



Exploring Cultural Intelligence Relationships with Growth Mindset, Grit, Coping and Academic Stress in the United Arab Emirates

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Abstract: Positive psychology seeks to understand what factors contribute to wellbeing and success. Accordingly, the present study explored relationships between cultural intelligence and factors related to academic success, namely growth mindset and grit, as well as academic stress and constructive coping. It also aimed to compare levels of cultural intelligence between third culture individuals (TCI) and non-third culture individuals (non-TCI). Data were collected from 200 multicultural university students in the United Arab Emirates. The results of correlation analysis confirmed a significant positive relationship between cultural intelligence and markers of academic success (grit and growth mindset). Higher levels of cultural intelligence were characteristic of individuals with lower academic stress. Multiple regression analysis showed that only cultural intelligence of three academic success measures including grit and growth mindset, significantly predicted coping. Lastly, results of the independent sample t-test found no significant difference between TCI and non-TCI individuals, shedding new light on the process of acquisition of cultural intelligence. This study is an early contributor addressing the gap in understanding the role of cultural intelligence in multicultural academic settings.

ملخص البحث: يبحث علم النفس الإيجابي في فهم العوامل التي تشارك في النجاح والحياة الطيبة، وفي هذا السبيل، كشفت هذه الدراسة العلاقة بين الذكاء الثقافي والعوامل المتعلقة بالنجاح الأكاديمي، وعلى وجه التحديد، عقلية النمو والمثابرة، وكذلك الإرهاق الأكاديمي والتأقلم البناء. كما استهدفت هذه الدراسة المقارنة بين مستويات الذكاء الثقافي بين أفراد الثقافة الثالثة وآخرين لا ينتمون إلى ذات الثقافة، حيث جمعت البيانات من منتهي طالب جامعي متعدد الثقافات في الإمارات العربية المتحدة. أكد تحليل الارتباط علاقة إيجابية ملحوظة بين الذكاء الثقافي وصنّاع النجاح الأكاديمي؛ أي عقلية النمو والمثابرة. وتبين أن الأشخاص ذوي مستويات الذكاء الاجتماعي الأعلى يتسمون بإرهاق أكاديمي أقل، وأظهر تحليل الانحدار المتعدد لثلاثة مقاييس نجاح أكاديمي، بما فيها عقلية النمو والمثابرة، قدرة كبيرة على التأقلم الإيجابي البناء. ختاماً، لم تُظهر نتائج (اختبار- ت) المستقل للمقارنة أي اختلاف ملحوظ بين أفراد ينتمون إلى الثقافة الثالثة وآخرين لا ينتمون إليها، ونكون بهذا قد ألقينا الضوء على منظور جديد لطريقة الحصول على الذكاء الثقافي. وتعتبر هذه الدراسة من الدراسات الأولى المعنوية بتردم الفجوة بين فهم دور الذكاء الصناعي في صنع النجاح الأكاديمي متعدد الثقافات والذكاء الثقافي.

Keywords: cultural intelligence; third culture individuals; academic success; grit; growth mindset; positive psychology; United Arab Emirates

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Cultural intelligence or cultural quotient (CQ) has been linked to success and performance in international environments ranging from business organizations to social institutions (Earley & Ang, 2003; Henderson, Stackman, & Lindekilde, 2018; Oolders, Chernyshenko, & Stark, 2008). It is also predicted to become the main contributor to the success of 21st century leaders (Benet-Martínez, 2012; Tarique & Takeuchi, 2008). Supporting social functioning, cultural intelligence feeds into the positive psychology approach, which is concerned with the factors that lead to well-being across relational, cultural and academic dimensions, among others (Seligman & Csikszentmihalyi, 2000). For individuals functioning in culturally diverse environments, the determination of such factors may be predictive of success, especially if these factors can be leveraged. Cultural intelligence, as the capability to bridge cultural differences, could constitute a practical framework for intercultural effectiveness within positive psychology (Ng, 2013).

As a result of globalization and technologization, cultural diversity and cross-cultural communication are becoming increasingly important. Despite a large interest in the field and the knowledge that leaders and individuals in global organizations require such cross-cultural skills (Ang et al., 2007; Osland, Divine, & Turner, 2015), little has been learned about how to facilitate cross-cultural relationships (Gelfand, Erez, & Aycan, 2007). Educational institutions, dedicated to fostering global leaders who will manage such diversity, are also becoming more multicultural (Bikson, Treverton, Moini, & Lindstrom, 2003; Osland, Bird, Mendenhall, & Osland, 2006). Possessing the knowledge and skills to facilitate communication between people of diverse origins seems essential to multicultural university student populations. Yet, such interactions are often hampered by implicit biases, prejudices, and barriers to dealing with diversity (Adler, 2002; Gelfand et al., 2007).

Thus, researching the ways in which cultural management skills like cultural intelligence can contribute to cross-cultural relationships is timely. Cultural intelligence, if related to academic success as a dispositional and dynamic quality, could be targeted through interventions and training models to improve the success and wellbeing of students in multicultural environments. It is suggested that those exposed to multicultural environments early in their development possess a higher level of dispositional cultural intelligence than those raised in a monocultural settings (Lovvorn & Chen, 2011); thus, a country like the United Arab Emirates (UAE), with an expatriate population approaching 89% (Global Media Insight, 2019), is ideal for the determination of such inquiry. Consequently, in this study we explore the relationships between cultural intelligence and academic success, defined by levels of grit and growth mindset, coping, and stress levels in multicultural students in the UAE.



Third Culture Individuals

The term ‘Third Culture Kid’ was coined by Useem, Useem, and Donoghue (1963) and refers to individuals who spent a significant part of their developmental years outside their parent’s home countries (Pollock & Van Reken, 2009) or their passport country (Moore & Barker, 2012). Those individuals can be termed as transcultural (Willis, Enloe, & Minoura, 1994), cultural hybrids, or global nomads (McCaig, 1992), nomenclature which brings attention to this fusion of multiple identities. Adult third culture individuals (TCIs) exist in the spaces in and between cultures and construct their identities around their relationships rather than geography (McLachlan, 2007). During adolescence, a period essential to identity development, TCIs tend to experience cultural stressors which may adversely impact identity coherence (Rumbaut, 2008), behavioral shifts, and acculturative stress (Pollock, Van Reken, & Pollock, 2017). They may face difficulty adjusting to adult life (Espinetti, 2011). Historically, TCI identity was regarded as a negative trait related to lower levels of psychological well-being, success, and identity integration (Schwartz, Zamboanga, Rodriguez, & Wang, 2007; Wertsch, 1991).

Yet, recent studies highlight TCI’s abilities to integrate multiple cultural paradigms, which does not necessarily affect wellbeing (Berry, 1989, 2003; Nguyen & Benet-Martínez, 2013). Pollock and Van Reken (2009) further suggested that TCIs feel at home anywhere and develop new types of belonging. Likewise, individuals with multiple cultural backgrounds experience environmental changes with less distress due to their innate ability to adapt, as well as their openness, flexibility, and global mindset (Gupta & Govindarajan, 2002). TCIs are recognized to possess cross-cultural managerial predispositions (Lovvorn & Chen, 2011; Tarique & Takeuchi, 2008).

Cultural Intelligence (CQ)

Culture, understood as a way of living and relating with others, consists of values, beliefs, meanings, conventions, and artifacts (Kitayama & Park, 2010). Cultural psychology assumes that culture and psychology are interrelated (Markus & Conner, 2013; Ratner, 2006), as attachments and commitments to the socio-cultural environment influence identity, thinking patterns, intelligence, and self-concept (Bandura, 1977). With a long tradition of studies on cross-cultural effectiveness and abilities (Smith & Bond, 1999; Thomas, 2002), some individuals might possess abilities to interact better within culturally diverse contexts (Caligiuri, 2000).

Among many approaches in the field of intelligence, the Interactional Theory of Intelligence seems the most relevant to this discussion (Earley & Ang, 2003; Kitayama, 2002). This theory defines intelligence as an adaptive interaction between an individual and their environment; thus, intelligence is conceptualized as dynamic (Ng & Earley, 2006) and multifaceted (Sternberg, Lautry, & Lubart, 2003). Subsequently, the concept of cultural intelligence or cultural quotient (CQ) is defined as a person’s capability to adapt effectively to new cultural contexts and deal effectively with situations characterized by cultural diversity (Earley & Ang, 2003). Whilst exposure to more than one culture can result in stress, it also influences the development of intercultural competencies. Such competencies increase effectiveness in culturally diverse contexts and enhance the ability to regulate stress (Benet-Martínez, 2012). Individuals possessing natural abilities to



detect, understand, and manage the cultural characteristics of others can be described as culturally intelligent and competent (Oolders et al., 2008).

Another root to the concept of cultural intelligence is Sternberg and Detterman's (1986) multiple foci of intelligence framework, which includes metacognitive, cognitive, motivational, and behavioral dimensions. Metacognitive CQ relates to the awareness of diversity, the influence that culture has on one's behaviors and degree of abilities to revise one's cultural knowledge (Earley, Ang, & Tan, 2006; Brislin, Worthley, & MacNab, 2006). Cognitive CQ relates to the ability to recognize similarities and differences across cultures, as well as the knowledge of its norms and social systems. It is acquired through education and personal experience (Hofstede, 2001; Triandis, 1994). Motivational CQ reflects the capability and willingness to learn about others, called cross-cultural efficacy (Bandura, 2002), and a drive to function effectively in situations characterized by cultural diversity (Ang & Van Dyne, 2008; Ang et al., 2007). Finally, behavioral CQ reflects the ability to exert appropriate behaviors in culturally diverse contexts and display competence in cross-cultural interactions (Thomas, 2006). Cultural intelligence predicts adaptive behaviors and performance beyond other personality traits and qualities (Oolders et al., 2008; Şahin & Gurbuz, 2014).

Growth Mindset

The science of positive psychology allowed a new perspective on academic success (Laursen, 2015). This new approach highlighted, among others, the notions of grit and growth mindset as relevant measures of success and flourishing and alternatives to traditional performance assessments. Dweck (1999, 2007) identified two distinct ways in which individuals view learning. Those with a fixed mindset view intelligence as an inborn trait which, once established, cannot be altered. Individuals with a growth mindset believe that they can develop their intelligence over time (Blackwell, Trzesniewski, & Dweck, 2007). Growth mindset is related to achievement and can aid in stress reduction (Yeager et al., 2016). There have been successful attempts to increase learning abilities and decrease academic stress with the stimulation of growth mindset (Cohen & Sherman, 2014; Elliot & Dweck, 2005; Stipek, 2002). Growth mindset is therefore an evidenced factor facilitating academic success.

Grit

Grit is understood as the mental durability and perseverance used to strive towards goals and accomplishments (Drayton & Hammond, 2017; Duckworth, Peterson, Matthews, & Kelly, 2007). Positive relationships between student grit and determination, self-control, self-regulation and achievement have been identified in the literature (Duckworth et al., 2007). In line with a positive psychology perspective, and based on supportive evidence, it is possible to assume the importance of grit for students' achievement; it has consistently predicted success (Duckworth, 2016; Ivcevic & Brackett, 2014; Reed, Jeremiah, & Hammond, 2017). Further, Duckworth and Seligman (2005) found correlations between self-discipline and achievement to be twice as strong as that between IQ and achievement. Tomlinson (2013) also demonstrated a relationship between grit and creativeness.



Coping

Students face many challenges in pursuit of their goals. When perceived as negative, challenges can increase academic stress and lead to conflict, which can have an adverse effect on student performance (Shaikh et al., 2004). When facing adversity and stress perceived to exceed existing resources, individuals develop coping strategies, i.e., cognitive and behavioral efforts to respond to specific demands or reduce internal or external stressors (Folkman & Lazarus, 1991). Coping strategies can be functional (called constructive) or dysfunctional. Constructive coping strategies (i.e., humor, emotional support, active coping, acceptance, religion) can effectively reduce stress levels, whereas dysfunctional or maladaptive coping (i.e., disengagement, denial, substance abuse, gambling, etc.) may further elevate it (Al-Dubai, Al-Naggar, Al-Shagga, & Rampal, 2011; Saxon et al., 2017). A constructive coping style mediates the relationship between academic stress and performance (Shaikh et al., 2004). Likewise, constructive coping is shown to be characteristic of students who are less often involved in conflicts (Ben-Ari & Hirshberg, 2009). Previous studies in the UAE have shown, for example, that many students used positive coping strategies such as praying, meditating, planning, and taking action to deal with conflict and stress (Elzubeir, Elzubeir, & Magzoud, 2010; Gomathi, Ahmed, & Sreedharan, 2013).

Stress

Academic stress is defined as arousal in response to academic events (Alsulami et al., 2018). It is a process by which individuals perceive and cope with environmental threats and challenges and arises when a drain on the individual surpasses available resources (Folkman & Lazarus, 1991). In small amounts, stress is normal, yet prolonged academic stress can diminish academic performance and provoke maladaptive behaviors (Richlin-Klonsky & Hoe, 2003; Topper, 2007; Vermunt & Steensman, 2005). A negative relationship was found between health-related quality of life and stress of college students (Dusselier, Dunn, Wang, Shelley, & Whalen, 2005). Moreover, stress decreases the adjustment abilities of international students (Hussain, Kumar, & Husain, 2008). Studies found a high prevalence of stress among students in Arab countries (Al-Dabal, Koura, Rasheed, Al-Sowielem, & Makki, 2010; El-Gilany, Amr, & Hammad, 2008; Fawzy & Hamed, 2017). Interventions to enhance resources such as the development of a growth mindset and constructive coping can sustain stress at manageable levels and enhance wellbeing (Struthers, Perry, & Menec, 2000).

The UAE as a Multicultural Student Hub

The prevalence of individuals with multicultural identities is growing (McDonald, 2010), especially in the United Arab Emirates (UAE). The ratio between expatriates living in the UAE and the local Emirati population is nearly 9 to 1 and the UAE has one of the largest international migrations in the world (GMI, 2019). After an accelerated period of urbanization and modernization over the last few decades, the social structure, standards of living, and habits of UAE residents have been radically transformed (Carter, Saadi, Reed, & Dunn, 2004). A flourishing economy attracts many nationalities, each of which brings their culture. Such cultural diversity creates a one-of-a-kind multicultural society, as there are no demands for assimilation with



the local Emirati culture (Chaudhary, 2016). According to the UNESCO Institute of Statistics (2015), the UAE has nearly 34,122 inbound tertiary students versus 7,719 outbound students. Many students in the UAE can be classified as TCIs as they spend their developmental years outside their home country and that of their parent's and are exposed to diverse cultural paradigms early on. While this may bring challenges relating to the development of identity (Pollock & Van Reken, 2009; Schaetti & Ramsey, 1999), it may also spur multicultural communication abilities (Lovvorn & Chen, 2011; Tarique & Takeuchi, 2008). These characteristics can serve as a developmental blueprint in an era of globalization, where culturally appropriate responses are developed and higher levels of cultural intelligence acquired (Earley & Ang, 2003).

The Present Study

In line with previous research and as an expansion of present knowledge, this study aims to address the following. First, we propose that cultural intelligence (CQ) will be a measure of academic success, significantly correlating with other variables related to performance and academic flourishing, namely positive psychology notions of growth mindset and grit. Second, we explore whether CQ is related to lower levels of perceived academic stress. Third, it is suggested that out of academic success predictors (mindset, grit, and stress), CQ will be the strongest predictor of constructive coping. Finally, it is also of interest to determine whether there are differences between students classified as third culture individuals (TCI) and those raised in one culture with regards to levels of cultural intelligence.

Method

Procedure

Ethical approval was granted by the Ethics Committee of Middlesex University, Dubai (UAE). The purpose of the study was explained to participants verbally and in written form. Each participant signed a consent form prior to the completion of questionnaires. The researcher addressed participants' queries and assured them of the confidential nature of the study, as well as their right to withdraw or not participate.

Participants

Participants included 200 international students recruited through convenience sampling from a local university campus, of which 87% were females. 66% identified as third culture individuals (TCI), having spent a significant part of their developmental years (under 18) outside their parent's country or their own (Pollock & Van Reken, 2009). Participants came from 33 countries, which were clustered into five groups; South Asian (66%), Arab (17%), Western (8%), African (7%), and Far Eastern (2%). The mean age was 21 years old ($SD=5.98$). All participants were fluent in English, a requirement for university admission.

Variables and Measures

All scales were administered in English. To determine TCI, a demographic questionnaire was designed for the current study and consisted of questions enquiring about age, country of



origin, year of study at the university, and whether participants classified themselves as a third culture individual: “Please check YES if you have been raised in a culture other than your parents (or a culture of the country given on your passport) for a significant part (more than 1 year) of early years 6-18.” This definition was formed based on the work of Useem et al. (1963) and Pollock and Van Reken (2009) with added clarification of what was meant by “early developmental years”.

Cultural intelligence was measured using the Cultural Intelligence Scale (CQS; Earley & Ang, 2003), which consists of 20 items across four factors. Each subscale is composed of items that measure the construct in a direct way. All items are closed questions scored on a 7-point Likert scale (1-Strongly disagree; 7- Strongly agree). The total score translates into CQ level. The CQS has been cross-validated by Ang et al. (2007) across diverse samples (e.g., Gozzoli & Gazzaroli, 2018). Examples of items include: “I enjoy living in cultures that are unfamiliar to me” and “I am confident that I can socialize with locals in a culture that is unfamiliar to me.” The CQS Cronbach’s alpha was $\alpha = .86$, assuring good internal reliability, and all four subscales of cultural intelligence scale were significantly correlated with one another.

Coping styles were measured through the Interpersonal Stress Coping Scale (ISCS; Kato, 2013), a 15-item scale consisting of three factors, namely Distancing Coping, Reassessing Coping and Constructive Coping. The current study used only the latter factor. Statements are scored on a 4-point Likert scale (0= Did not use; 3= Used a great deal). Participants indicate the most suitable strategy regarding conflicts and stress experiences: “Tried to avoid talking with the person” and “Decided not to have anything more to do with the person”. The Cronbach’s alpha of the scale in present study was .60.

Students’ theories of intelligence, i.e., mindset, was measured using the 8-item Implicit Theories of Intelligence Scale (Dweck, 1999). The complete scale contains four incremental and four entity theory items and assesses general beliefs about the fixedness versus malleability of intelligence. The statements are scored on a 6-point Likert scale (1= Disagree a lot; 6= Agree a lot). Overall, research indicates that the scale displays good internal consistency ($\alpha = .82$ to $.97$) across samples and test-retest reliabilities at two weeks ($\alpha = .80$ to $.82$) (Dweck, Chiu, & Hong, 1995). Statements include: “No matter how much intelligence you have, you can always change it a good deal” and “I like my work best when I can do it really well without too much trouble.” For the current study, Cronbach’s alpha was .53, indicating sub-optimal internal reliability.

The Grit Scale (Duckworth & Quinn, 2009) measures trait-level perseverance and passion for long-term goals and consists of 12 items scored on a 5-point Likert scale (1= Very much like me; 5= Not at all like me). It has high internal consistency, test-retest stability, consensual validity with informant-report versions, and predictive validity for samples of American cadets and students (Duckworth & Quinn, 2009). Statements include: “New ideas and projects sometimes distract me from previous ones” and “Setbacks don’t discourage me.” For the present study, the Cronbach’s alpha was good ($\alpha = .74$) assuring the reliability of this instrument.

Finally, academic stress was measured using the University Student Stress Scale - Academic Stress Subscale (Burge, 2009) which consists of 7 items scored on a 5-point Likert scale (1=Not at all stressful; 5= Extremely stressful). Students were asked to indicate how stressful a range of



academic issues are for them. These included “Handling the academic workload” and “Studying for tests and exams”. For the present study, this scale’s Cronbach alpha was high ($\alpha=.81$) evidencing reliability of the measure for the given sample.

Results

Preliminary analyses were performed to ascertain normal distribution of the variables. Cultural intelligence, stress, and grit scales showed normal distribution. However, mindset and constructive coping were not normally distributed and directly performing a regression analysis on them would have increased the probability of Type I and Type II errors. Both variables were characterized as slightly skewed (Mindset = .43, ConCoping = .36). To enhance robustness of the analyses, these have been normalized with a log10 (see Sweet, Frontier, Strachan, Blanchard, & Boulay, 2014). Consequently, the transformations improved the distribution and it was possible to assume normal distributions.

Correlation analyses

The means, standard deviations and Pearson’s correlations of the total scores of each scale are presented in Table 1. All variables, namely cultural intelligence, growth mindset, constructive coping and grit significantly correlated with cultural intelligence. CQ was negatively associated with academic stress while CQ was positively correlated with growth mindset, grit, and constructive coping. In summary, correlational results suggested that a higher level of CQ was associated with lower stress among students and that it was characteristic of individuals who possess a higher level growth mindset, grit and constructive coping.

Table 1

Descriptive statistics, skewness, kurtosis and correlations of CQ with stress, grit, constructive coping and growth mindset

Variables	M (SD)	Skew	Kurtosis	1	2	3	4	5
1. Cultural Intelligence	99.54(18.57)	-.11	-.29	-	-.158**	.322**	.238**	.263**
2. Stress	21.70(5.63)	.05	-.62		-			-.245**
3. Grit	3.27(.53)	.30	.06		-.298**	-		
4. Constructive Coping	10.54(3.45)	-.36	-.60				-	.238**
5. Growth Mindset	1.47(.07)	.43	-.29			.268**		-
6. Age	21 (5.98)							

Note. ** $p < 0.01$

Regression analysis

A multiple regression analysis was conducted to examine potential direct effects between academic success variables, i.e., cultural intelligence, mindset, grit and academic stress on



constructive coping. As seen in Table 2, cultural intelligence, mindset, grit and stress accounted for 13% of the variation in constructive coping, showing that the model as a whole has explanatory power ($R^2 = .13$, $F(4, 195) = 7.96$, $p < .01$). Only cultural intelligence presented with predictive power for constructive coping $\beta = .355$, $t(199) = 4.92$, $p < .01$.

Table 2

Multiple regression analyses of academic success variables (Cultural Intelligence, Grit, Mindset, Stress) on constructive coping

Block	Predictor	Coping		
		Model fit	β	t
1	CQ	$R^2 = .13^{**}$.35 ^{**}	4.92
	Mindset	$F(4, 195) = 7.96^*$	-.06	-.87
	Grit		.10	1.35
	Stress		.05	.73

Note. R^2 are adjusted for number of predictors β = standard regression coefficient ^{*} = $p < .05$, ^{**} $p < .001$.

Independent Sample T-Test

Before conducting comparison between groups, equality of variance was assessed by Levene's test ($p > .05$). Results of the Independent Sample t-test indicated no significant differences between TCI ($M = 100.66$, $SD = 17.67$) and non-TCI ($M = 97.39$, $SD = 20.17$) in cultural intelligence, as $t(198) = 1.17$, $p > .05$. Additionally, controlling for age and gender did not improve significance of grouping.

Table 3

Independent sample t-test for differences between TCI and Non-TCI

	TCK	Non-TCK	t-test
	Mean (SD)	Mean (SD)	
CQ	100.66(17.67)	97.39(20.17)	1.17 n.s.

Note. ^{*} = $p < .05$, ^{**} $p < .001$.

Discussion

The present research intended to show relationships of cultural intelligence with positive psychology notions of academic success for a multicultural sample of students living in UAE. The results confirmed our first hypothesis as CQ was positively correlated with a growth mindset. Our second hypothesis was also supported; cultural intelligence was significantly and positively correlated with grit. A negative association between CQ and stress levels was further confirmed.



Likewise, the regression analysis demonstrated the predictive power of cultural intelligence on constructive coping. All four hypotheses related to measures of academic success were supported. Previous research has similarly demonstrated that grit and growth mindset negatively relate with stress among students (Dweck, 1999, 2007; Reed et al., 2017); therefore, the positive relationship between the two former variables, as well as with cultural intelligence, suggests the position of CQ as a measure of academic success. It also highlights the facilitative role of cultural intelligence, within a positive psychology approach, in academic dimensions of wellbeing. Moreover, cultural intelligence, out of three academic success measures (including grit and growth mindset) was the only significant predictor of constructive coping.

Culturally intelligent individuals can deal with conflict and stress more effectively and therefore improve personal relationships which in turn might support wellbeing. These findings support the hypothesis of cultural intelligence as a possible correlate of academic success and determinant of student accomplishment in multicultural environments. Such results are also consistent with the literature on the role of CQ in success of global business organizations (Ramalu, Rose, Kumar, & Uli, 2010) and contribute to academic discourse by transferring the importance of CQ from business to the educational environment. It is believed that cultural intelligence can be developed (Lovvorn & Chen, 2011), hence it may be possible to intervene in this respect. Doing so may leverage CQ to stimulate academic success for students in international environments. Importantly, cultural intelligence may become a significant feature of positive psychology, similar to growth mindset, which can serve to support flourishing within multicultural populations. As positive psychology is concerned with wellbeing, cultural intelligence can be included in a wide spectrum of constructs supporting success, positive functioning and sustainable wellbeing of individuals in multicultural environment.

The fifth hypothesis, which stated that there would be significant differences in the level of cultural intelligence between TCI and non-TCI samples was nonetheless rejected. This finding is contrary to prior literature and sheds new light on TCI populations and their cross-cultural abilities (Greenholtz & Kim, 2009). It has been proposed that multinational corporations would seek to recruit people possessing TCI characteristics, rather than provide training in multicultural functioning and management (Tarique & Takeuchi, 2008). TCIs are regarded as better equipped for cross-cultural tasks and have greater dispositional global mindsets (Stokke, 2013; Tarique & Takeuchi, 2008). Yet, the current study did not confirm a higher level of cultural intelligence in TCIs compared to non-TCI residents in the UAE, a highly culturally diverse nation. As mentioned by the researchers who developed the TCK concept (Pollock & Van Reken, 2009), individuals need to spend their formative years outside their parents' country to be classified as 'third culture'. Perhaps to foster cross-cultural abilities and cultural intelligence, it is sufficient to spend time in a multicultural environment which lacks the presence of a dominant culture. In such environments, students may be encouraged to explore other cultures while sharing their own, what might result in leveraged levels of cultural intelligence. This may be the case for university students in the UAE; this unique environment may lead to the acquisition of multicultural abilities similar to those of TCIs. It might be concluded, that CQ does not depend on third culture experience and can be



nurtured via cross-cultural interactions (Kolb & Kolb, 2005; Ng, Van Dyne, & Ang, 2009). As a result, the verification of this last hypothesis has set a new direction for future exploration.

Consequently, the TCI construct might not be the best fit when choosing the future leaders of a multicultural world as proposed by Tarique and Takeuchi (2008). The present research suggests that cultural intelligence does not require 'traditional' TCI experience, in which cosmopolitanism is fostered during childhood (Cho, 2009). Perhaps a global mindset, defined by Gupta and Govindarajan (2002) as one that combines openness to, and awareness of, diversity across cultures, can be developed along with CQ during a shorter time, via exposure to a cross-cultural environment, rather than solely through spending one's formative years in a new culture. There might be value in designing multicultural educational hubs like in the UAE, a country where students live, work, and study alongside more than 190 nationalities with no pressing need to assimilate. Further research on CQ acquisition and learning is recommended.

Finally, this finding challenges existing definitions of what makes individuals third culture persons. The notion of TCIs has not been yet fully explored and there are inconsistent perspectives, which require critiques and clarification (see Dillon & Ali, 2019). For example, there is no clear distinction between TCI and multiculturalism and it might be that the focus on the developmental years during which TCI identity is considered to be acquired is too narrow and exclusive. This could have affected the non-significant results between TCIs and non-TCIs.

Limitations and Future Directions

Limitations were identified with respect to the self-reported character of scales, uniqueness of sample and skewedness of distribution. All questionnaires were self-report measures which may have generated biased results due to participants' tendency to report wishful answers instead of real psychological states (Demetriou et al., 2015). However, the aim of the present study was also to explore possible directions for further research in the form of longitudinal or experimental studies which might generate unbiased results. Second, our results might only be true for the unique sample of the UAE-based international students characterized by a lack of need to culturally assimilate, limiting generalizability of the findings and possibly influencing skewedness of distribution.

Two variables, namely mindset and constructive coping, were also slightly skewed. Skewed data arises naturally in various situations. The reason behind positive skew, as in case of growth mindset, might be that few individuals with very high scores affected the mean. Reversely, constructive coping was negatively skewed suggesting that most of the sample have scored very high with few very low outliers. A possible explanation is that in such diverse populations with various cultural paradigms, coping abilities and growth mindset inclinations might be influenced by contradictory cultural values causing polarization of distribution. For example, significant differences in the theory of intelligence are noticed depending of the culture of origin (Mercer & Ryan, 2009). Thus, future studies should explore the impact of culture of origin or length of stay in multicultural environments on growth mindset, cultural intelligence and constructive coping. Nevertheless, these limitations do not undermine the significance of the outcome, which



contributes to a deeper comprehension of cross-cultural academic success and the role of cultural intelligence, within a positive psychology approach.

We offer several future directions. As there was no significant difference in level of cultural intelligence between third culture children and non-TCI, unlike those shown in previous studies (Tarique & Takeuchi, 2008), replication of this research on different samples is recommended. Such validation could clarify whether the specific character of the multicultural student population in the UAE could result in an increase in CQ in non-TCI students through social interactions (Bandura, 1977; Kolb & Kolb, 2005; Ng et al., 2009). Research on the cultural intelligence acquisition model is also recommended, especially in culturally diverse societies. Future studies can explore not only the innate abilities of TCIs as global leaders, but the potential to teach cross-cultural skills within multicultural environments which lack a dominant culture. Other constructs might better explain the relationships between cultural intelligence and academic success measures and we recommend expanding the model to include mediating and moderating variables as well. For example, self-monitoring could explain the change brought by CQ in constructive coping (Renner, Laux, Shuetz, & Tedeshi, 2004). Research on the potential impact of multicultural identity integration on academic success and the role of CQ in forming multicultural identity is recommended (Benet-Martínez, 2012; Tadmor, Galinsky, & Maddux, 2012), as is the revision of the TCI concept definition to match a 21st century globalization and migration context. Lyttle, Barker and Cornwell (2011) showed that while length of exposure is primary to TCI identity development, the type of cultural environment might also play an important role in forming TCI, even later in life, with no limitation to developmental years.

Conclusion

This study shed light on the importance of cultural intelligence as a contributor to success, by extending the concept from a business context to an academic environment. Secondly, as positive psychology seeks to understand what factors contribute to wellbeing and success, the current research offers promise for the concept of cultural intelligence, which might constitute such a factor for multicultural student populations. It also offers an early contribution to fill the gap concerning cultural intelligence in a multicultural academic environment, with the CQS scale showing promising results. This exploratory research intended to discover relationships between cultural intelligence and grit, growth mindset and coping in a multicultural sample of students living in the UAE. The results confirmed significant correlations of CQ with grit and growth mindset as well as CQ's predictive influence over constructive coping. Secondly, higher level of CQ was shown to be characteristic of individuals with lower academic stress. Thirdly, new light was shed over the process of acquisition of cultural intelligence, as no differences between TCI and non-TCI was identified. In conclusion, the present study highlighted the importance of the notion of cultural intelligence in academic success in multinational environments and challenged previous assumptions about TCI students' dispositional character of cultural intelligence. By using a positive psychology lens, it is possible to understand how to better support and nurture student success and adjustment in growing multicultural contexts worldwide.



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