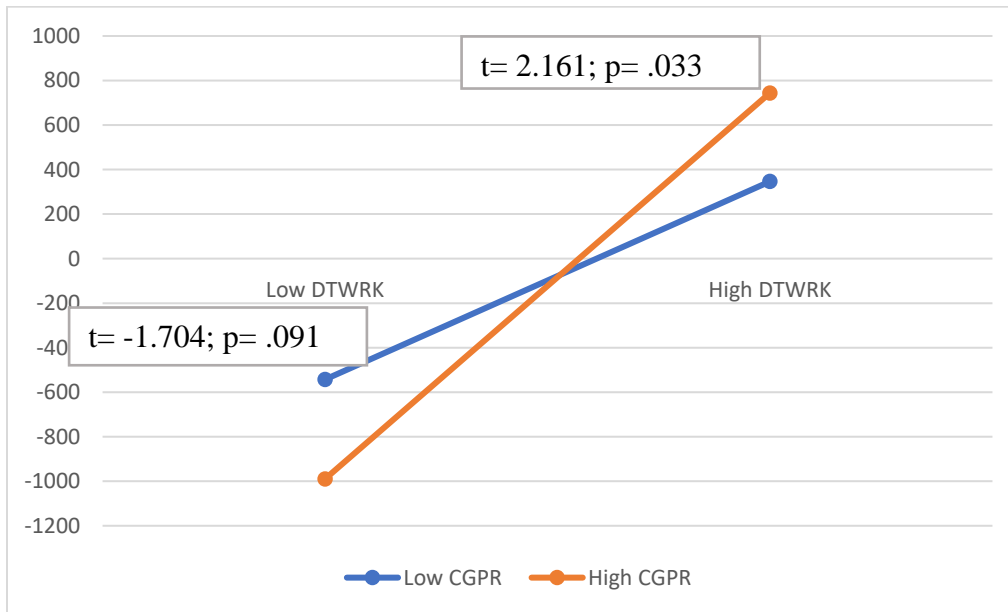
Table 17 shows that overall model for the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK), creative cognitive processes use, and creative behaviour was significant ($F = 15.41$; $p = .00$). 27% of the variance seen in creative behaviour was explained by this model ($R^2 = .27$). Only the interaction between the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK) and creative cognitive processes use was significant ($t = 2.71$; $p = .01$). This means that although the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK) and creative cognitive processes use did not predict creative behaviour by themselves, creative cognitive processes use did significantly change the nature of the relationship between the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK) and creative behaviour.

As shown in Figure 28 below, a simple slopes analysis was conducted by plotting high levels of creative cognitive processes use one standard deviation above the mean and low levels of

creative cognitive processes use one standard deviation below the mean. For participants with a low total number of people and time per week spent with people from other cultures at work, there was no significant difference in creative behaviour scores between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use ($t = -1.70$; $p = .09$). For participants with a higher total number of people and time per week spent with people from other cultures at work, those with higher levels of creative cognitive processes use had significantly higher creative behaviour scores than those with lower levels of creative cognitive processes use ($t = 2.16$; $p = .03$). This suggests that for individuals who had a higher number of people, and spent more time per week with people from other cultures at work, the use of more creative cognitive processes facilitated creative behaviour.

Figure 28

Simple slopes analysis of the interaction between total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK) and creative cognitive processes (CGPR) on creative behaviour



The total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), creative cognitive processes, and creative behaviour

The output in Table 19 and Table 20 below provides the results for the moderation analysis for the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC).

Table 19

Model summary for the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), creative cognitive processes, and creative behaviour

Model	R	R ²	Adjusted R ²	Std. error	df1	df2	Sig.	Durbin-Watson
1	.498	.248	.236	1630.70433	2	126	.000	
2	.524	.274	.257	1608.03796	1	125	.034	2.598

Table 20

Coefficients for the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), creative cognitive processes, and creative behaviour

Model	Unstandardized		Standardized		Sig.
	Unstd. B	Std. Error	Beta	t	
(Constant)	-797.666	457.350		-1.744	.084
CGPR_TOT	-3.239	41.160	-.020	-.079	.937
DTWRK	538.848	284.575	.145	1.894	.061
CGPRxDTSOC	54.244	25.355	.533	2.139	.034

Key: CGPR_TOT = creative cognitive processes total; DTSOC: the total number of people and the total amount of time (in hours) spent with people from other cultures socially

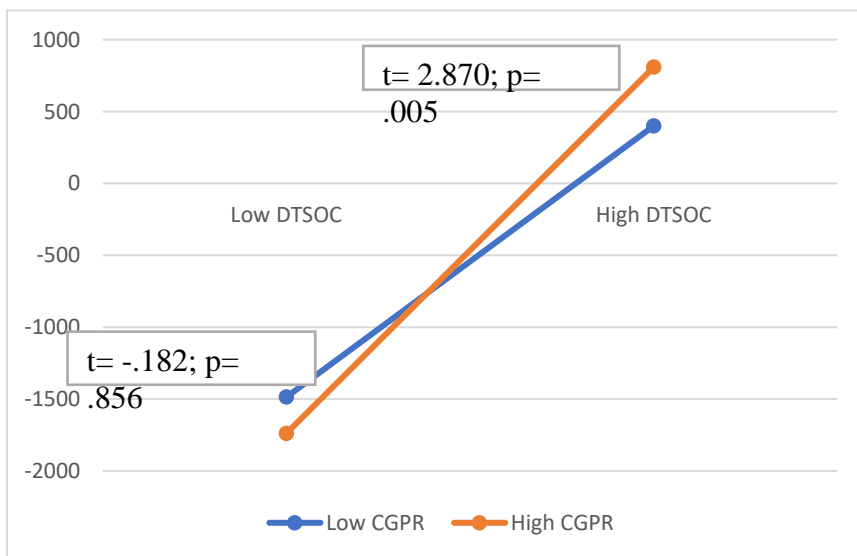
Table 19 above shows that the overall model of the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), creative cognitive processes use, and creative behaviour was significant ($F = 15.75$; $p = .00$), with 27% of the changes in creative behaviour occurring as a result of the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC) and creative cognitive processes use ($R^2 = .27$). Furthermore, Table 20 demonstrates that while neither the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC) nor creative cognitive processes use were significant predictors of creative behaviour, the interaction was significant indicating that creative cognitive processes use significantly altered the relationship between the total number of people and the total amount of

time (in hours) spent with people from other cultures socially (DTSOC) and creative behaviour ($t = 2.14; p = .03$).

Figure 29 below shows a simple slopes analysis which was conducted. This was done by plotting high levels of creative cognitive processes use one standard deviation above the mean and low levels of creative cognitive processes use one standard deviation below the mean. For participants with a lower total amount of time (in hours) spent with people from other cultures socially, there was no significant difference in creative behaviour scores between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use ($t = -.18; p = .86$). For participants with a higher total amount of time (in hours) spent with people from other cultures socially, those with higher levels of creative cognitive processes use had significantly higher creative behaviour scores than those with lower levels of creative cognitive processes use ($t = 2.87; p = .01$). This suggests that for individuals with a higher number of people and who spent more time with people from other cultures socially, the use of more creative cognitive processes facilitated creative behaviour.

Figure 29

Simple slopes analysis of the interaction between total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC) and creative cognitive processes (CGPR) on creative behaviour



Overall intercultural exposure (DTOTES), creative cognitive processes, and creative behaviour

The output in Table 21 and Table 22 below provides the results for the moderation analysis for overall intercultural exposure (DTOTES).

Table 21

Model summary for overall intercultural exposure (DTOTES), creative cognitive processes and creative behaviour

Model	R	R ²	Adjusted R ²	Std. error	df1	df2	Sig.	Durbin-Watson
1	.482	.232	.220	1647.74105	2	126	.000	
2	.527	.278	.261	1603.94335	1	125	.006	2.563

Table 22

Coefficients for overall intercultural exposure (DTOTES), creative cognitive processes and creative behaviour

	Unstandardized		Standardized		
Model	Unstd. B	Std. Error	Beta	t	Sig.
(Constant)	-412.748	445.607		-.926	.356
CGPR_TOT	-22.753	38.081	-.138	-.597	.551
DTWRK	280.471	282.489	.075	.993	.323
CGPRxDTOTES	72.144	25.546	.651	2.824	.006

Key: CGPR_TOT = creative cognitive processes total; DTOTES: overall intercultural exposure

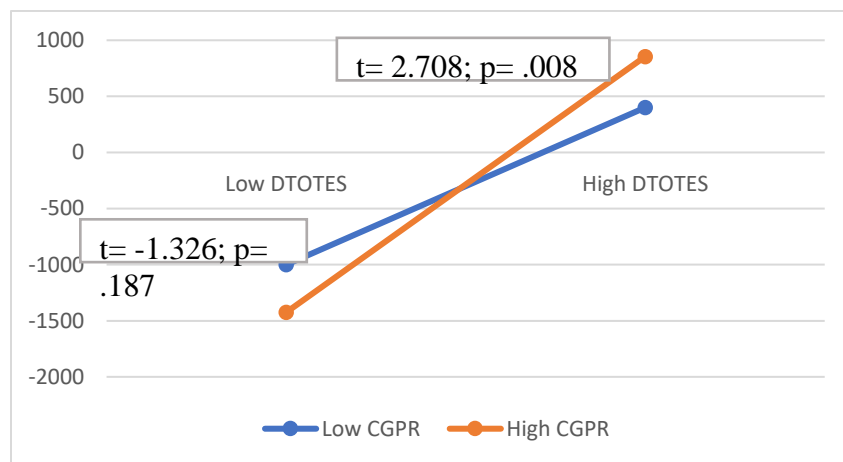
The last significant moderation was between overall intercultural exposure (DTOTES), creative cognitive processes use, and creative behaviour. The model summary in Table 21 shows that the overall model was significant ($F = 16.05$; $p = .00$) and that overall intercultural exposure (DTOTES) and creative cognitive processes accounted for 28% of the variance in creative behaviour ($R^2 = .28$). Moreover, the interaction between overall intercultural exposure (DTOTES) and creative cognitive processes use was significant, meaning that creative cognitive processes moderated the relationship between overall intercultural exposure (DTOTES) and creative behaviour ($t = 2.82$; $p = .01$).

As shown in Figure 30 below, a simple slopes analysis was conducted by plotting high levels of creative cognitive processes use one standard deviation above the mean and low levels of

creative cognitive processes use one standard deviation below the mean. For participants with lower overall intercultural exposure, there was no significant difference in creative behaviour scores between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use ($t = -1.34$; $p = .19$). For participants who had higher overall intercultural exposure scores, those with higher levels of creative cognitive processes use had significantly higher creative behaviour scores than those with lower levels of creative cognitive processes use ($t = 2.71$; $p = .01$). This suggests that for individuals with higher overall intercultural exposure, the use of more creative cognitive processes facilitated creative behaviour.

Figure 30

Simple slopes analysis of the interaction between overall intercultural exposure (DTOTES) and creative cognitive processes (CGPR) on creative behaviour



Two-way ANOVA's

The last research question aimed to investigate whether intercultural empathy moderated the relationship between intercultural exposure and creative behaviour. Additional assumptions were considered before these tests were run. The Levene's test for homogeneity of variance illustrated that the variances across the groups were not significantly different, and thus the assumption of homogeneity of variances was met (please see Table 23 in Appendix O) (Field, 2013).

Furthermore, the standardized residuals in Table 24 (please see Appendix R) showed that there were no outliers for the significant variables. The only two intercultural exposure variables that resulted in a significant interaction were the number of people from other cultures in contact with per week at work and socially (DTNWS) and the total number of romantic relationships and

friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP).

The number of people from other cultures in contact with per week at work and socially (DTNWS), intercultural empathy, and creative behaviour

The results of the two-way ANOVA for examining differences in levels of creative behaviour based on the number of people from other cultures in contact with per week at work and socially (DTNWS) and intercultural empathy are presented in Table 25 below.

Table 25

Two-way ANOVA for the number of people from other cultures in contact with per week at work and socially (DTNWS) and intercultural empathy with the outcome variable of creative behaviour

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Lower bound	Upper bound
Corrected Model	56597854	3	18865951	6.065	.001	.127		
Intercept	3831946306	1	3831946306	1231.931	.000	.908	5947	7051
ICE_TOT	34434015	1	34434015	11.070	.001	.081	-2769	-989
DTNWS	27333.237	1	27333.237	.009	.925	.000		
IC*DTNWS	20846149	1	20846149	6.702	.011	.051	387	2902
Error	388815088	125	3110520					
Total	4597441943	129						

R Squared = .127 (Adjusted R Squared = .106)

Key: ICE_TOT = intercultural empathy total; DTNWS = number of people from other cultures in contact with per week at work and socially

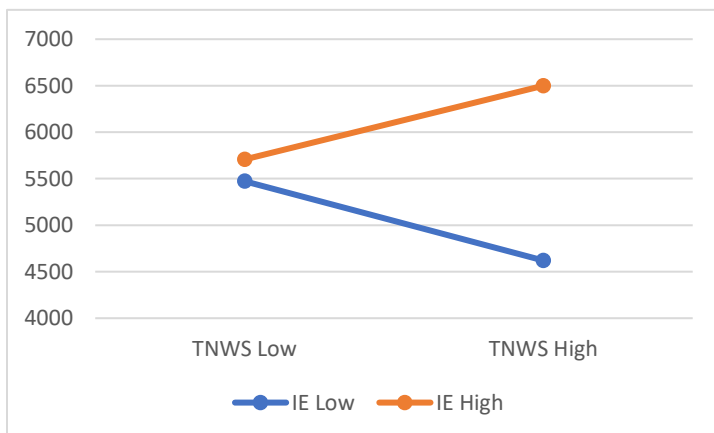
The two-way ANOVA in Table 25 above illustrates the statistically significant interaction between intercultural exposure and the number of people from other cultures in contact with per week at work and socially (DTNWS) on creative behaviour ($F_{(1, 125)} = 6.70, p = .01, \eta^2 = .05$). The partial eta-squared indicates a small to medium effect size (Field, 2013). As the interaction was significant, main effects should be read with caution however creative behaviour differed

significantly between the groups based on level of intercultural empathy ($F_{(1, 125)} = 11.07, p = .00, \eta^2 = .08$) and did not differ between the groups based on the number of people from other cultures in contact with per week at work and socially (DTNWS) ($F_{(1, 125)} = .009, p = .93, \eta^2 = .00$).

As illustrated in Figure 31 below, the interaction graph indicated that in cases where the number of people from other cultures in contact with per week at work and socially was low, creative behaviour scores for those with low and high levels of intercultural empathy were similar. However, in cases where the number of people from other cultures in contact with per week at work and socially was high, those with higher levels of intercultural empathy had substantially higher creative behaviour scores than those with lower levels of intercultural empathy. This suggests that intercultural empathy acts as a facilitator of creative behaviour for those with a high level of intercultural empathy who are in contact with a higher number of people from other cultures at work and socially; but also acts as an inhibitor of creative behaviour for those with a low level of intercultural empathy who are in contact with a higher number of people from other cultures at work and socially.

Figure 31

Interaction graph between the number of people from other cultures in contact with per week at work and socially (DTNWS) and intercultural empathy on creative behaviour



The total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP), intercultural empathy, and creative behaviour

Table 26

Two-way ANOVA for the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP) and intercultural empathy with the outcome variable of creative behaviour

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Confidence Interval	
							Lower bound	Upper bound
Corrected Model	54776419	3	18258806	5.843	.001	.123		
Intercept	3758702688	1	3758702688	1203	.000	.906	5971	7078
ICE_TOT	34012818	1	34012818	10.88	.001	.080	-2761	-929
DTNP	143803	1	143803	.046	.830	.000	-1736	26.43
IC*DTNP	18732803	1	18732803	5.99	.016	.046	301	2843
Error	390636523	125	3125092					
Total	4597441943	129						

R Squared = .123 (Adjusted R Squared = .102)

Key: ICE_TOT: intercultural empathy total; DTNP: the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures

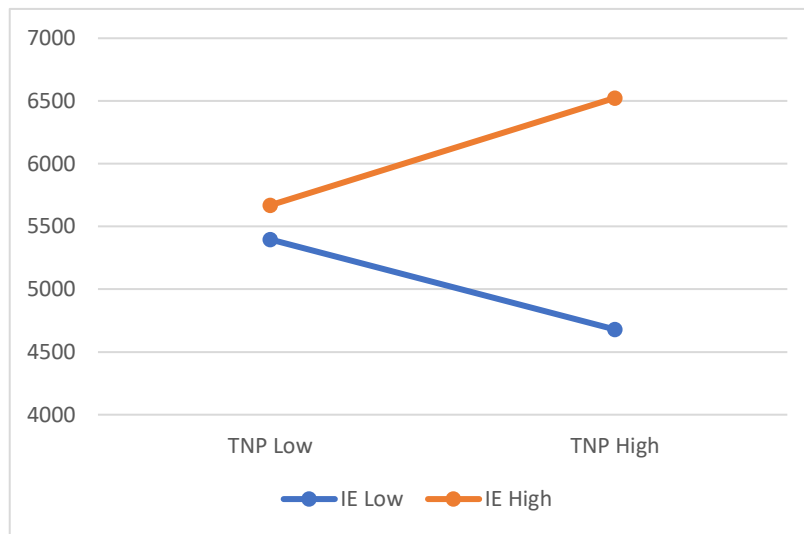
Table 26 above illustrates that the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP) and intercultural empathy significantly interacted to produce an effect on creative behaviour ($F_{(1, 125)} = 5.99, p = .02, \eta^2 = .05$). The partial eta-squared indicated a small to medium effect size (Field, 2013). While there was a significant difference in average creative behaviour between the groups based on level of intercultural empathy ($F_{(1, 125)} = 10.88, p = .00, \eta^2 = .08$), this should be read with caution due to the significant interaction. The interaction graph depicted in Figure 32 below graphically represents this interaction.

Figure 2 below, illustrates that the interaction graph indicated that in cases where the number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (TNP) was low, creative behaviour scores for those with low and high levels of intercultural empathy were similar. However, in cases where romantic

relationships and friendships as well as the total amount of contact at work and socially with people from other cultures was high, those with higher levels of intercultural empathy had substantially higher creative behaviour scores than those with lower levels of intercultural empathy. This suggests that intercultural empathy acts as a facilitator of creative behaviour for those with a high level of intercultural empathy who have a higher number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures; but also acts as an inhibitor of creative behaviour for those with a low level of intercultural empathy who have a higher number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures.

Figure 32

Interaction graph between the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP) and intercultural empathy on creative behaviour



Chapter 4: Discussion

A substantial amount of research has been conducted on creativity, with literature being cited for over a century (Shaw, 1923). There has been research to evaluate the relationship between creativity and other constructs, such as multiculturalism, innovation, intelligence, and entrepreneurship, to name a few (Fillis & Rentschler; 2010; Haensly & Reynolds, 1989; Luecke, 2003; Ribeiro & Fleith, 2018). There has also been research into the antecedents and effects of creativity in an organisation, as well as in one's personal life (Dias et al., 2017). Another factor which is steadily gaining importance globally is the interaction of people from different cultures. This is largely due to globalisation, immigration, and, more recently, the increase in remote working which enables individuals to have far-reaching connections with people from all around the world (Leung et al., 2008; Mishra & Vladova, 2021). Despite the proliferation of information surrounding creativity, there has been little research conducted in South Africa, a country with a wide range of different cultures (Stats SA, 2016). Moreover, while there are studies on the relationship between intercultural exposure and creativity, there is limited research that has attempted to identify the reasons behind this relationship or the roles played by other factors in connection with this relationship.

As a result of this, the predominant aim of this research was to firstly identify whether there were relationships between creative behaviour in organisations, intercultural exposure, intercultural empathy, and creative cognitive processes in a sample of 129 South African employees from a range of organisations and positions, and with a wide variety of cultural backgrounds. In addition, this research aimed to determine whether creative cognitive processes moderated the relationship between intercultural exposure and creative behaviour, and whether intercultural empathy moderated the relationship between intercultural exposure and creative behaviour. As a large body of literature shows, there is an established relationship between intercultural exposure and creative behaviour, however the current research was conducted with the intention of confirming the nature of this relationship in the South African context as well as enhancing understanding of the nature of this relationship by exploring the extent to which it changed when other closely related variables were incorporated as well (Allen, 2018; Aytug et al., 2018; Cheng & Tan, 2017; Dunne, 2017; Leung & Chiu, 2008). This chapter will discuss the results of the

analyses conducted in the previous section in relation to relevant literature; identify the strengths and limitations of this research; and, lastly, provide some possible directions for future research.

Internal Consistency Reliability

First and foremost, the internal consistency reliabilities of the instruments used in the study were assessed. This was necessary because this research required instruments which accurately measured the identified variables. If the Cronbach Alpha coefficients had indicated that the scales were not reliable, all of the analyses on the data that followed would be fruitless (de Souza et al., 2017). The scales used in the study were the Revised Scale to Assess Intercultural Empathy, the Cognitive Processes Associated with Creativity Scale (CPAC), and the Creativity Scale. As in previous research, the Cognitive Processes Associated with Creativity Scale's subscales were combined and the overall internal consistency was very good ($\alpha = .86$) (Miller, 2014). The Creativity Scale which measured creative behaviour had an excellent internal consistency reliability ($\alpha = .95$). Lastly, the total Intercultural Empathy Scale had very good internal consistency ($\alpha = .89$), however one of the subscales, the empathy subscale ($\alpha = .50$), had very low internal consistency reliability that was not deemed acceptable and this subscale was therefore not used on its own in the analyses that followed (Field, 2013).

Core Variables in the Sample

In order to holistically understand the nature of the sample, descriptive statistics and histograms were utilised. Descriptive statistics were obtained for age, the number of years that the sample worked, their level of intercultural exposure, intercultural empathy, creative cognitive processes use, and creative behaviour. Overall, the sample appeared to have a wide range of answers, especially regarding their perceived level of intercultural exposure. As demonstrated in the literature, intercultural exposure is a highly subjective concept (Crowne, 2013; Dias et al., 2017; Keil & Koshare, 2020; Lu et al., 2017). Firstly, culture has a variety of definitions and can mean different things to different people (Glaveanu, et al., 2020). This study attempted to provide the participants with a definition of culture, so that they would all reference the same meaning when answering the questionnaire. This definition was "culture/s' refers to different ethnic, racial, language, and/or religious groups.". Secondly, intercultural exposure can differ in terms of its depth and breadth, hence why this study aimed to capture participants' number of intercultural relationships as well as the number of years in these relationships (Cao et al., 2014; Dias et al.,

2017; Godart et al., 2015; Lu et al., 2017). Despite the attempt to capture a complete understanding of intercultural contact, the questions could have been interpreted differently by different people. For example, one participant could have counted every single friend from another culture that they had had since they were born, regardless of whether they were still friends at the time of answering the questionnaire. Other participants may have only counted current and meaningful friendships. This could be the reason for the expansive range of answers (for example, the descriptive statistics showed that the number of friends ranged from 0 to 500, with an average of 26).

In terms of intercultural empathy, the sample on average reported high levels of this construct. Intercultural empathy is the ability to empathise, understand, perceive other perspectives, and communicate empathetically with cultures different to one's own (Mallinckrodt et al., 2014a; Wang et al., 2003). One factor which may have contributed to the propensity for participants to score highly on this scale is certain biases. Low levels of intercultural empathy can be associated with prejudice or stereotyping and therefore, participants could have responded in a biased manner in terms of what they perceived to be socially desirable (Dandy & Pe-Pua, 2015; Furr, 2011; Zhu, 2011). Social desirability occurs when participants respond in a socially appealing manner, to enhance positive, desirable qualities (Furr, 2011). This can occur more often when the content of a questionnaire is particularly sensitive and there are clear implications associated with responding in a certain manner (Furr, 2011). In this case, showing empathy towards other cultures most definitely has implications and responding in a positive manner would be perceived as the socially desired response.

The higher levels of intercultural empathy could also be explained by the context of this study. In South Africa, there are many different cultures, each interacting with each other on a daily basis. Post-Apartheid, transformation policies have further increased the exposure to different cultures in schools and workplaces. Therefore, in South Africa, compared to relatively more homogenous countries with less diversity, individuals might be primed to be more open to different cultures and therefore report more intercultural empathy (Fourie et al., 2017). A study conducted by Fourie et al. (2017) noted how group membership impacts empathy, and therefore behaviour. The more aware individuals were of their implicit cultural biases, the more likely they were able to regulate them (Fourie et al., 2017). This highlights the importance of context and that

heterogeneous groups are likely to have increased empathy towards diverse cultures, if they are aware of possible biases and are open to learning about other cultures (Fourie et al., 2017). Lastly, the responses provided for creative cognitive processes use and creative behaviour were relatively average, and reflected scores that were neither exceptionally low nor high.

Relationships between Intercultural Exposure, Intercultural Empathy, Creative Cognitive Processes, and Creative Behaviour

One of the primary aims of this research was to investigate the nature of the associations between the core variables, as well as the significance, strengths, and directions thereof. Based on the existing literature, it was anticipated that there would be significant, positive relationships between intercultural exposure and creative behaviour, intercultural exposure and intercultural empathy, intercultural empathy and creative behaviour, and creative cognitive processes and creative behaviour (Godart et al., 2015; Hwang & Han, 2018; Kim et al., 2020). In this study, Spearman's Rho correlation coefficients indicated a range of significant relationships between intercultural exposure and creative behaviour. Creative behaviour was shown to be significantly, positively, and weakly related to five of the ten core intercultural exposure variables, namely: the weekly number of people from other cultures exposed to socially (WNS), the amount of time per week spent in contact with people from other cultures socially (WTS), the number of romances from other cultures (ROCN), the number of friends from other cultures (FOCN), and the self-rated level of contact with other cultures (SRCNT).

Conversely, creative behaviour was not significantly related to the number of people or time spent with people from other cultures at work per week (WNW and WTW), the amount of time spent in romances with other cultures (ROCT), the amount of time spent in friendships with other cultures in years (FOCT), or self-rated level of familiarity with other cultures (SRFAM). While there is little information pertaining to the difference in work and social relationships and creativity, the literature does discern between breadth and depth of intercultural relationships. Research has shown that depth, the years of exposure to other cultures, is more likely to result in stronger relationships and higher levels of creativity (Cao et al., 2014; Dias et al., 2017; Godart et al., 2015; Lu et al., 2017). However, this research presented some contrasting results and these discrepancies may reflect the unique nature of the context and sample in this study. Therefore, this merits more research into these phenomena.

Literature shows that relationships which are positive, intentional, and meaningful are more likely to result in creative behaviour compared to intermittent, random, or forced contact (Dias et al., 2017; Keil & Koshare, 2020). Logically, social exposure to other cultures (the number and time per week), the number of romances, and the number of friendships with other cultures would then result in a significant relationship with creative behaviour because of the closeness of interaction between these sources of contact. Social relationships are more intentional, sought out on one's own accord, and are perhaps more meaningful compared to work relationships, which are often preexisting, such as a manager or team members. An unanticipated finding in this research showed that the number of social relationships ($r = .23$) were slightly more strongly related to creative behaviour than the amount of time ($r = .18$) spent with other cultures socially per week. This indicated that breadth, as opposed to depth, was slightly more significant in this sample. This presents an interesting pattern and could suggest that breadth is as important as depth in contributing to creative behaviour. This interesting pattern therefore merits further exploration. Additionally, the number of romantic relationships and friendships were significantly related to creative behaviour, however the amount of time in years in these relationships were not significantly related to creative behaviour.

Intercultural empathy was shown to be significantly related to numerous elements of intercultural exposure. Noteworthy relationships were seen between intercultural empathy and the weekly number of people from other cultures exposed to socially (WNS), the number of romances from other cultures (ROCN), the number of friends from other cultures (FOCN), and the self-rated level of contact and familiarity with other cultures (SRFAM). Social desirability may play a factor in these results, especially in terms of self-rated familiarity and contact with other cultures, as this is something which is deemed to be a positive trait in society (Leung & Chiu, 2010). Once more, the unique nature of the South African context should be highlighted, as this could have affected and primed the way that participants responded to this question. Intercultural empathy was not related to work relationships (WNW) or the time spent with other cultures at work (WTW), nor to the time spent in intercultural friendships (FOCT) and romances (ROCT) This could perhaps be due to the nature of work relationships in comparison to social relationships. As social relationships are more voluntary, individuals are more open to communicating, understanding, and empathising with different cultural backgrounds (Lu et al., 2017). In work relationships, it is a requirement for individuals to work alongside different cultures, however it

is more likely for colleagues to be dismissive of differences and this can result in a lack of communication, misaligned goals, and conflict (Dandy & Pe-Pua, 2015).

Another important consideration is that creative behaviour was more strongly related to intercultural empathy ($r=.39$) than a composite score of intercultural contact. This combined self-rated familiarity, contact, the total number and duration of other cultures exposed to socially and at work, and the time and the number of friendships and romantic relationships with other cultures ($r=.26$). This aligns with existing research and suggests that intercultural contact, without empathy and understanding, will have less of a positive effect on creativity (Dandy & Pe-Pua, 2015; Hwang & Han, 2018). Lastly, as expected, creative cognitive processes use was strongly and positively related to creative behaviour, suggesting that a higher level of use of creative cognitive processes was associated with increased levels of creative behaviour. This is congruent with research that suggests that creative cognitive processes are integral to creative behaviour as they are the underlying mental mechanisms which result in creativity (Dunne, 2017; Lu et al., 2017; Miller, 2014a; Miller & Dumford, 2014).

Simple Regression

Further to understanding the nature of the link between the core research variables, this study analysed the extent to which the predictor variables (intercultural exposure, intercultural empathy, and creative cognitive processes) predicted the outcome variable, creative behaviour in the workplace. As expected, both creative cognitive processes use and intercultural empathy significantly predicted creative behaviour. Creative cognitive processes have been shown to be an antecedent of creative behaviour, so the fact that this research showed that creative cognitive processes use predicted creativity is consistent with research and literature (Dunne, 2017; Lu et al., 2017; Lubart, 2001; Leung et al., 2008 Miller, 2014a; Miller & Dumford, 2014).

Furthermore, this study showed that intercultural empathy was a direct predictor of creative behaviour in the sample. This suggests that intercultural empathy could be an important component of developing creative behaviour, whether or not intercultural exposure is considered. This is relevant as intercultural empathy allows for individuals to truly embrace the uniqueness of other cultures and to thus appreciate nuances in interpretation, different perceptions, and different ways to approach problems. If an individual has a high level of intercultural empathy,

they are more likely to learn from other cultures and to be willing to do so. This may increase their propensity to draw on the experiences of other cultures in order to engage in creative behaviour, as suggested by other research (Crowne, 2013; Hwang & Han, 2018; Solhaug & Osler, 2018).

Moderation

While identifying the significance, strengths, and directions of the associative and predictive relationships between the core variables is insightful, the information this provides is somewhat unidimensional. In an attempt to better understand the complex underlying associations which connect intercultural exposure, creative cognitive processes use, and creative behaviour, hierarchical multiple regressions were conducted. In particular, these analyses were performed to understand whether creative cognitive processes use moderated the relationship between intercultural exposure and creative behaviour such that this was enhanced when creative cognitive processes use was high. This attempts to expand on the knowledge that exposure can heighten creative behaviour by exploring the conditions under which this might occur when factoring in another related variable. There were five components of intercultural exposure which resulted in a significant moderation, with each of them having a similar form of interaction with creative cognitive processes use on the outcome of creative behaviour.

The amount of time spent in contact with people from other cultures socially (DWTS), creative cognitive processes, and creative behaviour

The first significant moderation demonstrated that creative cognitive processes use moderated the relationship between the amount of time spent in contact with people from other cultures socially (DWTS) and creative behaviour. Creative cognitive processes use was shown to significantly alter the nature of the relationship between the amount of time spent in contact with people from other cultures socially (DWTS) and creative behaviour. A simple slopes analysis was conducted to fully understand how creative cognitive processes use moderated the relationship. The results show that while there was no significant difference in creative behaviour scores for people with low or high levels of creative cognitive processes use when participants had low levels of social contact with other cultures, this was not the case when participants had

high levels of contact with other cultures socially per week. When participants had higher levels of social intercultural contact, those with more creative cognitive processes use exhibited significantly more creative behaviour than those with less creative cognitive processes use. This suggests that a greater use of creative cognitive processes enhanced the relationship between social intercultural contact and creative behaviour in the workplace, in other words, the benefit of social intercultural contact was maximized for individuals who also employed creative cognitive processing strategies more often. Moreover, creative behaviour was lower for individuals who did not use creative cognitive processes often.

Social relationships are often more engaging and stimulating than work relationships, especially if those involved in the relationship are doing so voluntarily (Keil & Koschare, 2020). Research has shown that the more engaged an individual is in new environments with different cultures, the more likely they are to expand their cognitive processes and structures, which can result in new and unique ways of thinking and behaving (Glaveanu et al., 2020). This result is particularly interesting because much of the literature purports a link between creative cognitive processes use and creativity, even to the extent that creative cognitive processes are seen as an antecedent for creative behaviour (Beatty et al., 2016; Dunne, 2017; Lu et al., 2017; Lubart, 2001; Miller, 2014a). However, the findings of this research extend this notion to encompass the relationship between intercultural contact and creative behaviour in the workplace, specifically suggesting that higher levels of social intercultural contact will be of much greater benefit in instances where creative cognitive processes use is also high.

The number of friends from other cultures (DFOCN), creative cognitive processes, and creative behaviour

There was a significant interaction between the number of friends from other cultures which the participants had and their creative cognitive processes use on creative behaviour. This means that creative cognitive processes use altered the nature of the relationship between the number of friends from other cultures and creative behaviour. In order to fully understand the direction of this interaction, a simple slopes analysis was conducted. This demonstrated that when participants had low numbers of friends from other cultures, there was no significant difference in levels of creative behaviour scores between those with high or low levels of creative cognitive

processes use. In contrast, when participants had a high number of friends from other cultures, creative behaviour scores differed significantly between those with low and high levels of creative cognitive processes use. This suggests that creative cognitive processes use enhanced the relationship between intercultural contact in the form of number of friends from other cultures and creative behaviour in the workplace. Specifically, the benefit of having a greater number of friends from other cultures for creative behaviour was maximized for individuals with higher levels of creative cognitive processes use, and creative behaviour was lower for those with lower levels of creative cognitive processes use.

In this case, the number of friends from different cultures was significant, not the amount of time spent in these friendships. This could perhaps indicate that having friendships with people from an array of different cultures is able to assist individuals with integrating perspectives and this in turn expands the complexity of their creative processes and their levels of creative behaviour (Leung & Chiu, 2008; Lu et al., 2017).

The total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), creative cognitive processes, and creative behaviour

Similarly to the previous two moderations, when the interaction between the composite score of the number of people and time spent with other cultures socially per week and creative cognitive processes use on cognitive behaviour was explored, the relationship between social intercultural contact and creative behaviour was only significantly enhanced for those with higher levels of creative cognitive processes use. For those with lower levels of social intercultural contact (represented by the composite score), there was no significant difference in creative behaviour between those with high levels of creative cognitive processes use and those with low levels of creative cognitive processes use.

This finding more closely aligns to research which stipulates that depth of intercultural exposure is a stronger predictor of creativity than breadth, as it combines the number of people from different cultures exposed to socially, as well as the amount of time spent with them (Godart et al., 2015). Practically, it is logical to state that the more time spent with people from other

cultures, the deeper the levels of interaction and conversation and this may lead to increased learning and understanding. This finding was significant as it further supports the importance of social intercultural contact as a predictor of creative behaviour in the workplace. This might be because whereas contact at work is involuntary, social contact is by choice and thus may be reflective of openness to intercultural experiences and more closely associated with intercultural empathy (Keil & Koschare, 2020). Moreover, in a South African context, where there were more historic divisions between intercultural groups on a social basis compared to professional or public places, the effect of voluntary social interactions with other cultures may be more likely to enhance an individual's creative cognitive processes and therefore creative behaviour (Fourie et al., 2017).

Overall intercultural exposure (DTOTES), creative cognitive processes, and creative behaviour

Overall intercultural exposure was a composite score which combined the self-rated intercultural familiarity and contact, the total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships. In this moderation, the results showed that the interaction between overall intercultural exposure and creative cognitive processes use accounted for 28% of the variance in creative behaviour. Therefore, creative cognitive processes significantly moderated the relationship between overall intercultural exposure and creative behaviour. However, when a simple slopes analysis was conducted, it was found that the difference in creative behaviour scores between those with high and low levels of creative cognitive processes use was only significant when participants reported high levels of overall intercultural exposure. When lower levels of intercultural exposure were reported, creative behaviour did not significantly differ based on the level of creative cognitive processes use. This shows the importance of intercultural exposure and that only when this was high, did more creative cognitive processes use result in higher levels of creative behaviour. As with the other moderation models, this suggests that the relationship between overall intercultural contact and creative behaviour was enhanced when the use of creative cognitive processes was high;

such that those individuals with a greater use of creative cognitive processes obtained maximum benefit from intercultural contact in relation to creative behaviour in the workplace.

Exposure to other cultures has been shown to facilitate cultural learning and affects the content and processes of cognition (Leung et al., 2008). In these experiences, individuals are exposed to new environments and behaviour that are different to those in their own culture. If leveraged, this can help individuals to learn new concepts which can expand their creative cognitive processes, creating a vault of knowledge which can be recalled and synthesised when faced with challenges, or even when creative thinking is required (Lu et al., 2017; Leung et al., 2008; Miller, 2014a). This exposure also increases creative behaviour (Lu et al., 2017). Thus, it is sensible that the benefit of exposure to other cultures for creative behaviour would be enhanced when creative cognitive processes use is also high (Beatty et al., 2016). The lack of benefit when creative cognitive processes use is low is also important. This suggests that in order to benefit from intercultural contact, it is also necessary to be engaged in creative forms of thinking – this has implications for how to practically enhance creative behaviour. For example, encouraging individuals and training them in using the different creative cognitive processes and then exposing them to different cultures could prove successful for enhancing creative behaviour in the workplace.

The total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK), creative cognitive processes, and creative behaviour

Seemingly inconsistent with the aforementioned aspects of intercultural exposure, this moderation demonstrated that the composite score of the number of people and the time spent with other cultures per week at work significantly interacted with creative cognitive processes use on creative behaviour in the workplace. While the previous moderations all showed a significant interaction for social aspects of intercultural exposure, this moderation is the only work aspect of intercultural contact which yielded a significant result. This was a composite score, which combined the number of people from other cultures exposed to at work per week, as well as the amount of time spent with them. The pattern of the interaction was similar to the other moderations. There was no significant difference in creative behaviour scores for

participants with a low level of intercultural contact with people from work as well as the time spent with them, no matter their level of creative cognitive processes. However, the number of people from other cultures and the time spent with them at work per week significantly interacted with creative cognitive processes use, such that for those with a higher level of intercultural contact, creative behaviour differed significantly between those with higher and lower levels of creative cognitive processes use.

Similarly to the effects of exposure to other cultures in a social environment, spending a lot of time with different cultures in a work environment may demonstrate an array of different problem-solving mechanisms and ways of achieving objectives (Jackson & Joshi, 2011). Moreover, more time spent with different cultures at work may create an environment where individuals get to know each other more through having to collaborate to achieve goals and participate in teamwork (Jackson & Joshi, 2011). The exposure to varied approaches and interpretations of tasks and problems in the workplace may lead to increased creative thinking, and when combined with a propensity to use creative cognitive processes, it is logical that this would be enhanced (Lubart, 2001). This finding, along with the total contact score, suggests that although social contact may be a particularly useful form of contact to facilitate creative behaviour, exposure in the work environment can be useful too. Another factor that needs to be considered in terms of these results is that there may have been a confound (Field, 2013). Individuals may have had colleagues who they were also friends with and socialised with outside of the workplace. This result could therefore be an artefact of measurement and further exploration is needed to establish whether it is the social or work-related aspects of intercultural contact that are of particular benefit for enhancing creative behaviour.

Overall, across all of the models, high levels of creative cognitive processes use acted as a facilitator of the intercultural exposure and creative behaviour relationship, which supports the importance of encouraging creative cognitive processes use as well as implementing some form of intervention to effect this as a way to enhance the positive benefits of intercultural exposure. The findings also suggest that in this instance, it was social forms of intercultural contact that were particularly susceptible to this. For example, increased creative cognitive processes use acted as a facilitator or way to enhance the intercultural contact and creative behaviour

relationship for mainly social forms of intercultural contact. Although this was also true for overall creative contact and total contact at work, this might have been due to the overlap in measures of contact or the way contact was measured i.e. total contact included social contact, and work contact may have also included contact with people who were both fellow employees and friends. The findings of this study therefore indicate important distinctions in types of intercultural exposure that merit further investigation.

Two-way ANOVA's

To investigate whether intercultural empathy moderated the relationship between intercultural exposure and creative behaviour, two-way ANOVA's were used because intercultural exposure and intercultural empathy were converted to categorical variables. The findings in the study demonstrated that there was a relationship between intercultural exposure and creative behaviour as well as between intercultural empathy and creative behaviour in the sample. Additionally, it was shown with regression that intercultural empathy and romantic relationships with other cultures (DROCN) predicted creative behaviour. However, to better understand how intercultural exposure and intercultural empathy interacted on creative behaviour, two-way ANOVA's were run. Based on the literature, it was anticipated that higher levels of intercultural empathy would enhance the relationship between intercultural exposure and creative behaviour (Angeles & Pratt, 2017; Choi, 2007).

For all of the intercultural exposure variables, only two significantly interacted with intercultural empathy on levels of creative behaviour, namely: the combined score of the number of people from different cultures exposed to per week socially and at work (DTNWS); and the combined score of the number of romantic intercultural relationships and friendships and the total amount of intercultural contact at work and socially (DTNP).

The number of people from other cultures in contact with per week at work and socially (DTNWS), intercultural empathy, and creative behaviour

The interaction graph provided valuable information about how intercultural empathy moderated the relationship between the number of intercultural contacts at work and socially and creative behaviour. When participants had low levels of intercultural empathy, having high levels of

exposure to other cultures at work and socially actually decreased their overall creative behaviour; and those with low levels of intercultural empathy and lower levels of intercultural exposure actually had slightly higher levels of creative behaviour than those with high exposure. This seems to demonstrate that if individuals do not possess intercultural empathy, contact with other cultures may be detrimental to creative behaviour and intercultural exposure in this regard could act as an inhibitor of creative behaviour. This could be because intercultural exposure, without understanding, effective communication, empathy for other viewpoints, and tolerance of other perceptions, can create hostility, negative emotions, discomfort, miscommunication, and conflict (Dandy & Pe-Pua, 2015; Dias et al., 2017; Ward et al., 2001).

On the other hand, when participants had high levels of intercultural empathy, high levels of intercultural contact with people socially and at work was associated with higher levels of creative behaviour, in other words, those with higher levels of intercultural contact had substantially higher levels of creative behaviour when they also had high intercultural empathy. Those with high intercultural empathy, but low levels of intercultural contact, demonstrated lower levels of creative behaviour. This once more shows the importance of empathy and that it plays a significant role in altering the nature of the relationship between intercultural exposure and creativity. This somewhat resonates with the existing literature, which states that intercultural exposure without empathy will bear little positive significance (Hwang & Han, 2018). However, this research builds upon this and shows that intercultural exposure to other cultures at work and socially (DTNWS), without intercultural empathy, can actually have a negative impact on creative behaviour.

The total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures (DTNP), intercultural empathy, and creative behaviour

The other significant interaction between intercultural exposure and intercultural empathy on creative behaviour was for a composite score of intercultural contact which combined the number of intercultural romantic relationships, friendships, and the total amount of time spent with other cultures at work and socially. As with the above interaction, this ANOVA presented some interesting findings. When participants reported low levels of intercultural empathy, their

creative behaviour was higher when they also had low levels of intercultural contact. When they had higher levels of intercultural contact and low levels of empathy, their creative behaviour was actually lower than when they had low levels of intercultural contact. The results also showed that when participants reported a higher level of intercultural empathy, being exposed to different cultures increased creative behaviour substantially. Those with high levels of empathy but low intercultural contact again had lower levels of creative behaviour.

The implications of this moderation are extremely important, as practically, if an organisation wishes to enhance creativity in their employees, simply creating a diverse work environment will not be sufficient. In fact, an intercultural environment without intercultural empathy seems to have the potential to inhibit creative behaviour. Intercultural empathy also had the ability to facilitate creative behaviour, though, if it was experienced at a high level. Previous literature has shown that intercultural exposure and empathy are related (Angeles & Pratt, 2017; Choi, 2007; Wang et al., 2003). Additionally, intercultural exposure was shown to be positively related to creative behaviour (Cheng & Tan, 2017; Choi, 2007; Dias et al., 2017; Dunne, 2017; Leung et al., 2008; Lu et al., 2017; Obiri et al., 2018; Reiter-Palmon et al., 2008). Thus, it is not surprising that intercultural empathy facilitates the intercultural contact and creative behaviour relationship. However, what was interesting is that low levels of intercultural empathy could decrease creative behaviour in this sample, even when intercultural exposure was high.

Thus, the results in this study are in line with existing theory that suggests that intercultural empathy enhances creative behaviour in the workplace (Angeles & Pratt, 2017; Choi, 2007; Solhaug & Osler, 2018). Furthermore, the finding in the current study is an important extension of the existing literature, as it suggests that high intercultural empathy also acts as a significant facilitator of the intercultural contact and creative behaviour relationship. Practically, developing intercultural empathy in South African organisations can facilitate the benefit from intercultural contact in relation to increased creative behaviour. Another important factor to consider is how conversely, low levels of intercultural empathy may actively inhibit the relationship between intercultural exposure and creative behaviour.

Conclusions and Implications

Creative behaviour in any organisation is a valuable attribute; it has been placed in the top few competencies that organisations look for in candidates across the world (Lu et al., 2017; Rios et al., 2020). Creativity can enhance job satisfaction and innovation and create an organisation which is flexible, continuously learning, and thriving, despite competition and changes in the market (Alzghou et al., 2018; Ghosh, 2014; Sternberg & Lubart, 1999). Intercultural exposure is an inherent component of South African society, and due to laws and policies such as Affirmative Action and Broad-Based Black Economic Empowerment, different cultures in organisations are continuously increasing (Zhuwao et al., 2019).

The instruments which were used in this study were deemed reliable in accurately measuring intercultural empathy, creative cognitive processes, and creative behaviour. There were a wide range of responses reported for intercultural exposure and this may have been due to the complexity of capturing this precarious variable. Participants reported high levels of intercultural empathy and an important consideration is that empathy is a sensitive topic; and response bias may have heightened these scores. It is especially important to note the nature of the context of this sample, as South Africa has historic ramifications which may impact how individuals view other cultures (Fourie et al., 2017).

Intercultural exposure has been shown to be related to intercultural empathy and creative behaviour in the workplace in previous literature and this was consistent with the findings in this study (Choi, 2007; Dias et al., 2017; Lu et al., 2017; Mallinckrodt et al., 2014a). Creative behaviour was shown to be significantly, positively, and weakly related to five of the ten core intercultural exposure variables. The work relationships which were significant were composite scores, which combined the number of intercultural work relationships and the time spent with these individuals or combined work relationships with social relationships, friendships, or romantic intercultural contact. Thus, there were no singular aspects of intercultural contact at work that were related to intercultural empathy, creative cognitive processes use, or creative behaviour in this sample. The only intercultural exposure variable which predicted creative behaviour was the number of romantic relationships with other cultures (DROCN). Despite the

need for further exploration into work and social intercultural relationships, this research has provided some insight into the fact that specific forms of intercultural exposure may be an important consideration when exploring the association between intercultural exposure and creative behaviour in the workplace; and also suggests that as social intercultural exposure was a significant predictor of creative behaviour in this sample, this would be an important topic to explore further in other samples and contexts.

The findings suggest that if organisations want to leverage diversity in their environments on the basis that intercultural exposure can enhance creativity, they need to potentially take into account the nature of the intercultural exposure. In terms of the type of intercultural exposure, the findings indicate that more social intercultural interactions may result in increased creative behaviour. This suggests that while more contact and time spent with work colleagues can enhance creativity to a small degree, organisations should perhaps try to create environments which foster social relationships between colleagues, although more research is needed to verify this. Possible interventions to enhance social relationships at work are team building, social events, and perhaps even offering team vacations as rewards.

In an attempt to better understand the complex underlying associations that connect intercultural exposure, creative cognitive processes use, and creative behaviour, hierarchical multiple regressions were conducted. Creative cognitive processes significantly altered the nature of the relationship between five components of intercultural empathy and creative behaviour. These components were the amount of time spent in contact with people from other cultures socially (DWTS), the number of friends from other cultures (DFOCN), the total number of people and the total amount of time (in hours) spent with people from other cultures socially (DTSOC), the overall intercultural exposure (DTOTES), and the total number of people and the total amount of time per week spent with people from other cultures at work (DTWRK). The five models all reflected a similar outcome: high levels of creative cognitive processes acted as a facilitator of the intercultural exposure and creative behaviour relationship. This was mainly for social intercultural exposure, and further supports the need to frame interventions to enhance creative cognitive processes in terms of social intercultural interactions.

Lastly, intercultural empathy was shown to be related to many elements of intercultural exposure and creative behaviour and significantly predicted creative behaviour. Furthermore, intercultural empathy was shown to enhance the relationship between intercultural exposure and creative behaviour, and this was aligned with the literature (Angeles & Pratt, 2017; Choi, 2007). When participants reported high levels of intercultural exposure and high levels of intercultural empathy, they also reported high levels of creative behaviour. However, the two-way ANOVA's in this research also showed that intercultural contact without high levels of intercultural empathy might actually decrease levels of creative behaviour in the workplace, and this augments current literature. Employees who have little empathy towards other cultures may not seek to understand different perspectives and may not be open to cultural learning. Therefore, they are less likely to develop cultural competence (Crowne, 2013, Hwang & Han, 2018). This will in turn have a negative impact on creative behaviour, as shown in this research. Thus, organisations should also attempt to foster an environment that encourages intercultural empathy. This can be done through training, education, team building, acceptance, and driving different cultures in an organisation. Ultimately, as a selection competency, organisations can seek out candidates who show cultural understanding and acknowledge the value of diversity (Ashikali & Groeneveld, 2015).

Strengths and Limitations of this Study

This research has produced some valuable insights into the nature of the relationships between intercultural exposure, intercultural empathy, creative cognitive processes use, and creative behaviour. While many of the results of this study are consistent with existing literature, the findings do contribute further to the body of theoretical knowledge surrounding these variables and also suggest some important future directions for research, such as a deeper exploration of the relationship between type of intercultural contact and creative behaviour in the workplace. Furthermore, this research was seemingly the first to simultaneously examine these four variables, as previous studies have researched only a few of them at a time (Beaty et al., 2016; Godart et al., 2015; Lu et al., 2017; Ribeiro & Fleith, 2018). Moreover, this was the first research of this kind conducted in South Africa and this is imperative in producing insights which are directly related to this country's context. This research's strength also lies in its depth. Not only did it examine the relationships between intercultural exposure, intercultural empathy, creative

cognitive processes use, and creative behaviour, it additionally analysed the predictive relationships between the variables and, in order to further understand the intricacies of the link between the variables, moderation analyses were also performed. Thus, the independent variables' impact on creative behaviour was investigated in depth. The hierarchical multiple regressions and two-way ANOVA's showed that creative cognitive processes use and intercultural empathy significantly moderated the relationships between certain aspects of intercultural exposure and creative behaviour. The moderations were also able to provide some insight into the directionality of the constructs of interest and the complex pattern of inter-relationships between them (Field, 2013). This has provided some information which can potentially aid organisations in developing techniques to enhance creative behaviour in their employees by not only driving a diverse work environment, but also creating one that fosters intercultural empathy and creative cognitive process use, as demonstrated in this research.

Additionally, this research attempted to examine different aspects of intercultural exposure, namely; work interactions, social interactions, romantic relationships, friendships, the number of people of different cultures exposed to, and the amount of time spent with these people. It showed that certain aspects of intercultural exposure were significant predictors of creative behaviour and this provided some theoretical knowledge into the importance of social intercultural relationships. It also highlighted the critical need for more nuanced definitions of intercultural contact and different operationalisations of the various forms of this for further research in the field.

Technically, this research had a relatively large sample size, which was large enough for the Central Limit Theorem to be applied – this helped to meet the parametric assumption of normal distribution of the data (Canning, 2014; Field, 2013). On a psychometric basis, the scales which were used in this study were international and this was the first time they were used on a South Africa sample. They were adapted slightly to meet the scope of this research, however the internal consistency reliabilities of the scales, except for the intercultural empathy 'empathy' subscale, were very good to excellent. This provides a basis for future studies to perhaps use these same instruments. On another technical note, the results of the regressions and moderations

which were conducted in this research can be said to accurate, because all of the assumptions to perform these analyses were met (Field, 2013).

While there were various strengths in this research, there were also limitations. Despite the relatively large sample size in terms of Central Limit Theorem, more generally the sample was quite small and was not representative of the adult working population of South Africa. More participants from a wider range of organisations, fields of employment, cultural backgrounds, and geographic areas across South Africa would have aided in the generalisability of this research, which is quite limited (Field, 2013). A common limitation for research conducted in the Humanities field is the use of non-probability convenience sampling. As it is only ethical to rely on volunteers who participate in the research, the sample does not fully represent the South African adult working population as a whole. There are therefore potential biases in the results (Stangor, 2011). Individuals who volunteer to participate in research studies automatically differentiate themselves from those individuals who would not participate. This reflects self-selection bias (Laher & Botha, 2012). Therefore, generalisability of the results is thus further limited to the specific context and sample used in this research (Field, 2013).

The sample also presented a wide range of responses for some of the questions, especially those related to intercultural contact, which led to some variables being skewed. Only after transforming and dummy coding some of the variables was the data able to be analysed. A larger sample could have contributed to creating more normally distributed data (Field, 2013). Furthermore, a larger sample size would also have been beneficial for the analyses. With a greater number of participants, Structural Equation Modeling (SEM) could have been utilised to establish the nature of the moderation between the variables (Sardeshmukh & Vandenberg, 2017). Structural equation modelling is a valuable statistical strategy which is able to model latent variables. These are variables which cannot be measured (Hoyle, 2012). As shown in the literature and in this study, intercultural exposure is an immensely difficult construct to measure and structural equation modelling could have assisted in understanding this variable's relationship with other latent or measured variables. The limitation of the measurement of intercultural exposure proved to be a factor which ran through the entire research, from collecting data to analysing and interpreting it. Intercultural exposure is a concept with many

factors, and this study attempted to encapsulate it in its entirety. However, the various components of intercultural exposure could have been interpreted subjectively, and the participants may not have interpreted the questions consistently. The collected data on intercultural exposure resulted in many variables, many of which were skewed and needed to be dummy coded to be utilized. While it was useful to collect an exhaustive measure of intercultural exposure, future research could perhaps devise a process to do this in a more concise and consistent manner.

Another limitation to consider is related to the difficulty in fully encapsulating the meaning of intercultural exposure, as all of the responses were based on self-report. While self-report is commonly used and provides useful insights into the personal perceptions of the individuals in the sample, it can also lead to certain biases. Firstly, despite the definition of culture provided in the study and the note to respond to the questions prior to Coronavirus working restrictions, the participants still may have interpreted the questions in their own unique way. Thus, the responses may not have been consistent. There may have been discrepancies in interpretation of this concept in terms of location: whether the interaction was physical and prior to the pandemic where social interaction and work life was halted, whether exposure included digital interactions and whether the questionnaire asked about the individual's lifespan, or only current and meaningful friendships or interactions with other cultures. Furthermore, intercultural empathy is a sensitive variable, and it may have led to social desirability response bias (Furr, 2011). This is especially important to note in light of South Africa's history, as previous discrimination could prime individuals' responses to intercultural empathy (Fourie et al., 2017). For example, it may not have been perceived socially desirable to respond "Strongly Disagree" to the question: "Most South Africans would be better off if they knew more about the culture of others". Another factor which may have warped the accuracy of the participants' responses is reactivity. Reactivity occurs when individuals are aware that they are being measured and this can lead to them inaccurately representing the constructs that were measured (Stangor, 2011).

In general, this research also has limitations in terms of its design. While this research was able to explore the various relationships between intercultural exposure, intercultural empathy, creative cognitive processes, and creative behaviour in the workplace in a sample of South

African employees, it was only correlational in nature. Non-experimental research has its limitations, as no causal claims can be made because there is no manipulation of variables, comparison of groups, or randomisation (Babones, 2016). Thus, this research cannot establish causality between the variables and explain why variables are related (Stangor, 2011).

Directions for Future Research

Ideally, further research into intercultural exposure, intercultural empathy, creative cognitive processes use, and creative behaviour should aim to have a much larger sample, which is more representative of the South African adult working population. Future research could also utilise structural equation modelling if the sample is large enough. While the intercultural empathy, creative cognitive processes use, and creative behaviour instruments used proved to be highly reliable and can be used in future research, the way in which intercultural exposure was measured could be improved upon. Possible suggestions are to focus on specific proponents of intercultural exposure, as opposed to the entire broad concept. For example, focusing on only social intercultural friendships or work colleagues, while posing a question to understand the overlap between these two variables. Alternatively, the intercultural exposure variables should be carefully and fully described to the participants, to increase their understanding of the concept, and how to frame their answer so that the results would be consistent. For example, when asking how many intercultural friendships a participant had, it could be noted that this specifically refers to a friendship where the individuals communicate at least once a week.

This research presented some contradicting findings regarding the difference between intercultural relationships at work and social intercultural relationships. While social intercultural relationships accounted for the majority of the significant interactions in the study, future research could further explore the difference between these two types of exposure as well as other forms of intercultural exposure both generally and in relation to creative behaviour. Furthermore, more insight into the depth and breadth of intercultural exposure is needed, particularly to understand how the number of intercultural contacts an individual has and the amount of time spent in those relationships differ and relate to creativity. The scope of this research was also narrowed to specific variables; however, future research could explore how demographic variables influence the relationships between the core variables and could add other

variables associated with the main constructs from the literature to enhance the sophistication of the models and theoretical understandings available.

This research was conceptualised before the Coronavirus pandemic, when remote working increased and physical contact between people diminished. An interesting prospect for future research could be to focus on virtual intercultural exposure and the extent to which this enhances creativity. Prior research by Keil and Koschare (2020) revealed that online contact with other cultures were not deemed as meaningful exposure by participants. However, when all that exists is connection through technology, this may have changed.

Lastly, while a lot of the existing literature is focused on the positive outcomes of intercultural exposure, diversity and learning about other cultures, negative exposure does exist (Keil & Koschare, 2020). Intercultural contact which is negative can lead to prejudice, stereotyping, racism, and conflict and this is obviously damaging for an organisation (Dandy & Pe-Pua, 2015; Gertsen & Sørderberg, 2011; Leung & Wang, 2015). As shown in this research, creative behaviour can be inhibited if individuals have low levels of intercultural empathy. Future research can aim to understand negative intercultural contact more and identify ways to mitigate this in organisations. While some suggestions to enhance intercultural empathy were mentioned in this research, development of specific interventions to target both creative cognitive processes use and intercultural empathy could be developed and tested to facilitate creative behaviour in the workplace.

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Appendices

Appendix A: Participant Information Sheet



Date:

Hello

My name is Juniper Naidoo and I am a student currently completing my Masters in Organisational Psychology at the University of the Witwatersrand. As part of the requirements for my degree, I am conducting research. My research aims to explore the relationships between intercultural exposure, intercultural empathy, creative processes, and creative behaviour in South African employees. I will be using data obtained from administrative, professional, clerical, and executive/ management employees over the age of 18 who have access to a device with the Internet in order to answer the research questions.

If you meet these criteria, I would like to ask you to please consider participating in my study. Participating will require you to access and complete a set of online questionnaires at a convenient time for you. These questionnaires should take approximately 20-30 minutes to complete and you are asked to do this within the next two to three weeks. Once you have answered the questionnaires, you can submit the completed answers online.

Participation is completely voluntary and you will not be advantaged or disadvantaged in any way whether you choose to complete the questionnaire or not. There are also no direct benefits or foreseeable risks for participating in the study. Submission of the completed questionnaire will be regarded as consent to participate in the study. No identifying information, such as your name or ID number, will be asked for and you will therefore be completely anonymous. Your responses will remain confidential and your anonymity is guaranteed as no identifying information or IP addresses will be recorded.

You will be able to obtain feedback for the study in the form of a summary of the general results; individual feedback will not be possible as the data is anonymous. With your permission, we would also like to store your responses permanently in anonymous, electronic form and to possibly use this for future research projects.

This research will help to better understand culture and creativity; which may inform practice and help performance and growth at work. If you choose to participate, it would therefore be greatly appreciated. If you have any questions or concerns, please feel free to contact me or my supervisor as per the details below. Ethical queries can also be directed to: The University of the Witwatersrand Human Research Ethics Committee (non-medical): 011-717-1408; Shaun.Schoeman@wits.ac.za.

Yours sincerely

Juniper Naidoo 1064791@students.wits.ac.za

Supervisor: Dr Nicky Israel Nicky.Israel@wits.ac.za 27 (11) 717 4557

I have read the details of this study and consent to participate in the study on a voluntary basis. I also understand that I may withdraw at any point up to submission.

Yes	No
-----	----

Appendix B: Invitation



Hello,

My name is Juniper Naidoo and I am an Organisational (Industrial) Psychology Masters student. I am doing a study to explore intercultural exposure, intercultural empathy, creative processes, and creative behaviour in South African employees. In order to get data for the study, I am asking administrative, professional, clerical, and executive/ management employees over the age of 18 to please fill out some online questionnaires.

I would really appreciate if you would consider participating in my study.

Please follow the link below which will take you to an online survey with the participant information sheet and the questionnaires.

If you know of anyone else who may be interested in taking part in the study, please forward this invitation on to them as well.

Thanking you in advance.

Yours sincerely,

Juniper Naidoo 1064791@students.wits.ac.za

Supervisor: Dr Nicky Israel Nicky.Israel@wits.ac.za

Ethics clearance certificate protocol number: MAORG/20/03

Appendix C: Organisational Access Request Letter

Dear [relevant title/ name to be inserted]

My name is Juniper Naidoo, and I am conducting research at the University of the Witwatersrand in partial fulfilment of the requirements to obtain a Masters degree in Organisational Psychology. In light of current international events regarding Black Lives Matter and the importance of diversity, equality and fairness, I am conducting research to explore intercultural exposure, intercultural empathy, creative processes, and creative behaviour in South African employees.

I am requesting permission to please be allowed to approach employees in your organisation to invite them to participate in my research study. It would be ideal if you would be able to send out an invitation with a link to an online survey and a participant information sheet attached via email in your organisation. The link will take the employees to an online platform that will contain the participant information sheet and questionnaires to be completed. The questionnaires should take approximately 15 – 20 minutes to complete and participants will be asked to submit their responses online within two to three weeks of receiving the invitation.

Participation is completely voluntary and will not advantage or disadvantage employees or the organisation in any way, whether they choose to complete the questionnaire or not. There are also no direct benefits or foreseeable risks for participating in the study. Submission of the completed questionnaire will be regarded as consent to participate in the study. No identifying information, such as names or ID numbers, will be asked for and participants will therefore remain completely anonymous and the data they provide will not be linked to them as individuals in any way. Moreover, participants will not be asked to provide the name of the organisation they work for and the organisation will not be identified in any way. No organisational-level analysis of the data will take place and the name of your organisation will be kept completely anonymous.

Participants will be able to obtain feedback for the study in the form of a summary of general results; this feedback can also be provided to you and your organisation if requested. Individual and organisational-level feedback will not be possible as the data is anonymous. Participants will also be asked for permission to store their data in anonymous electronic form and to use this for future research. The research and research supervisor's contact details will be provided in the participant information sheet.

This research will help to better understand culture and creativity; which may inform practice and help performance and growth at work. If you choose to allow me to approach employees at your organisation to invite them to participate, it will therefore be greatly appreciated. If you are willing to allow me access to your employees, it would be appreciated if you could please provide me with a brief letter/ email confirming this as well as contact details for a suitable person to organise circulating the invitation to employees with.

If you have any questions or concerns, please feel free to contact me or my supervisor as per the details below. Ethical queries can also be directed to: The University of the Witwatersrand Human Research Ethics Committee (non-medical): 011-717-1408; Shaun.Schoeman@wits.ac.za.

Yours sincerely,

Juniper Naidoo 1064791@students.wits.ac.za
Supervisor: Dr Nicky Israel Nicky.Israel@wits.ac.za

Appendix D: Demographic Questionnaire

Please answer the questions below as fully and honestly as possible.

- 1. Age (in years): _____
- 2. Occupation: _____
- 3. Industry/ field of work: _____
- 4. Number of years working in full-time employment: _____

5. Gender:

Male	Female	Non-binary	Other (please specify):

6. Race:

Asian	Black	Coloured	Indian	White	Other (please specify):

- 7. Nationality: _____
- 8. Home language (language spoken most often at home): _____
- 9. Other languages spoken fluently: _____

10. Religion:

Christianity	Hinduism	Islam	Judaism	Traditional African	Other (please specify):

11. Ethnicity: _____

12. Please list three-five words that you feel best describe your cultural identity:

- a) _____
- b) _____
- c) _____
- d) _____
- e) _____

13. On average, how many people from other cultures do you interact with at work on a weekly basis? Please give a single number as an answer (e.g. 10) based on your best estimate.

14. On average, how much time do you spend interacting with people from other cultures at work on a weekly basis? Please give a single number as an answer (e.g. 1 hour) based on your best estimate. _____

15. On average, how many people from other cultures do you interact with at home/socially on a weekly basis? Please give a single number as an answer (e.g. 10) based on your best estimate.

16. On average, how much time do you spend interacting with people from other cultures at home/socially on a weekly basis? Please give a single number as an answer (e.g. 1 hour) based on your best estimate. _____

17. How many people from other cultures have you been in a romantic relationship with (including current relationship/s)? Please give a single number as an answer (e.g. 10) based on your best estimate. _____

18. On average, how much time have you spent in a romantic relationship/s with people from other cultures (including current relationship/s)? Please give a single number as an answer (e.g. 1 month) based on your best estimate. _____

19. How many people from other cultures have you been in a friendship with (including current friendship/s)? Please give a single number as an answer (e.g. 10) based on your best estimate.

20. On average, how much time have you spent in a friendship with people from other cultures (including current friendship/s)? Please give a single number as an answer (e.g. 1 month) based on your best estimate. _____

21. Please rate your level of general contact with cultures other than your own on a scale of 0 to 10, where 0 represents 'no contact at all' and 10 represents 'an extremely high level of contact'.

0	1	2	3	4	5	6	7	8	9	10
No contact at all										Extremely high level of contact

22. Please rate your level of familiarity with cultures other than your own in South Africa on a scale of 0 to 10, where 0 represents 'none' and 10 represents 'extremely familiar'.

0	1	2	3	4	5	6	7	8	9	10
None										Extremely familiar

Appendix E: Revised Scale to Assess Intercultural Empathy

Please answer each statement below as truthfully as possible. There are no right or wrong answers; and your answers are completely anonymous. In the questions below, the term ‘culture/s’ refers to different ethnic, racial, language, and/or religious groups.

		Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Somewhat Agree	Strongly Agree
1	I think it is important to be educated about cultures other than my own							
2	I welcome the possibility that getting to know another culture might have a deep positive influence on me							
3	I admire the beauty in other cultures							
4	I would like to work in an organisation where I get to work with individuals from diverse backgrounds							
5	I would like to have dinner at someone’s house who is from a different culture							
6	I am interested in participating in various cultural activities at work							
7	Most South Africans would be better off if they knew more about the culture of others							
8	A truly good work experience requires knowing how to communicate with people from other cultures							
9	I welcome being strongly influenced by my contact with people from other cultures							
10	I believe South Africa is enhanced by having different cultures							
11	I feel uncomfortable when interacting with people from different cultures							

12	I doubt that I can have a deep or strong friendship with people who are culturally different from me							
13	I don't know how to go about making friends with someone from a different culture							
14	I am afraid that new cultural experiences might risk me losing my own identity							
15	I am reluctant to work with others from different cultures in team projects or work activities							
16	It is easy for me to understand what it would feel like to be a person from a different cultural background to my own							
17	I don't know a lot of information about social and political events of cultural groups other than my own							
18	It is difficult for me to put myself in the shoes of someone who is culturally different to me							

Appendix F: Creativity Scale

Please select the answer that best describes your actions during your everyday work:

		Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Somewhat Agree	Strongly Agree
1	I suggest new ways to achieve goals or objectives							
2	I come up with new and practical ideas to improve performance							
3	I search out new technologies, processes, techniques, and/or product ideas							
4	I suggest new ways to increase quality							
5	I am a good source of creative ideas							
6	I am not afraid to take risks							
7	I promote and champion ideas to others							
8	I exhibit creativity on the job when given the opportunity							
9	I develop adequate plans and schedules for the implementation of new ideas							
10	I often have new and innovative ideas							
11	I come up with creative solutions to problems							
12	I often have a fresh approach to new problems							
13	I suggest new ways of performing tasks							

Appendix G: Cognitive Processes Associated with Creativity Scale

Please select the answer that best describes your opinions, feelings, or actions for each of the following statements:

		Never	Rarely	Sometimes	Often	Always
1	Looking at a problem from a different angle can lead to a solution					
2	While working on something, I try to generate as many ideas as possible					
3	I get solutions to problems through my dreams					
4	I get good ideas while doing something routine, like driving or taking a shower					
5	Becoming physically involved in my work leads me to good solutions					
6	While working on something I enjoy, the work feels automatic and effortless					
7	In the initial stages of solving a problem, I try to hold off on evaluating my ideas					
8	Combining multiple ideas can lead to effective solutions					
9	While working on something, I often pay attention to my senses					
10	While working on a problem, I try to imagine all aspects of the solution					
11	While working on something, I try to fully immerse myself in the experience					
12	When I am intensely working, I don't like to stop					
13	I get solutions to problems when my mind is relaxed					
14	Joining together different elements can lead to good ideas					
15	If I get stuck on a problem, I look for clues in my surroundings					
16	If I get stuck on a problem, I try to take a different perspective of the situation					
17	If I get stuck on a problem, I visualize what the solution might look like					
18	If I get stuck on a problem, I make connections between my current problem and a related situation					
19	If I get stuck on a problem, I look for details that I normally would not notice					
20	If I get stuck on a problem, I try to apply previous solutions to the new situation					

21	If I get stuck on a problem, I ask others to help generate potential solutions					
22	When I get stuck on a problem, a solution just comes to me when I set it aside					
23	I try to act out potential solutions to explore their effectiveness					
24	I can completely lose track of time if I am intensely working					
25	Thinking about more than one idea at the same time can lead to a new understanding					
26	Imagining potential solutions to a problem leads to new insights					
27	Incorporating previous solutions in new ways leads to good ideas					
28	If I am intensely working, I am fully aware of “the big picture”					

Appendix H: Ethics Certificate

UNIVERSITY OF THE
WITWATERSRAND,
JOHANNESBURG



SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:

PROTOCOL NUMBER: MAORG/20/03

PROJECT TITLE:

Intercultural exposure, intercultural empathy, creative cognitive processes and creative behaviour in South African employees

INVESTIGATOR

Naidoo Juniper (1064791)

SCHOOL/DEPARTMENT OF INVESTIGATOR

SHCD/Psychology

DATE CONSIDERED

05 June 2020

DECISION OF THE COMMITTEE

Approved unconditionally

RISK LEVEL

Low Risk

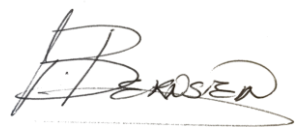
EXPIRY DATE

31 December 2022

ISSUE DATE OF CERTIFICATE

21 June 2020

CHAIRPERSON


(Dr Colleen Bernstein)

cc: Dr Nicky Israel (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.



Signature

____ 23 / 06 ____ / 2020 ____

Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix I: Demographics Table

Table 1

Frequencies for the categorical data (N = 129)

Variable	Category	n	Percentage
Gender	Male	49	38
	Female	79	61.2
	Non-binary	1	0.8
Race	Asian	4	3.1
	Black	30	23.3
	Coloured	14	10.9
	Indian	34	26.4
	White	46	35.7
Nationality	South African	121	93.8
	Dual SA/other	3	2.3
	Other	5	3.9
Home language	English	107	82.9
	Isizulu	8	6.2
	SeSotho	3	2.3
	Setswana	1	0.8
	Afrikaans	3	2.3
	isiXhosa	1	0.8
	French	3	2.3
	Venda	1	0.8
	Portuguese	1	0.8
Multi-lingual	Yes	49	38
	No	80	62

Religion	Christianity	78	60.5
	Islam	9	7
	Judaism	6	4.7
	Hinduism	7	5.4
	Traditional African	3	2.3
	Agnostic/spiritual	3	2.3
	None	22	17.1
Education	Below Matric	2	1.6
	Matric	31	24
	Under-graduate diploma/post-Matric certificate	20	15.5
	Under-graduate degree/s	25	19.4
	Post-graduate diploma	12	9.3
	Post-graduate degree	38	29.5
	Industry		
	Retail	7	5.4
	Media	7	5.4
	Creative	10	7.8
	Marketing	12	9.3
	Property	1	0.8
	Manufacturing	2	1.6
	Psychology	3	2.3
	Health	11	8.5
	Finance	18	14
	IT	13	10.1
	Admin	6	4.7
	Legal	7	5.4
	Telecommunications	5	3.9
	Education	7	5.4
	Construction	1	0.8
	Hospitality	4	3.1

	Architecture	2	1.6
	Engineer	1	0.8
	Tourism	1	0.8
	Consultant	1	0.8
	Human Resource	4	3.1
	Religion	1	0.8
	Security	1	0.8
	Insurance	1	0.8
Ethnic Group	South African	10	7.8
	English: 2	9	7
	Indian: 3	13	10.1
	Tamil: 4	8	6.2
	Hindu: 5	4	3.1
	Muslim: 6	5	3.9
	Afrikaans: 7	6	4.7
	Chinese: 8	4	3.1
	Jewish: 9	2	1.6
	German: 10	1	0.8
	Italian: 11	2	1.6
	Irish: 12	1	0.8
	Coloured: 13	7	5.4
	Congolese: 14	3	2.3
	Pedi: 15	5	3.9
	Sotho: 16	4	3.1
	Zulu: 17	7	5.4
	Venda: 1	1	0.8
	Zimbabwe: 19	1	0.8
	Tonga: 20	1	0.8
	Tswana: 21	1	0.8
	Khoi-san: 22	1	0.8
	Lebanese: 23	2	1.6

Portuguese: 24	2	1.6
Ikwere: 25	1	0.8
Furry: 26	1	0.8
Griekwa: 27	1	0.8
Malay: 28	2	1.6
Xhosa: 29	1	0.8
Two or more mixed: 30	8	6.2
Muluba: 31	1	0.8
Tsonga: 32	1	0.8
Ghanian 33	1	0.8
Other:34	7	5.4

Appendix J: Spearman's Rho correlation coefficients

Table 5

Spearman's Rho correlation coefficients for the primary and composite intercultural exposure variables (n = 129)

	WNW	WTW	WNS	WTS	ROCN	ROCT	FOCN	FOCT	SRCNT	SRFAM	TNWS
WNW		.336**	.348**	.157	-.034	.032	.338**	.174	.042	.033	.884**
WTW			.264**	.436**	-.048	.202*	.179	.234**	.221*	.090	.356*
WNS				.307**	.225*	.304**	.490**	.259**	.395**	.314**	.666**
WTS					.140	.377**	.276**	.218**	.403**	.144	.269**
ROCN						.538**	.154	.042	.305**	.126	.050
ROCT							.248**	.313**	.391**	.145	.139
FOCN								.368**	.416**	.239**	.411**
FOCT									.195*	.147	.513**
SRCNT										.496**	.266**
SRFAM											.231**
TWRK	.701**	.884**	.341**	.411**	-.027	.172	.284**	.273**	.172	.074	.677**
TSOC	.239**	.391**	.637**	.883**	.135	.368**	.393**	.350**	.466**	.271**	.472**
TROM	-.002	.083	.294**	.315**	.776**	.904**	.257**	.274**	.380**	.140	.107
TFRD	.314**	.224*	.378**	.313**	.065	.269**	.826**	.768**	.286**	.190*	.433**
TOTES	.482**	.627**	.557**	.637**	.144	.436**	.640**	.613**	.462**	.320**	.636**
TOTT	.271**	.746**	.371**	.751**	.095	.467**	.310**	.641**	.366**	.234**	.374**
TNP	.656**	.266**	.632**	.273**	.215*	.255**	.849**	.375**	.365**	.240**	.820**

Key: * = Correlation is significant at the 0,05 level; ** = Correlation is significant at the 0.01 level; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP =

total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Table 6

Spearman's Rho correlation coefficients for the composite intercultural exposure variables

	TNWS	TWRK	TSOC	TROM	TFRD	TOTES	TOTT	TNP
TNWS		.677**	.472**	.107	.433**	.426**	.636**	.820**
TWRK			.418**	.077	.310**	.704**	.697**	.508**
TSOC				.299**	.389**	.717**	.711**	.453**
TROM					.250**	.378**	.370**	.277**
TFRD						.737**	.523**	.724**
TOTES							.859**	.750**
TOTT								.375**

Key: * = correlation is significant at the 0,05 level of significance; ** = correlation is significant at the 0.01 level of significance; TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week

Appendix K: Histograms for the main variables

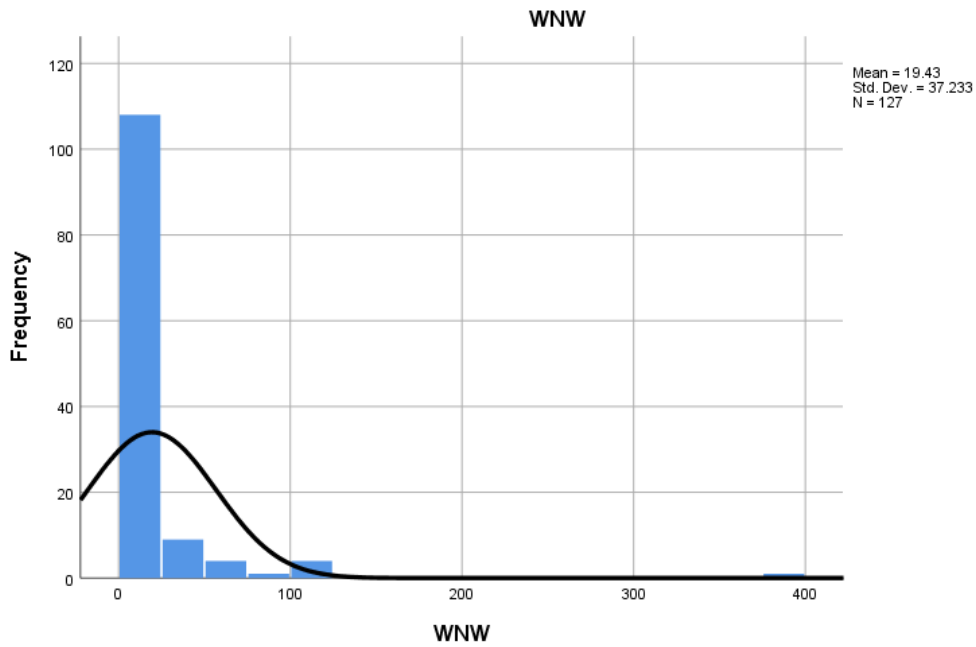


Figure 1
Distribution of the number of people from other cultures exposed to at work per week (WNW).

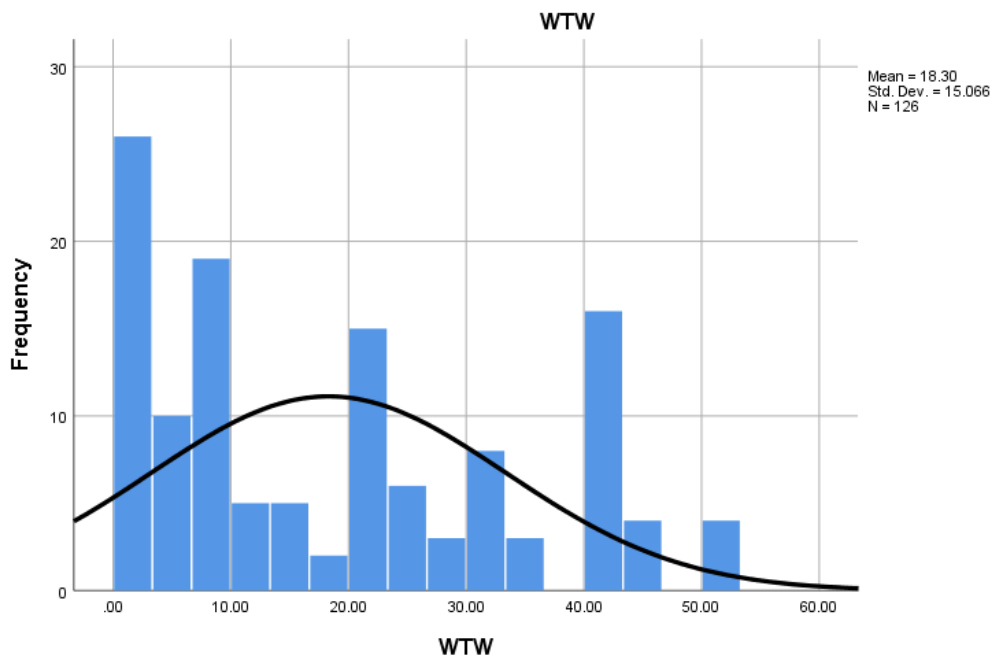


Figure 2
Distribution of the amount of time spent with other cultures at work per week (WTW).

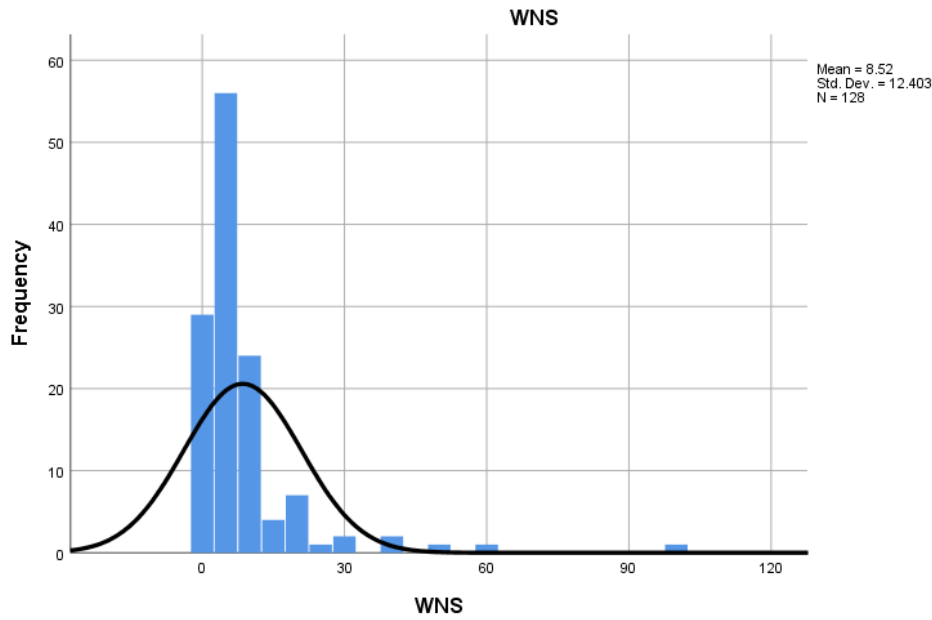


Figure 3
Distribution of the number of people from other cultures exposed to at home/socially per week (WNS).

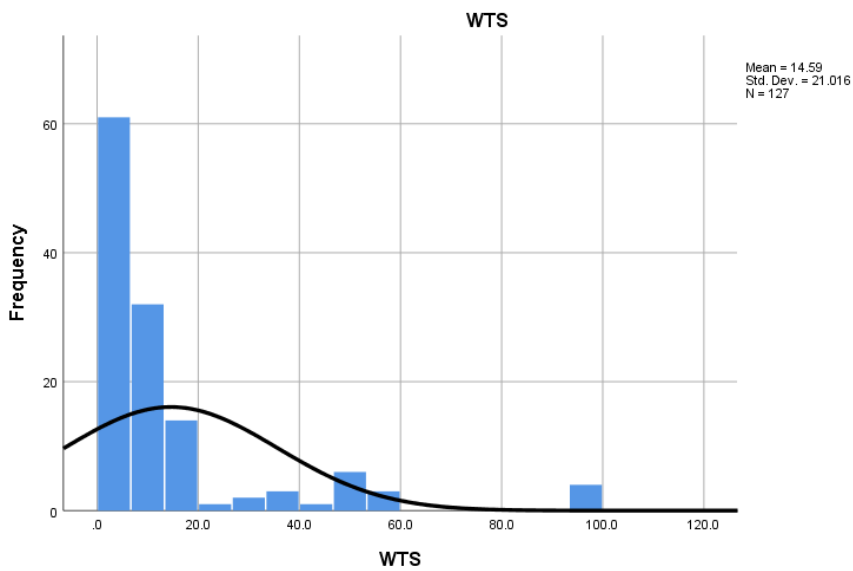


Figure 4
Distribution of the amount of time spent with people from other cultures at home/socially per week. (WTS).

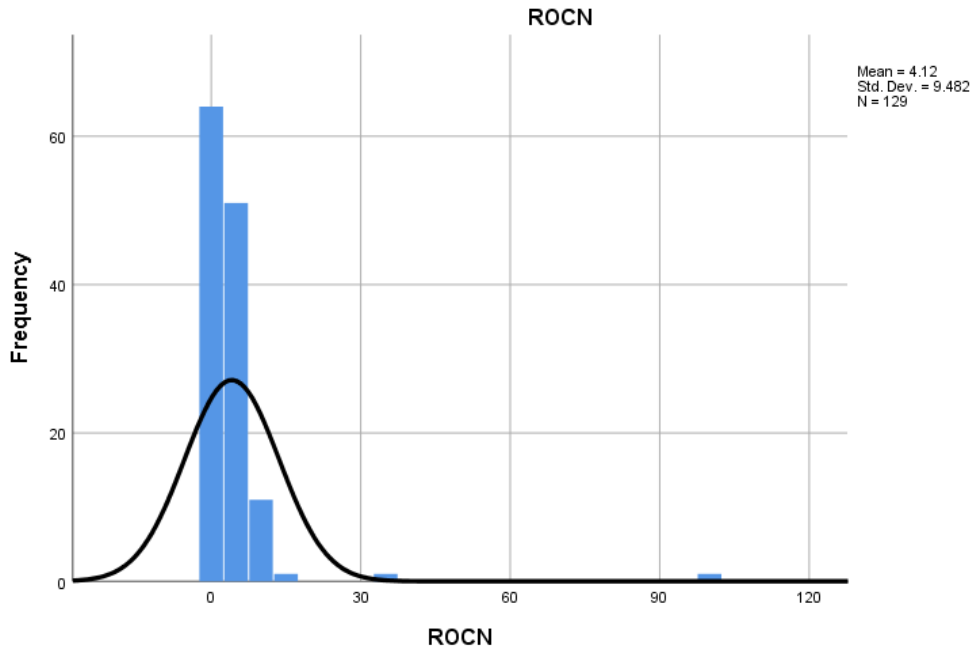


Figure 5

Distribution of the number of romantic relationships with people from other cultures (ROCN).

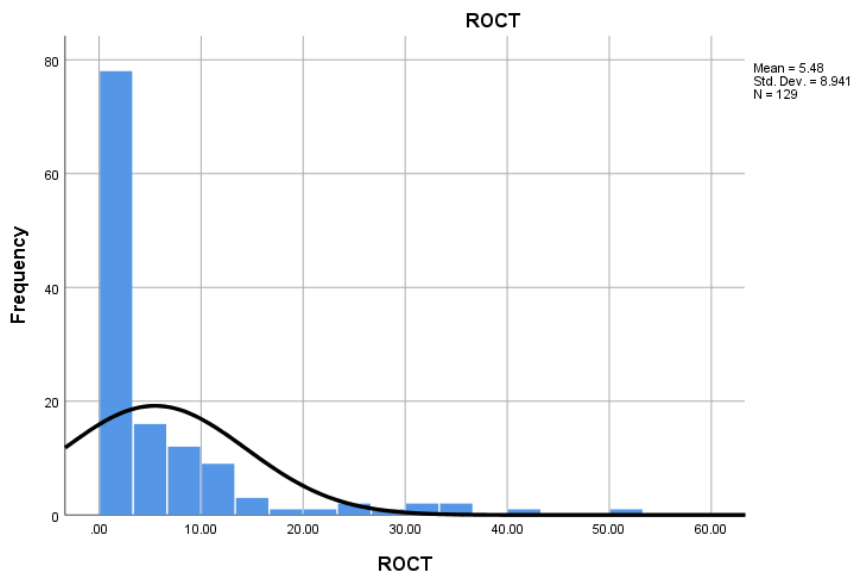


Figure 6

Distribution of the amount of time spent in romantic relationships with people from other cultures (years) (ROCT).

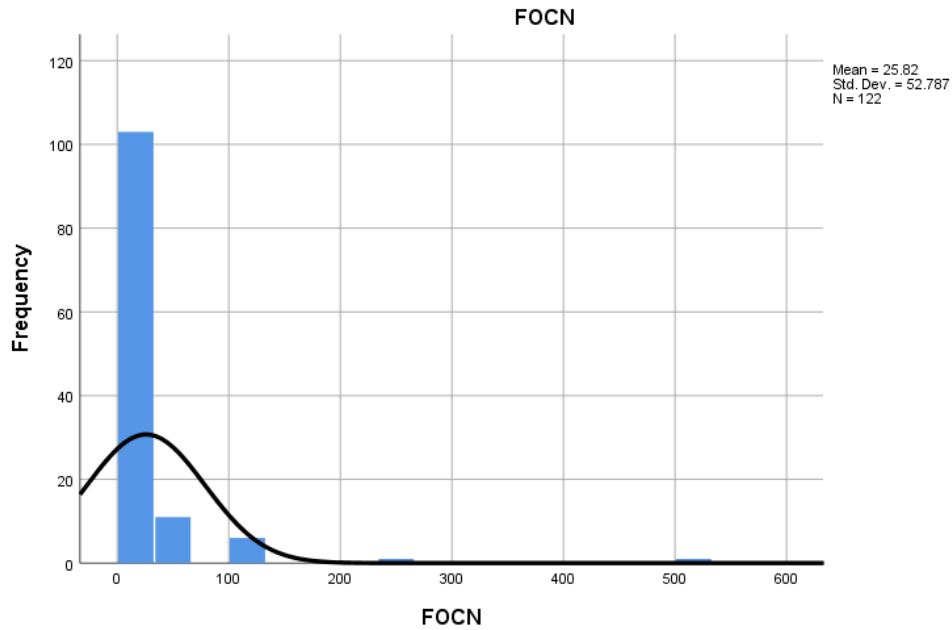


Figure 7
Distribution of the number of friendships with people from other cultures (FOCN).

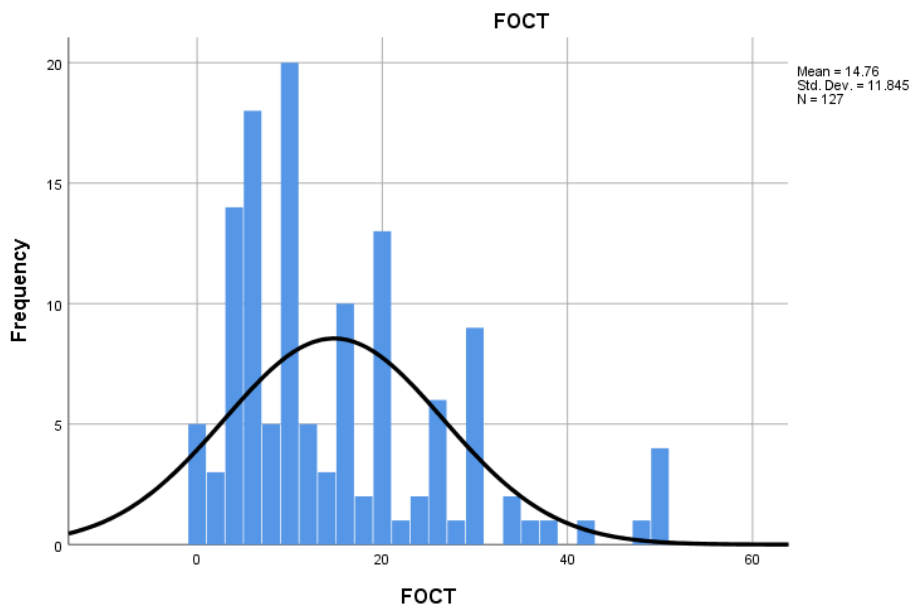


Figure 8
Distribution of the amount of time spent in friendships with people from other cultures (years) (FOCT).

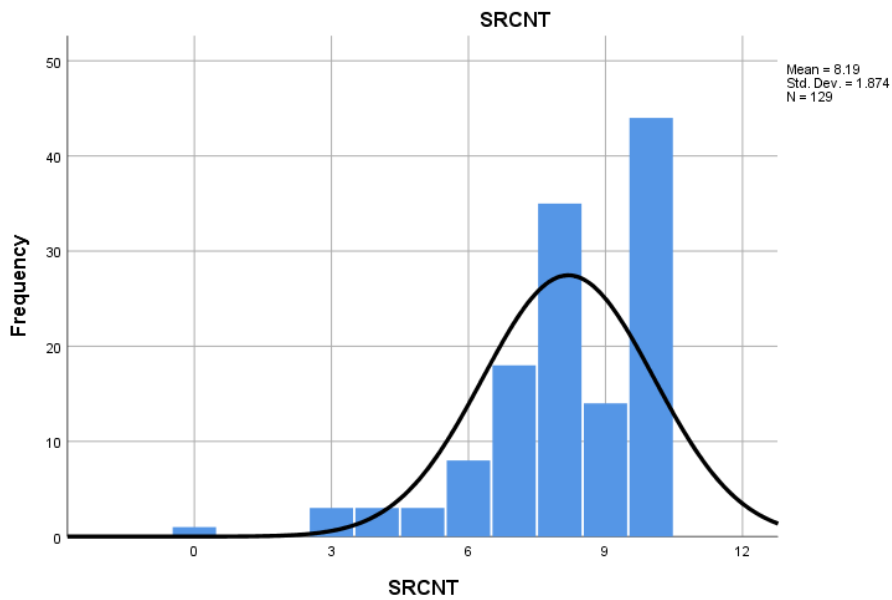


Figure 9
Distribution of self-rated contact with people from other cultures (scale of 0-10) (SRCNT).

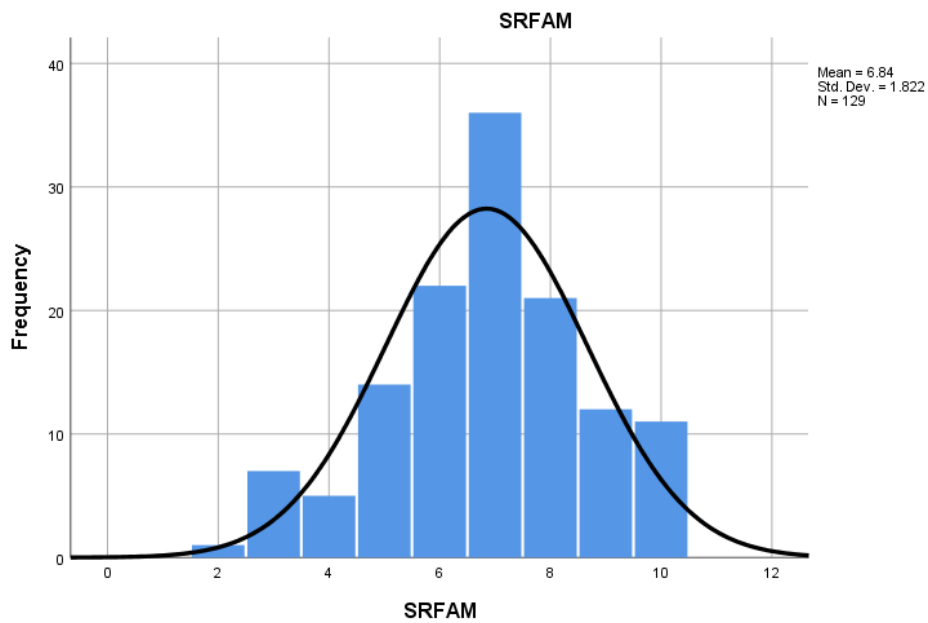


Figure 10
Distribution of total number of people from other cultures exposed to per week at work and socially (SRFAM).

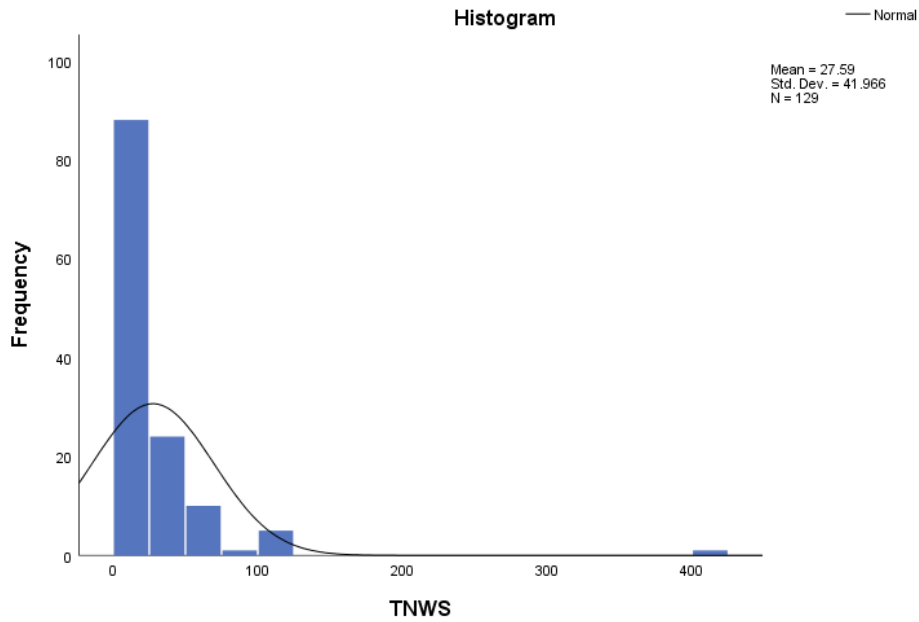


Figure 11
Distribution of the total number of people from other cultures exposed to per week at work and socially (TNWS).

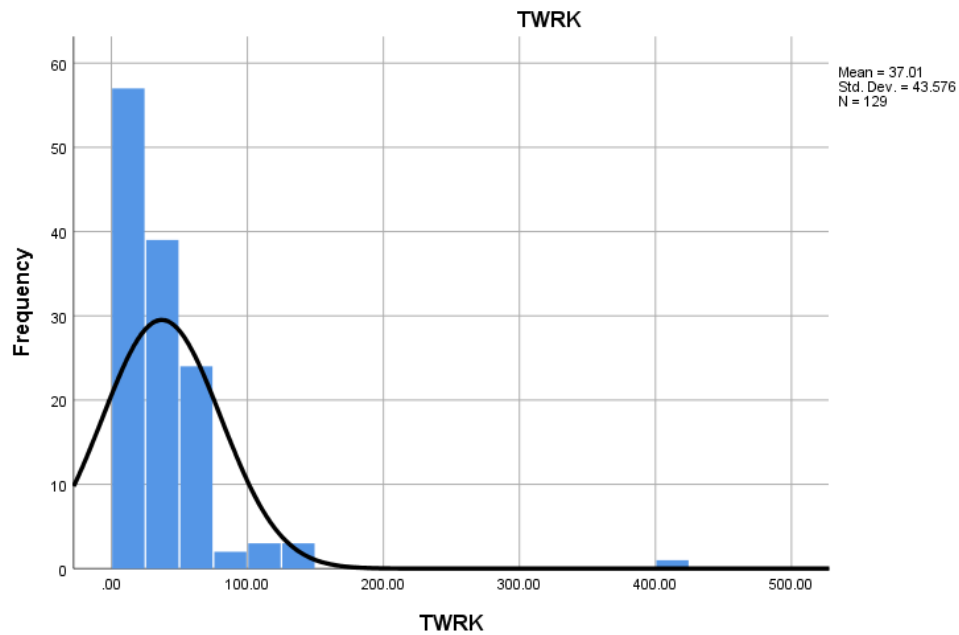


Figure 12
Distribution of a combination of the total number of people from other cultures + hours spent with other cultures at work per week

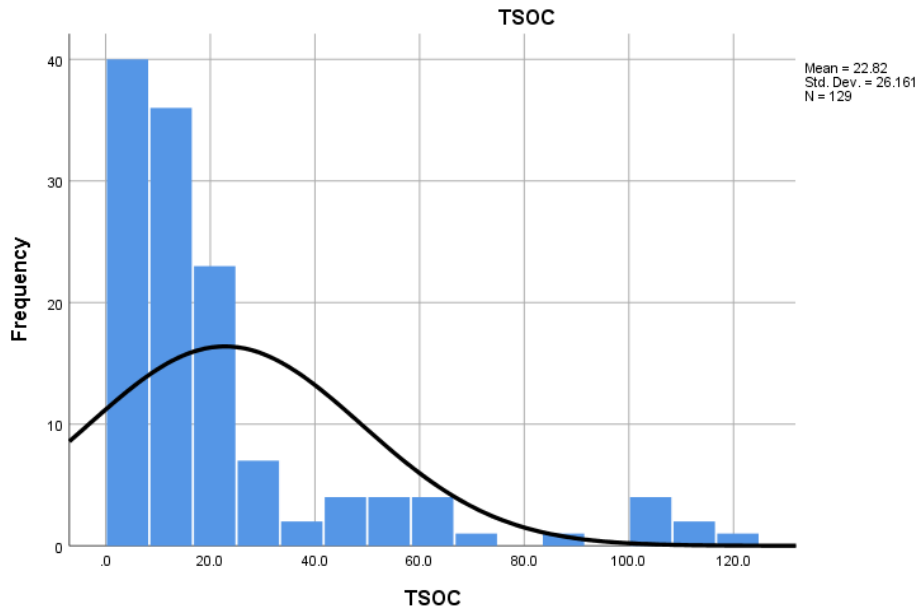


Figure 13
Distribution of a combination of the total number of people from other cultures + hours spent with other cultures at home/socially per week

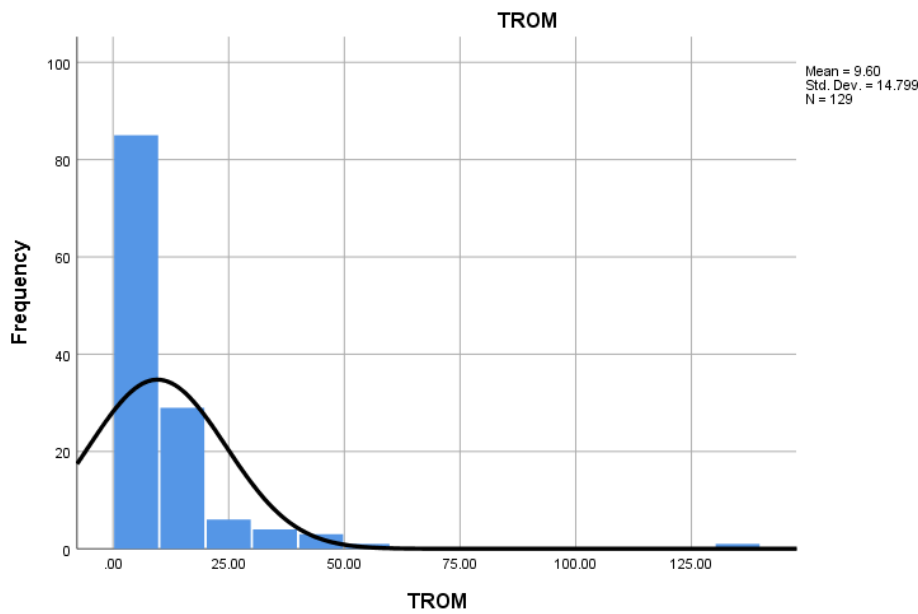


Figure 14
Distribution of a combination of the total number and years spent in romantic relationships with other cultures

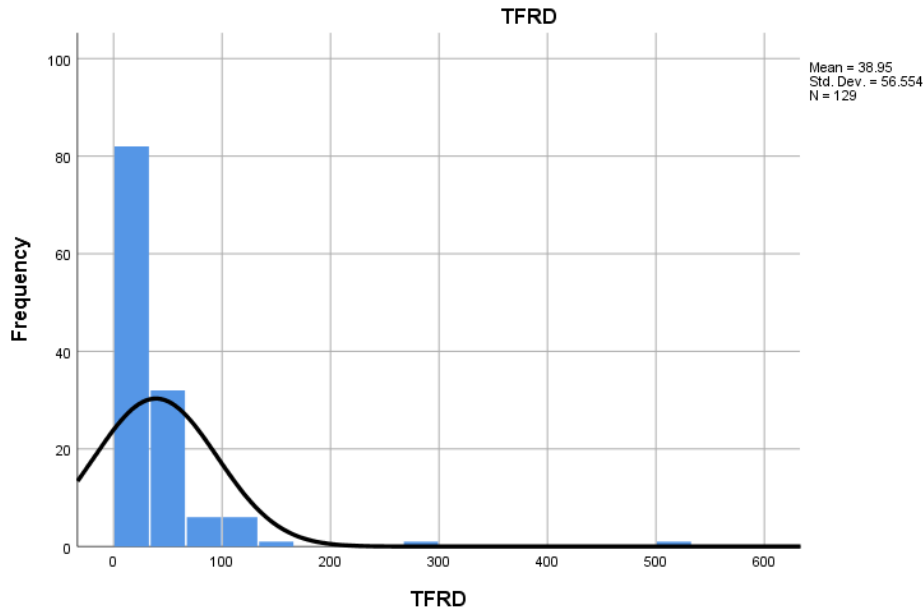


Figure 15
Distribution of a combination of the total friends and years spent in friendships with other cultures

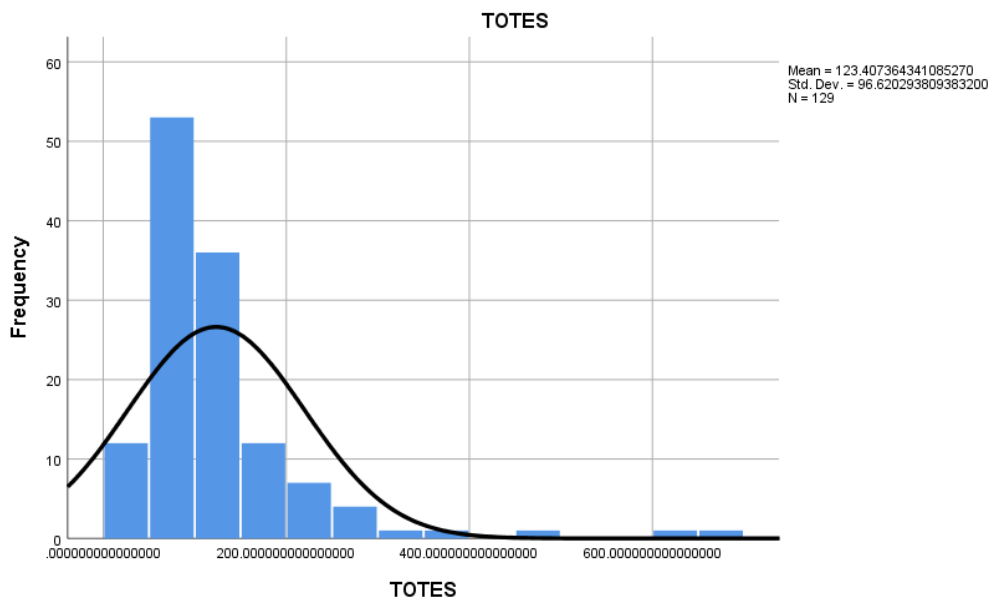
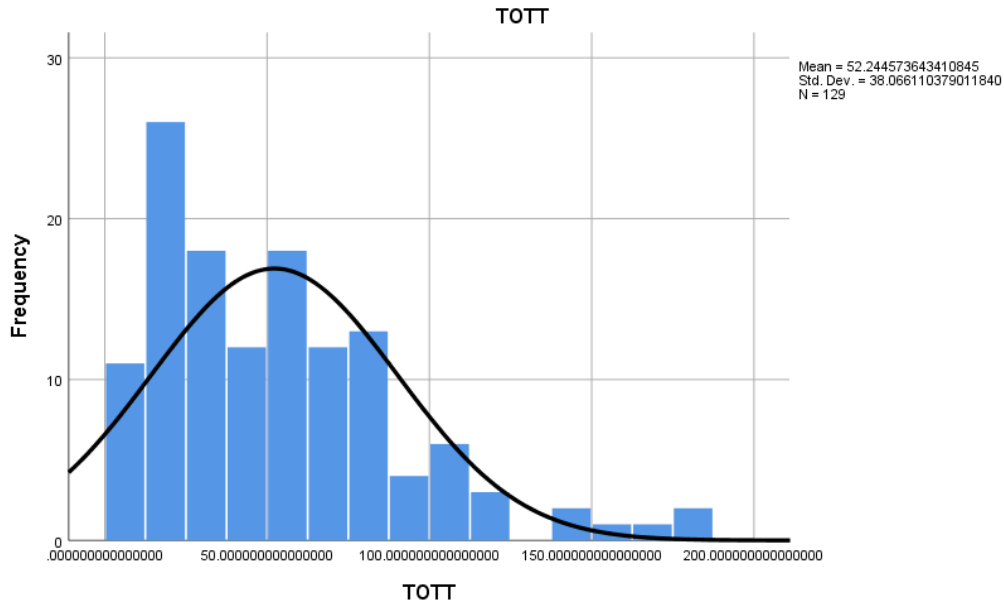
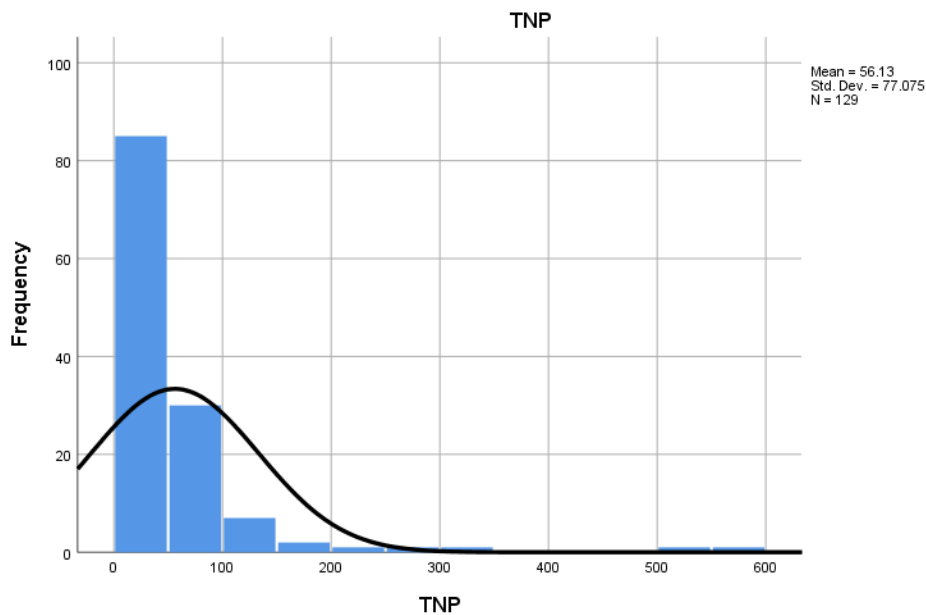


Figure 16
Distribution of a combination of: the self-rated intercultural familiarity and contact, total

number and duration of other cultures exposed to at work and socially, total number and time spent in romantic intercultural relationships and total number and time spent in intercultural friendships



*Figure 17
Distribution of a combination of: the total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures)*



*Figure 18
Distribution of a combination of: the total number of romantic relationships and friends from other cultures and the total number of people in contact with at work and socially per week*

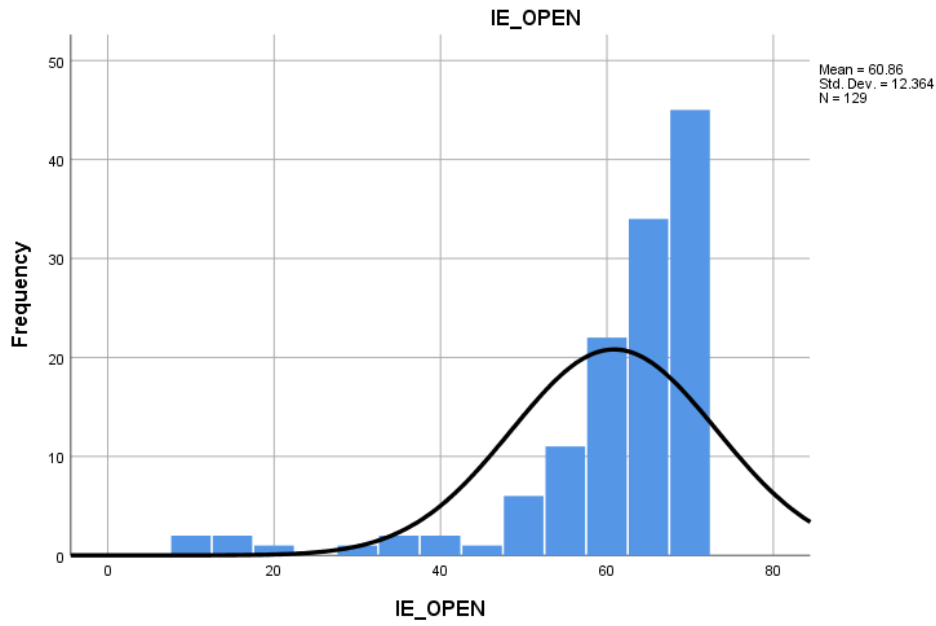


Figure 19
Distribution of intercultural empathy openness subscale: cultural openness and desire to learn

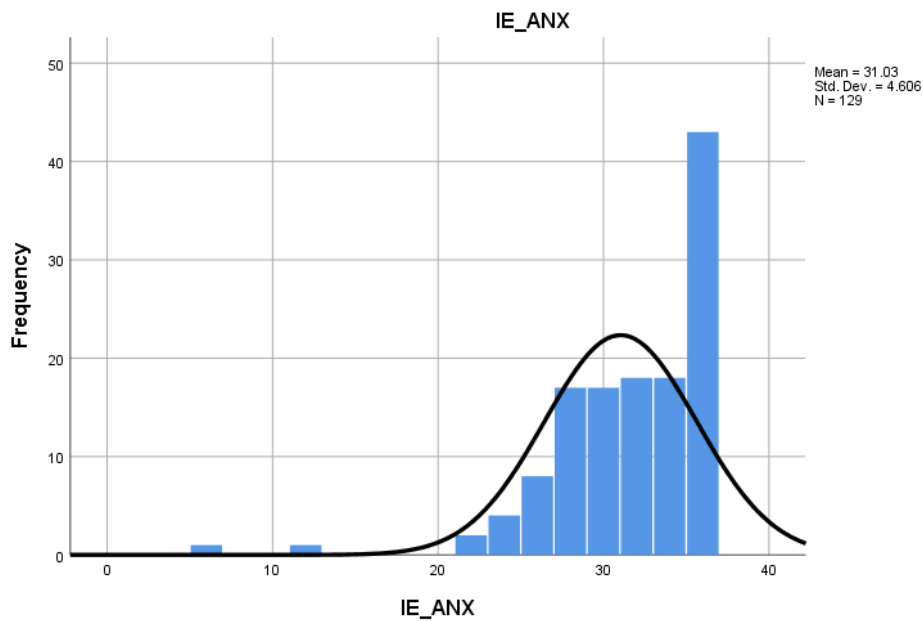


Figure 20
Distribution of intercultural empathy anxiety subscale: anxiety and lack of multicultural self-efficacy

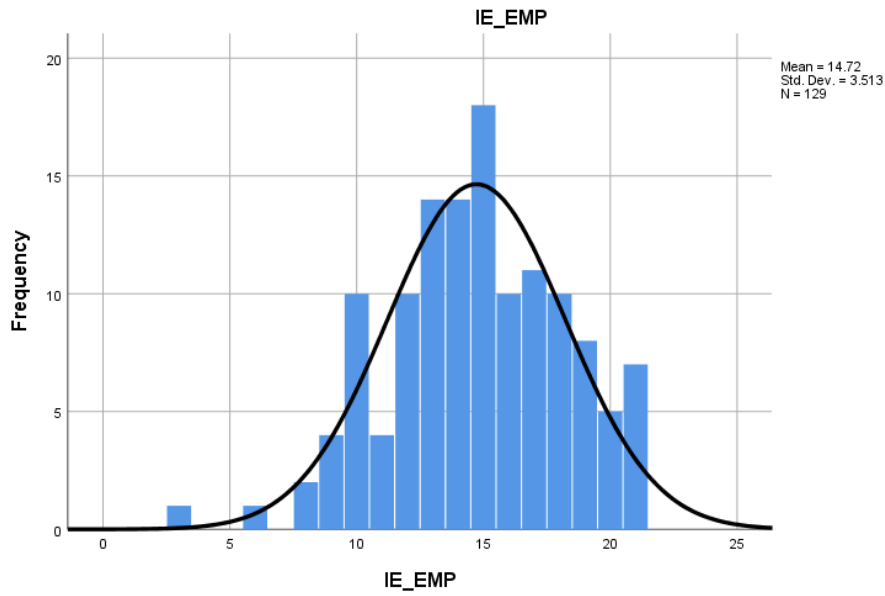


Figure 21
Distribution of intercultural empathy, empathy subscale: empathic perspective taking

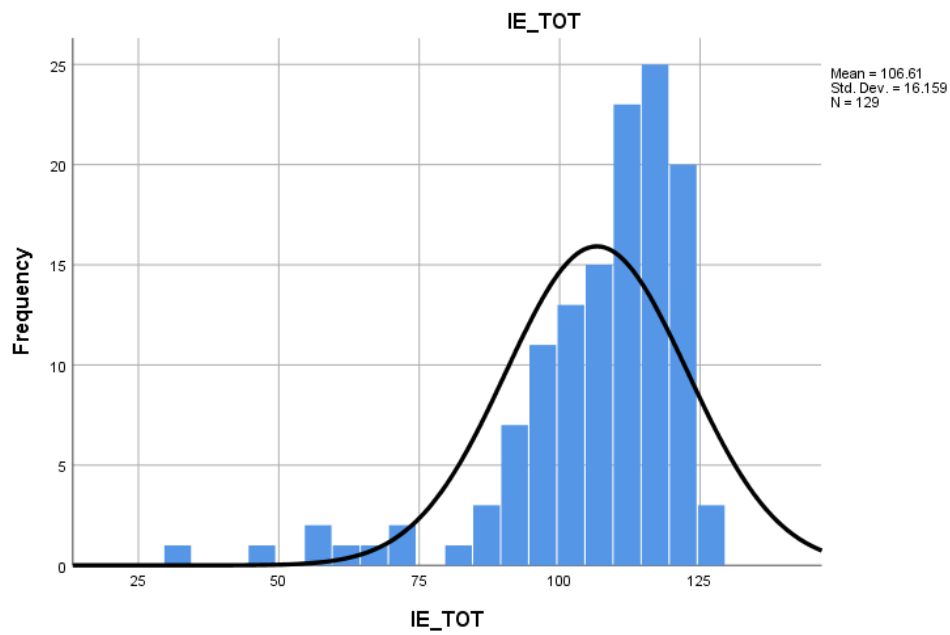


Figure 22
Distribution of the total Revised scale to assess intercultural empathy

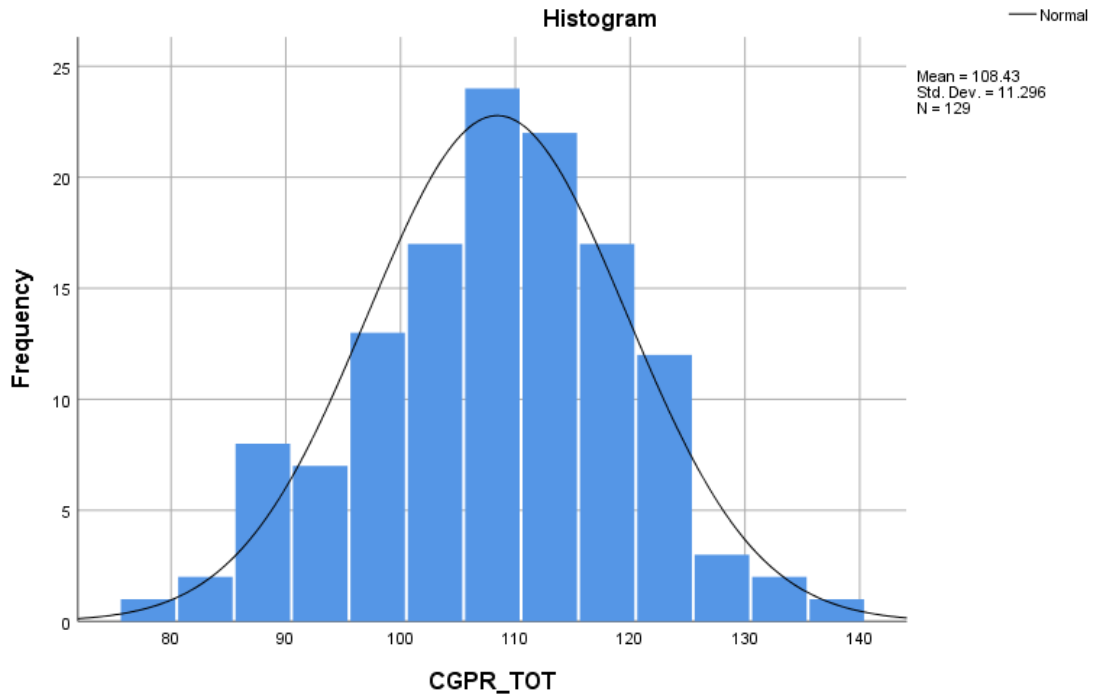


Figure 23
Distribution of the Cognitive Processes Associated with Creativity Scale (CPAC)

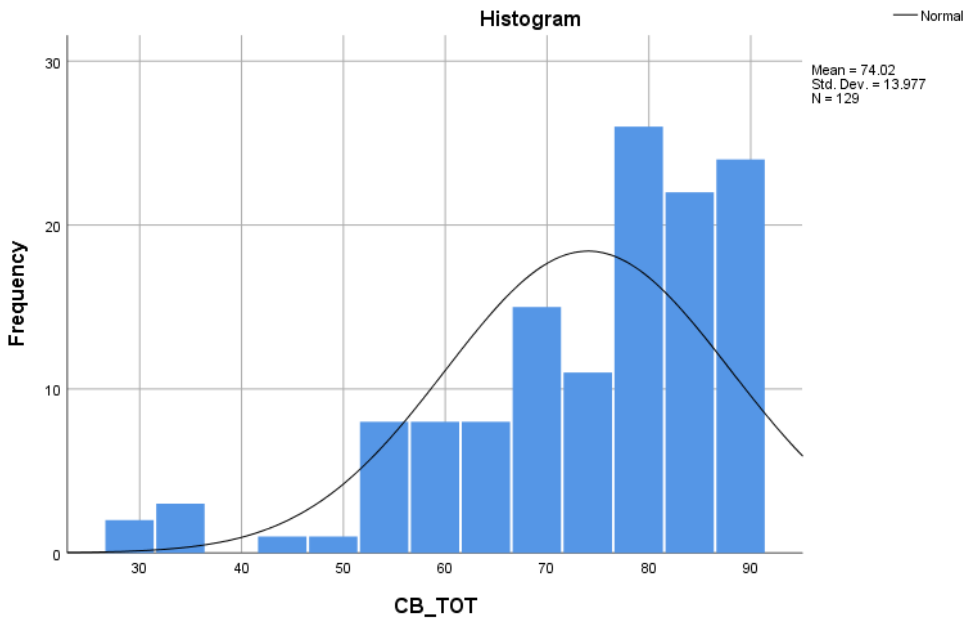


Figure 24
Distribution of the Creativity Scale

Appendix L: Histogram for the square of the Creative Behaviour scale

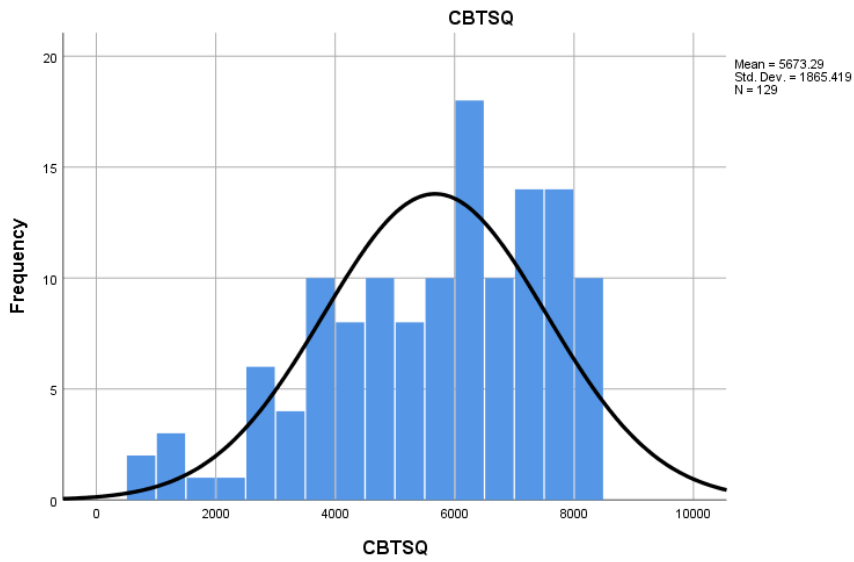


Figure 25
Distribution of the transformed Creativity Scale

Appendix M: Standardized Residuals

Table 7

Standardized residuals for all predictor variables: intercultural exposure variables, intercultural empathy and creative cognitive processes

Variable	Standardized residual
DWNW = weekly number work	-2.654
DWTW= weekly time work (hours)	-2.544
DWNS= weekly number social	-2.750
DWTS= weekly time social (hours)	-2.725
DROCN= number romances other cultures	-2.655
DROCT= time romances other cultures (years)	-2.559
DFOCN= number friends other cultures	-2.661
DFOCT= time friends other cultures (years)	-2.591
DSRCNT= self-rated contact (0-10)	-2.470
DSRFAM= self-rated familiarity (0-10)	-2.745
DTNWS= total number of people from other cultures exposed to per week at work and socially	-2.640
DTWRK= total number of people + hours spent with other cultures at work per week	-2.582
DTSOC	-2.696
DTROM	-2.594
DTFRD	-2.549
DTOTES	-2.653
DTOTT	-2.715
DTNP	-2.687
ICE_TOT	-2.399
CGPR_TOT	-3.091

Key: D= dummy coded; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Appendix N: Durbin-Watson statistics for all variables

Table 8

Durbin-Watson statistics for predictor variables (intercultural exposure, intercultural empathy and creative cognitive processes)

Variable	Durbin-Watson statistic
DWNW	.158
DWTW	.166
DWNS	.182
DWTS	.182
DROCN	.243
DROCT	.200
DFOCN	.147
DFOCT	.226
DSRCNT	.202
DSRFAM	.185
DTNWS	.153
DTWRK	.150
DTSOC	.177
DTROM	.223
DTFRD	.175
DTOTES	.160
DTOTT	.199
DTNP	.155
ICE_TOT	.296
CGPR_TOT	2.488

Key: D= dummy coded; Key: WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in

friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT= combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Appendix O: Cook's Distance values

Table 9

The Cook's Distance values for intercultural exposure, intercultural empathy and creative cognitive processes, with creative behaviour as the outcome variable

Variable	Cook's Distance value minimum	Cook's Distance value maximum
DWNW	.000	.057
DWTW	.000	.052
DWNS	.000	.058
DWTS	.000	.060
DROCN	.000	.056
DROCT	.000	.053
DFOCN	.000	.063
DFOCT	.000	.056
DSRCNT	.000	.044
DSRFAM	.000	.090
DTNWS	.000	.055
DTWRK	.000	.054
DTSOC	.000	.055
DTROM	.000	.053
DTFRD	.000	.051
DTOTES	.000	.057
DTOTT	.000	.058
DTNP	.000	.059
ICE_TOT	.000	.047
CGPR_TOT	.000	.097

Key: D = Dummy; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT=

combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Appendix P: VIF values for the predictor variables

Table 10

VIF values for intercultural exposure, intercultural empathy and creative cognitive processes

Variable	VIF value
DWNW	1.00
DWTW	1.00
DWNS	1.00
DWTS	1.00
DROCN	1.00
DROCT	1.00
DFOCN	1.00
DFOCT	1.00
DSRCNT	1.00
DSRFAM	1.00
DTNWS	1.00
DTWRK	1.00
DTSOC	1.00
DTROM	1.00
DTFRD	1.00
DTOTES	1.00
DTOTT	1.00
DTNP	1.00
ICE_TOT	1.00
CGPR_TOT	1.00

Key: D = Dummy; WNW= weekly number people other cultures work; WTW= weekly contact time work; WNS= weekly number people other cultures social; WTS= weekly contact time social; ROCN= number romances other cultures; ROCT= time romances other cultures (years); FOCN= number friends other cultures; FOCT= time friends other cultures (years); SRCNT= self-rated contact other cultures (0-10); SRFAM= self-rated familiarity other cultures (0-10); TNWS= number of people other cultures per week at work and socially; TWRK= total number of people other cultures and hours spent with other cultures at work per week; TSOC= total number of people other cultures and hours spent with other cultures socially per week; TROM= total number of relationships and years spent in romantic relationships with other cultures; TFRD = total number friends other cultures and years spent in friendships with other cultures; TOTES = combined self-rated intercultural familiarity and contact, total number and duration of other cultures exposed to at work and socially, total number of relationships and time spent in romantic intercultural relationships, and total number of friendships and time spent in intercultural friendships; TOTT=

combined total hours spent with other cultures at work and socially per week, and total years in romantic relationships and friendships with other cultures; TNP = total number of romantic relationships and friendships from other cultures and the total number of people from other cultures in contact with at work and socially per week; ICE_OPEN= intercultural empathy openness; ICE_ANX= intercultural empathy anxiety; ICE_TOT= intercultural empathy total; CGPR_TOT = creative cognitive processes total; CB_TOT = creative behaviour total

Appendix Q: Levene's test for homogeneity of variances for the significant variables in the ANOVA

Table 23

Levene's test for homogeneity of variances with predictor variables: DTNP, DTNWS and outcome variable: creative behaviour.

	Levene's Statistic	df1	df2	Sig.
	based on mean			
DTNWS	1.356	3	125	.259
DTNP	2.378	3	125	.073

Key: D= dummy coded; DTNWS: number of people from other cultures in contact with per week at work and socially; DTNP the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures

Appendix R: Standardized residuals for the significant variables in the ANOVA

Table 24

Standardized residuals for all predictor variables: DTNWS and DTNP, with outcome variable: creative behaviour

Variable	Standardized residual
DTNWS	-2.640
DTNP	-2.687

Key: D= dummy coded; DTNWS: number of people from other cultures in contact with per week at work and socially; DTNP the total number of romantic relationships and friendships as well as the total amount of contact at work and socially with people from other cultures