Predicting Translation Students' Cultural Intelligence through Different Types of Creativity

La predicción de la inteligencia cultural de los estudiantes de traducción mediante distintos tipos de creatividad

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Abstract. Translators are reputed to work not only within languages but also across cultures. Intercultural interactions can be carried out when the translator is creative enough. The present paper intends to determine the pivotal types of creativity which can predict the translators' cultural intelligence in cross-cultural interaction. 103 translation students were chosen to participate in the study through convenient sampling. Kaufman Scale of Creativity (2012) and Cultural Intelligence Scale (2007) were administered to measure participants' types of creativity and cultural intelligence. Results of the Pearson correlation attested that the Kaufman scale of creativity is moderately correlated with the cultural intelligence scale. Multiple regression analysis revealed that among the different components of creativity, scholarly, self, and artistic were the best predictors of translation students' cultural intelligence. Implications of the study for translation training courses and professional translation agencies are advised to introduce the idea of creative types in training or hiring translators.

Keywords: Cultural intelligence, Self-creativity, Scholarly, Artistic, Translation Students

Resumen: Los traductores tienen fama de trabajar no solo entre los idiomas, sino también entre culturas. Las interacciones interculturales se pueden llevar a cabo cuando el traductor es suficientemente creativo. El presente artículo tiene la intención de determinar los tipos fundamentales de creatividad que puedan predecir la inteligencia cultural de los traductores en la interacción intercultural. Se eligieron 103 estudiantes de traducción para

participar en el estudio mediante un muestreo conveniente. Se administraron la Escala de creatividad de Kaufman (2012) y la Escala de inteligencia cultural (2007) para medir los tipos de creatividad e inteligencia cultural de los participantes. Los resultados de la correlación de Pearson atestiguaron que la escala de creatividad de Kaufman está moderadamente correlacionada con la escala de inteligencia cultural. El análisis de regresión múltiple reveló que, entre los diferentes componentes de la creatividad, el académico, el propio y el artístico eran los mejores predictores de la inteligencia cultural de los estudiantes de traducción. Las implicaciones del estudio para los cursos de formación en traducción y las agencias de traducción profesionales pueden ser introducir la idea de los tipos de creatividad en la formación o la contratación de traductores.

Palabras clave: Inteligencia cultural, Auto-creatividad, Erudito, Artístico, Estudiantes de traducción

1. INTRODUCTION

With the rapid pace of technological advancement, cross-cultural communication invariably procures much attention within the borders of international relations. One of the chief objectives of translation is to play a role in international contexts. Paul (2006) posits that cultural globalization can foster the circulation of ideas among different communities which, consequently, brings about cross-cultural interconnectedness. Globalization helps the people of a distinct culture to interact effectively; more precisely, globalization prepares the ground for intercultural communication (Montagliani & Giacalone, 1998; Zakaria, 2000). Cavanaugh (2007) maintains that the real essence of globalization predisposes such indispensable ideas of navigating among a myriad of cultures. Taking such ideas into consideration, cultural competence is a must for anyone wishing to have efficacious interactions among cultures. Translators as the epitome of intercultural mediators (Rojo & Antuñano, 2013) and contact points cross-culturally (Malyuga et al., 2018) can foster communication among cultures. Translators are now more than ever involved in mediating among various cultures (Liddicoat, 2016), making them appear socially and intellectually cognizant of the receptor languages' cultural norms. House (2015) stresses the importance of context for translators; that is, the translators must be culturally adept in recognizing the target cultures' norms. What is more, the most crucial competence in communicating among various foreign cultures is to have cultural intelligence (referred to as CQ), a new concept proposed by Earley and Ang (2003). Drawing on some extant ideas and concepts, cultural intelligence acts as a creative role for individuals mediating across borders. The relatively new concept enables the mediators to adjust

themselves quickly with less stress in different cultures (Ghonsooly & Shalchi, 2013). Thomas and Inkson (2005) believe that individuals with high cultural intelligence can be acquainted well with a foreign culture, which makes them appear more natural in the process of translating in order not to commit cultural mistakes when communicating. Rafieyan (2016) highlights that cultural intelligence is crucial in developing cross-cultural competence; as a result, translators with a high level of CQ can communicate effectively in the target language's culture. By and large, translators are exposed to domestic (dealing with indigenous and regional cultures as in intralingual translation) and cross-cultural situations (dealing with other cultures and languages as in interlingual translation). This interrelation has encapsulated the idea that translators should be as creative as possible to translate in such challenging cultural contexts.

Albeit the idea of creativity in research has gained sound scholarly attention ranging from business to education (Altinay et al., 2020), little research has focused on the avenue of Translation Studies. Creative behaviour ensures the utmost communication among different agents in cross-cultural relations. Translators, as creative agents, can facilitate communications. The current study stresses the important aspect of cultural intelligence that has not been addressed to our knowledge. Translation students should possess intercultural competence to function desirably in cross-cultural contexts. The idea of cultural intelligence proves that intercultural mediators must have apposite creativity to function in those cultural settings. Translation students should be acquainted with different cultures to translate as clearly as possible. The study does not assess the actual translation performance; rather, it seeks to see what types of creativity can predict translators' cultural intelligence.

The paper is divided into 8 parts. Section 2 discusses the idea of *Cultural Intelligence*, its definition, and an overview of the field of Translation Studies. The next section, section 3, deals with issues regarding *creativity* and *Translation Studies*. Section 4 introduces and examines the experiment to answer the relevant research questions and hypotheses. Sections 5 and 6 deal with results and discussion, respectively, and lastly, sections 7 and 8 discuss possible implications and conclusions.

2. CULTURAL INTELLIGENCE

Cultural intelligence (CQ) is viewed as one of the multiple types of intelligence, sharing some features with social and emotional intelligence. One major difference between other types of intelligence and CQ is that the new construct concentrates on the role of culture and cultural communications (Morley et al., 2010). Cultural intelligence is defined as an

individual's capacity to function efficaciously in diverse cultural settings (Earley & Ang, 2003). In a similar vein, Brislin, Worthley, and Macnab (2006) assert that the construct delineates people's ability to prosper in multicultural settings by showing cultural awareness of different cultures and revering the common ground of those cultures. Unlike its predecessors, such as social intelligence (SI) and emotional intelligence (EI), CQ is new due to its connection with cultural context, cultural values, cultural systems, and cultural differences. The construct is a relatively new idea applied in different disciplines ranging from entrepreneurial studies, marketing, education, and Translation Studies (Altinay et al., 2020; Xu, Liu & Pang, 2019; Rafieyan, 2016). Over the past few years, the construct has received scholarly attention within the avenues of Translation and Interpreting Studies (T& I Studies); nonetheless, little literature exists within the aforementioned avenues.

Earley and Ang (2003) classified CQ into four distinct domains, including metacognitive, cognitive, motivation, and behaviour. Each domain shows some aspects of the intercultural intelligence of individuals which enable them to function in cross-cultural settings. Metacognitive refers to the mental process by which individuals attempt to understand and learn about other cultures. Cognitive, on the other side, shows individuals' competence in other cultures' practices, norms, and conventions learned through personal experience and education. Motivation enunciates individuals' desire, energy, and attention to grasp knowledge on how to function in distinctively diverse cultural settings. And lastly, behavioural refers to individuals' awareness of the verbal or non-verbal rules of cultural etiquette when interacting with individuals from various cultural settings. More recently, Bücker et al. (2016) summarized these four domains into two separate categories: Mental and action-focused. The mental domain encompasses cognitive and metacognitive domains, whereas the action-focused domain entails motivation and behaviour.

Early studies of CQ tended to envelop individuals' ability to cope with problems in the academic areas, but the recent scientific trend of CQ falls into disciplines other than the classroom setting (Sternberg & Detterman, 1986). Studying stress and anxiety of international travellers, Ramsey, Leonel, and Gomes (2011) asserted that building CQ can decrease the level of strain and stress. It is believed that cultural intelligence exerts an influence on individuals' performance. For instance, Davis (2009) stipulates that building CQ in the Canadian forces can facilitate their success in a multicultural environment.

In 2012, McNab and Worthley attempted to find the correlation between CQ and individuals' characteristics such as management, working

experience, general self-efficacy, and travel experience. They collected samples from 370 managers and management students. The result revealed that CQ is positively associated with general self-efficacy. Rockstuhl et al. (2011) evaluated the effectiveness of CQ in the global market. Their results suggested that CQ is seen as an important element of leadership in the global world.

Considering the characteristics of CQ in the light of previous studies, it is believed that CQ can broaden its horizons far beyond cross-cultural settings to the individuals themselves (Westby, 2007). Brislin et al. (2006) assert that CQ enables individuals to communicate in two different cultural settings, one is in their cultural setting and the other one is in a foreign cultural context. This will eventually lead to finding some similarities between our own culture and those of foreign ones.

2.1   *Cultural Intelligence and Translation*

Cross-cultural studies are immense in educational settings, one of the exponents of which is the study conducted by Boers and Demescheleer (2001). Their sample comprised of 76 French students at the University of Libre de Bruxelles. They wanted to measure the presumed impact of intercultural differences among language learners on their interpretations of imageable idioms. The participants in this study were asked to guess the de-contextualized L2 idioms' meanings, most of which had been said to have an intermediate level of semantic transparency. The result showed that the majority of the respondents were unsuccessful in guessing the idioms' meanings.

Olk (2003) tried to assess the impact of British culture on the translation performance of 19 students of English who had a proficient command of the German language. In this think-aloud protocol study, the participants were questioned about their translation approaches immediately after the task of translation. The text to be translated entailed many cultural references. The results were discussed through the lens of knowledge problems; 57 per cent of the cultural items did not include any knowledge problems, whereas 35 and 8 per cent discerned overt and covert knowledge problems, respectively.

Elyildirim (2008) replicated the study conducted by Olk (2003). In this study, 50 Turkish students majoring in English were asked to translate the text used in Olk (2003). Since the sample size was quite larger than the one used by Olk (2003), TAP was not employed. However, some students were asked about the strategies they used in translating cultural items. Results showed that Turkish students encountered a similar problem in the task of translation, namely cultural references. What is more, they showed difficulty

in apprehending the text. This study added another reason for translating texts embedded into cultural items.

Exploring the effects lying in cultural distance, Rafieyan (2016) pointed to see how cultural distance would affect the translation performance and knowledge of students in the task of translation. To take the purpose in mind, he asked two different groups of students of translation to participate in the study. One group was the German undergraduate students majoring in English translation and the other one was South Korean students. The findings revealed that the farther the distance, the less cultural knowledge the students shared. More precisely, students who had a farther cultural distance shared less cultural knowledge and vice versa.

The effect of CQ and writing ability is also discussed in the educational setting. Peivandi (2011) assessed the relationship between the writing ability of English students in Iran and their level of CQ. The results revealed that two subclasses of CQ (motivational and cognitive CQ) were the predictor of CQ. Furthermore, it is shown that a significantly positive association exists between motivation and cognitive CQ with writing ability.

So far, studies pertinent to the role of CQ in academic performance have addressed various issues such as writing ability, translating cultural items, highlighting cultural knowledge, and so forth. This study, however, draws on the role of CQ and different types of creativity. The next section discusses the role of creativity and its importance in Translation Studies.

3. CREATIVITY

Creativity plays a crucial role in different fields, such as education (Sawyer et al., 2003; Pope, 2005), business (Amanile & Khaire, 2008), and Translation Studies (Ferez & Meseguer, 2018). The concept is well-defined by Amabile (1983) as the novelty of ideas, procedures, products, and performance, ensuring potentiality to individuals or organizations.

Truth be told, creativity, unlike its definition, is difficult to measure and operationalize (Batey & Furnham, 2006). Pretty much in the same vein, Rojo and Meseguer (2018) highlight a long-standing debate over the innateness of creativity. The concept seems to hold two opposing standpoints in the eyes of researchers. Some view creativity as a domain-general trait and some researchers believe that creativity is a domain-specific trait. It is argued that the advocates of the latter hold a strong belief that individuals are specifically creative only in one part, whereas researchers supporting the former share the idea that individuals can be creative not merely in one part, but also, they tend to show creativity in other domains.

A myriad of tests and self-reports have focused on exploring the generic or specific domain of creativity, such as the Inventory of Creative Behaviors (Batey, 2007), the Creative Behavior Inventory short version (Dollinger, 2003), the Biographical and the Creative Achievement Questionnaire (Carson, Peterson, and Higgins, 2005), and Creativity Domain Questionnaire (Kaufman & Baer, 2004). Silvia et al. (2012) evaluate the above-mentioned self-reports. They posit that the Creativity Domain Questionnaire (CDQ) is based on individuals' self-concepts, whereas the other ones concentrate on accomplishments and individuals' observable behaviours. This highlights the importance and applicability of CDQ against those three prominent self-reports. This questionnaire measures individuals' creative preferences (self-concepts), galvanizing other studies such as McConnell and Strain's (2007). Self-concepts in terms of creativity are appealing in that individuals themselves evaluate their traits upon a specific ability, relationship, and so on. The plausible contribution of such self-belief studies shows the crucial role of individuals' decision-making in different contexts (Silvia et al., 2012).

Drawing on what Silvia et al. (2012) believe about different self-reports of creativity, this study is based on Kaufman's (2012) exploratory study, which shows five components of creativity: Everyday/self, mechanical/scientific, performance, scholarly, and artistic. The scale of K-DOCS developed by Kaufman (2012) showed that there is an association between psychological constructs and components of creativity. For example, self/every day, which is defined as self-expression of yourself against other individuals appropriately and originally (Ivcecix & Mayer, 2009), is tantamount to a creative lifestyle (Ivcecix & Mayer, 2009), interpersonal creativity (Kerr & Vuyk, 2013) and interpersonal and intrapersonal intelligence (Gardner, 2000). The self/everyday component shows how individuals are capable of understanding themselves and others and how they communicate in everyday contexts; moreover, this creativity ensures that individuals maintain professional and healthy lives (Kaufman, 2012). Entrepreneurship involves dealing with other business agents in the process of business formation; therefore, creative behaviour plays a significant role in deteriorating the challenges (Fillis & Rentschler, 2010; Ko & Butler, 2007; Morris & Kuratko, 2002). This highlights the fact that self-creativity can be regarded as a relevant construct for boosting the effectiveness of the entrepreneurs' performance (Altinay et al., 2020).

Studies relevant to the association between personality type and translation performance are quite vast in Translation Studies (Bontempo et al., 2014; Karimnia & Mahjubi, 2013; Raees Yazdi, 2013). The Big Five Personality represents a continuum in which individuals can know about

their personality traits. The Big Five is composed of openness, agreeableness, neuroticism, and conscientiousness. Although empirical studies show no consistency of The Big Five with sub-scales of the K-DOCS, some illuminating insights are noteworthy. Batey and Furnham (2006) explore adults' creativity and their personality type. The findings showed that agreeableness, conscientiousness, and openness to experience were positive predictors of daily creativity, whereas neuroticism was a negative predictor. In another study, Batey et al. (2010) showed that the only predictor of creativity was openness to experience, whereas Krum et al. (2018) posited that neuroticism was correlated negatively with general creativity. Despite such discrepancies and inconsistencies, Batey and Furnham (2006) assert that individuals' creativity can be affected by individual differences. Since the scale of K-DOCS has not been used in the field of Translation Studies despite its comprehensive coverage of previous scales such as MBTI and The Big Five Personality Trait, this study enjoys/ benefits from its applicability.

3.1   *Creativity and Translation*

Creativity in the field of Translation Studies has always been on the part of the act of translation (Cifuentes Férez & Fenollar, 2017; Rojo & Ramos, 2016; Rojo & Meseguer, 2018). Rojo and Meseguer (2017) posit that the twentieth century saw translation as an activity of problem-solving that began to immerse the need to define and descry creativity into its avenues. Riccardi (1998) experimented to see the relationship between creativity and experience. The result of his study revealed that professional translators are more creative than student translators. Contrary to what Riccardi (1998) achieved, the study carried out by Tiselius and Jenset (2011) divulged that creativity and experience have a negative correlation; that is, professional translators tend to lose their creativity as they become experienced.

Working on the influence of negative and positive feedback on creativity, Rojo and Ramos (2016) showed that positive feedback affected the creativity of both expert and novice translators; however, novice translators enjoyed more the feedback by showing a higher level of improvement. On the other hand, negative feedback was revealed to be effective in the accuracy of both novice and expert translators, but the strength of which was high in the community of professionals. The study has manifested that experience and creativity are significantly correlated. Albeit, the results are applicable in certain domains, such as audio description.

As stipulated earlier about the correlation between different personality traits and creativity, Hubscher-Davidson (2009, 2013a, 2013b,

2013c) substantiated the previous studies. She showed that emotional intelligence plays a significant role in the outcome of literary translation. Furthermore, she posits that there exists a significantly positive association between emotional intelligence and translation performance. Apart from emotional intelligence, other constructs such as self-efficacy, self-esteem, and negative affectivity pertinent to creativity have been explored in the field. For instance, Bontempo et al. (2014) and Bontempo & Napier (2009, 2011) indicate that traits pertinent to organizational capacity (self-efficacy and goal orientation) are correlated positively to sign language interpreters. Conversely, this trait is negatively correlated to negative affectivity.

Guilford (1950) proposed a model of creativity in Translation Studies that included nine psychological domains of creativity. These nine domains have been curtailed into three domains namely fluency, flexibility, and novelty. Bayer-Hohenwarter (2009, 2010, 2011, 2013) completed this model by adding the domain of acceptability. In this model of creativity, fluency refers to routine behaviour, flexibility is applied concerning translation shifts, novelty shows the presence of unique solutions in the translation, and finally, acceptability refers to the adequacy of translation. Flexibility is a good indicator of creativity in a set of optional translation shifts and obligatory translation shifts such as concentration, modification, and abstraction. Her study suggests that the successful performance of translation is not described by applying a great wealth of creative shifts but by the felicitous competence in knowing when to apply creative shifts in the task of translation (Bayer-Hohenwarter, 2011).

Rojo (2017) calls for a dainty classification of creativity research within the milieu of cognitive Translation Studies as follows: (A) Studying the creative person (Translator), (B) exploring cognitive processes involved in creativity, (C) Studying factors yielding in creativity, and (D) Studying final products (Translation) which is the outcome of those cognitive processes. No study has worked on finding the creative type of translators to see which types of creativity are more applicable to translating and applying creative shifts in the task of translation. This study, subsequently, focuses on the first item of research proposed by Rojo.

4. THE STUDY

The present empirical study intends to determine the role of creativity in translating students' cultural intelligence; that is, what types of creativity are needed when communicating in cross-cultural settings.

4.1   Research questions

RQ1: Is there any relationship between creativity type as general and translation students' cultural intelligence?

RQ2: Is there any relationship between components of creativity and translation students' cultural intelligence?

RQ3: Which of the components of creativity can be a good predictor of translation students' cultural intelligence?

4.2.   Method

4.2.1   Participants

103 translation and interpreting students were asked to participate in the study (N=103). The sample was recruited from both B.A. and M.A. students of translation majoring in Translation Studies at different universities in Iran. Participants' ages ranged from 19 to 36 (M=23.19 years, SD=2.48). Participation in the research was completely voluntary. Since the focus of the study was on Translation Students, no professional translator was reported to take part in the study.

4.2.2   Procedure

The study was conducted from February to March 2021 in Iran. During this period, there was a nationwide lockdown as well as campus closure as per the regulation set forth by Iran's Health Organization because of the Covid-19 pandemic. All universities' classes were being held on online platforms. Following such a critical situation, the researchers collected the data through online data collection tools. The questionnaires were first written in an online survey tool, then the link of which was created (https://porsa.irandoc.ac.ir/s/TZkMDZ). This link was sent to the translation students by their university teachers. In the self-report questionnaire, the researchers explained the general goal of the research in a paragraph and asked the participant to take part in the study. To respect participants' informed consent, an email seeking their consent was sent. Immediately after filling out the consent form, participants were guided to answer questions pertinent to demographic information such as age, gender, languages spoken, stays abroad, and the university. Following demographic information, the participants were first required to respond to the K-DOCS and then the CQ questionnaire. A thank-you email was immediately sent to the participants when they submitted their responses. The researchers ensured that the participants will receive the published paper as soon as it is published. To respect anonymity, participants were coded as numbers. Analyses of the results were performed through IBM SPSS STATISTICS 26.

4.2.3 Instruments

Before measuring participants' creativity type and level of cultural intelligence, Cronbach's alpha reliability indices for cultural intelligence and creativity and its components were gauged. The results showed that the reliability indices were as follows; cultural intelligence (α = 0.82), creativity (α = 0.91), scholarly (α = 0.70), self (α = 0.74), performance (α = 0.86), artistic (α = 0.80) and mechanical-scientific (α = 0.83). It should be noted that Dörnyei and Taguchi (2009) and Tseng et al. (2006) believe that 0.70 is the adequate reliability index for an instrument. This suggests that the instruments employed in this study enjoyed appropriate reliability indices. Table 1 shows the reliability indices for the instruments:

Cronbach's Alpha Reliability for cultural intelligence and components of creativity		
	Cronbach's Alpha	N of Items
Cultural Intelligence	820	20
Creativity	907	50
Self	738	11
Scholarly	695	11
Performance	863	10
Mechanical-Scientific	827	9
Artistic	803	9

Table 1. Cronbach's Alpha Reliability for cultural intelligence and components of creativity
Source. Elaborated by the authors

To measure students' types of creativity, the Kaufman Scale of Creativity (2012) was administered. This scale shows different creativities such as self/everyday, performance, scholarly, artistic, and mechanical/ scientific. The questionnaire is composed of 50 questions. Items 1-11 assess self/everyday creativity, 12-22 measure scholarly creativity, 23-32 gauge performance, 33-41 assess mechanical/scientific, and items 42-50 measure artistic. The items of the questionnaire are arranged on a 5-point Likert scale (from much less creative to much more creative).

To gauge the students' cultural intelligence, Cultural Intelligence Scale (CQS) developed by Ang et al. (2007) was administered. The instrument is composed of 20 questions (items 1-4 for metacognitive), (items 5-10 for cognitive), (items 11-15 for motivation), and (items 16-20 for behaviour). The

items on the self-report are arranged based on a 7-point Likert scale (from strongly disagree to strongly agree).

5. RESULTS

    Before discussing the results of the study, assumptions regarding the lack of multivariate and univariate outliers as well as normality assumptions were examined. The standardized scores (Z-scores) were computed for the components of creativity to check the lack of univariate outliers. As shown in the descriptive statistics for the Z-scores in Table 1, the results indicated none of the variables had Z-scores higher than +/- 3.29 (Tabachnick and Fidell, 2014). This suggests that the present data did not suffer from any univariate outliers. Mahalanobis Distances (MD) was computed to check the lack of multivariate outliers. The data included multivariate outliers because the maximum MD of 26.10 was higher than the critical value of chi-square at 0.001 levels for six variables, i.e., 22.45. An inspection of the data revealed that ID number one, whose MD was 26.10, should be dropped out.

Descriptive Statistics of Standardized Scores; Testing Univariate and Multivariate Outliers					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Cultural Intelligence	103	-2.51	2.12	0.0000	1.00000
Self	103	-2.29	2.21	0.0000	1.00000
Scholarly	103	-2.41	2.59	0.0000	1.00000
Performance	103	-1.58	2.44	0.0000	1.00000
Mechanical-Scientific	103	-1.77	2.46	0.0000	1.00000
Artistic	103	-1.74	2.28	0.0000	1.00000
Mahalanobis Distance	103	0.47	26.10	5.9417	3.82502

Table 2. Descriptive Statistics of Standardized Scores; Testing Univariate and Multivariate Outliers
Source. Elaborated by the authors

    The assumption of normality was checked through skewness and kurtosis indices (Table 3). To see whether the assumption of normality is retained, the skewness and kurtosis indices are supposed to be within the ranges of ± 2 (Bachman, 2005, Bae & Bachman, 2010). As shown in Table 3, the assumption of normality was met in the current study.

Descriptive Statistics; Testing Normality of Data					
	N	**Skewness**		**Kurtosis**	
	Statist	**Statist**	**Std.**	**Statist**	**Std.**
Cultural Intelligence	103	-0.093	0.238	-0.672	0.472
Self	103	-0.227	0.238	-0.215	0.472
Scholarly	103	0.104	0.238	0.234	0.472
Performance	103	0.507	0.238	-0.343	0.472
Mechanical-Scientific	103	0.290	0.238	-0.469	0.472
Artistic	103	0.325	0.238	-0.465	0.472

Table 3. Descriptive Statistics; Testing Normality of Data
Source. Elaborated by the authors

To measure the strength of the correlation between the variables, i.e., creativity scale and cultural intelligence, the Pearson product-moment correlation coefficient was used. The reason for adopting Pearson is that homogeneity of variance and normal distribution were tested (Tables 2 and 3).

5.1   Research question 1

As our first research question, we postulated that a significantly positive association exists between creativity and the level of cultural intelligence. Analysis of the Pearson correlation showed that the correlation between the CQ and the Kaufman Scale of Creativity is 0.49 ($r_p) = 0.49$ at the level of 0.01 ($p = 0.01$). The result indicates that there is a moderate linear relationship between CQ and components of creativity. Table 2 shows the value of the correlation between the two variables.

Correlation between CQ and K-DOCS		
	CR	**CQ**
Pearson Correlation	1	0.499
Sig. (2-failed)	103	0.000
N		103

Note: Correlation is significant at the 0.01 level (2-tailed)
Table 4. Correlation between CQ and K-DOCS
Source. Elaborated by the author

5.2   Research question 2

The second research question seeks to find which of the components of creativity can be perfectly correlated with cultural intelligence. Table 5 shows the correlational matrix among the variables.

Correlations between CQ and sub-domains of Creativity						
	1	**2**	**3**	**4**	**5**	**6**
Cultural Intelligence						
Self/ Everyday	0.448**					
Scholarly	0.468**	0.622**				
Performance	0.382**	0.490**	0.584**			
Mechanical/ Scientific	0.284**	0.263**	0.300**	0.496**		
Artistic	0.343**	0.259**	0.267**	0.596**	0.619**	

Note: Correlation values spotted by double asterisks (**) are significant at p < 0.01

Table 5. Correlations between CQ and sub-domains of Creativity
Source. Elaborated by the authors

Results provided in Table 5 show that two components of creativity are moderately correlated with cultural intelligence. Scholarly and self /everyday creativity are correlated with CQ $(r_p - Scholarly\ and\ CQ) = 0.46$ and $(r_p - Self/Everyday) = 0.49$ at a confidence level of 0.01. Considering the second research question, performance did not have a strong correlation with CQ thus only self/every day is significantly correlated with CQ. Apart from self/everyday creativity, scholarly showed a moderate correlation with CQ. Among other components of creativity, mechanical/scientific appears to have a weak correlation with CQ $(r_p - Mechanical/Scientific) = 0.28$ at the level of 0.01.

5.3   Research question 3

The third research question of the study was to determine which of the components of creativity was the best predictor of cultural intelligence. A linear regression using the backward method was run to predict cultural intelligence through the five components of creativity. As displayed in Table 6, the regression model converged in three steps. All five components of creativity entered the model in the first one. They predicted 34.4% of cultural intelligence (R = 0.586, R^2 = 0.344). The mechanical-scientific component of creativity was excluded in the second step to reduce the percentage of prediction to 33.6%; i.e. (R = 0.580, R^2 = 0.336); and finally, the performance component of creativity was excluded in the third step to reduce the percentage of prediction to 32.8%; i.e. (R = 0.573, R^2 = 0.328). This shows that artistic, self, and scholarly were the three best predictors of cultural intelligence.

Model Summary; Predicting Cultural Intelligence through Components of Creativity				
Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	586[a]	0.344	0.309	0.652
2	580[b]	0.336	0.309	0.652
3	573[c]	0.328	0.308	0.653

a. Predictors: (Constant), Artistic, Self, Scholarly, Mechanical-Scientific, Performance

b. Predictors: (Constant), Artistic, Self, Scholarly, Performance

c. Predictors: (Constant), Artistic, Self, Scholarly

d. Dependent Variable: Cultural Intelligence

Table 6. Model Summary; Predicting Cultural Intelligence through Components of Creativity
Source. Elaborated by the authors

Table 7 displays the results of the ANOVA test of the significance of regression models at the three steps discussed above. The results indicated that the regression model enjoyed statistical significance at first ($F_{(5, 96)} = 10.05$, $p < 0.05$, $\eta^2 = 0.344$ showing a large effect size), second ($F_{(4, 97)} = 12.28$, $p < 0.05$, $\eta^2 = 0.336$ representing a large effect size), and third steps ($F_{(3, 98)} = 15.59$, $p < 0.05$, $\eta^2 = 0.328$ showing a large effect size).

ANOVA Tests of Significance of Regression Models						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.411	5	4.282	10.052	0.000[b]
	Residual	40.896	96	0.426		
	Total	62.307	101			
2	Regression	20.951	4	5.238	12.285	0.000[c]
	Residual	41.355	97	0.426		
	Total	62.307	101			
3	Regression	20.448	3	6.816	15.958	0.000[d]
	Residual	41.858	98	0.427		
	Total	62.307	101	4.282		

a. Dependent Variable: Cultural Intelligence

b. Predictors: (Constant), Artistic, Self, Scholarly, Mechanical-Scientific, Performance

c. Predictors: (Constant), Artistic, Self, Scholarly, Performance

d. Predictors: (Constant), Artistic, Self, Scholarly

Table 7. ANOVA Tests of Significance of Regression Models
Source. Elaborated by the authors

And finally, Table 8 displays the standardized (beta) and unstandardized (b) regression coefficients in three steps. These coefficients show the amount of change in the dependent variable (cultural intelligence) due to changes in any of the predictors in terms of units of measurement (b) and units of standard deviation (beta). For example, the b and beta values for scholarly on the first step were 0.487 and 0.348. The unstandardized regression coefficient of 0.487 indicated that if scholarly increased by one unit, cultural intelligence increased by 0.487 units. On the other hand, the standardized regression coefficient of 0.348 indicated that if scholarly increased by one standard deviation, cultural intelligence increased by 0.348 standard deviations. The t-values associated with regression coefficients can be examined to check the variables that would be excluded in the following step.

The results for the first step indicated that scholarly was the best predictor of cultural intelligence (b = 0.487, beta = 0.348, t = 2.94, $p < 0.05$); whereas, mechanical-scientific (b = 0.099, beta = 0.115, t = 1.03, $p > 0.05$) was the worst predictor of cultural intelligence; that would be excluded on the next step. It should be noted that performance had a negative contribution to cultural intelligence in the first step.

Regression Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	1.628	0.556		2.930	0.004
	Self	0.378	0.155	0.262	2.432	0.017
	Scholarly	0.487	0.165	0.348	2.946	0.004
	Performance	-.143	0.112	-0.171	-1.283	0.203
	Mechanical-Scientific	0.099	0.096	0.115	1.039	0.301
	Artistic	0.202	0.111	0.215	1.827	0.071
2	(Constant)	1.677	0.554		3.029	0.003

	Self	0.375	0.155	0.260	2.415	0.018
	Scholarly	0.487	0.165	0.349	2.949	0.004
	Performance	-0.119	0.109	-0.142	-1.086	0.280
	Artistic	0.254	0.099	0.270	2.568	0.012
3	(Constant)	1.943	0.497		3.906	0.000
	Self	0.344	0.153	0.239	2.251	0.027
	Scholarly	0.409	0.149	0.292	2.750	0.007
	Artistic	0.193	0.082	0.205	2.368	

a. Dependent Variable: Cultural Intelligence

Table 8. Regression Coefficients
Source. Elaborated by the authors

The results for the second step indicated that scholarly was the best predictor of cultural intelligence (b = 0.487, beta = 0.349, t = 2.94, p < 0.05); while, performance (b = -0.119, beta = -0.142, t = -1.08, p > 0.05) was the worst predictor of cultural intelligence; that would be excluded in the third step. Finally, the results for the third step indicated that scholarly was the best predictor of cultural intelligence (b = 0.409, beta = 0.292, t = 2.75, p < 0.05); and artistic (b = 0.193, beta = 0.205, t = 2.36, p < 0.05), and self (b = 0.344, beta = 0.239, t = 2.25, p < 0.05) were the second and third best predictors of cultural intelligence.

6.   DISCUSSION

The present paper seeks to determine which types of creativity can predict translation students' cultural intelligence. Three research questions were formulated to find which types of creativity play a role. Regarding the first research question, a medium correlation was found between students' cultural intelligence and their creativity type in general. Although the value of the Pearson correlation is not a strong correlation, a moderate correlation between the variables is shown. The reason for not having a strong correlation may be due to other components of the scale of creativity. For instance, some translation students might not be adept in creativities such as mechanical or artistic since such creativities require studying other disciplines. Henceforth, in filling out the self-report of the K-DOCS, the students scored lower in some components of the questionnaire. The existing medium correlation provides some insights; first of all, this correlation shows that intercultural mediation requires creativity to some points; that is, elements of creativity and innovation exist in cross-cultural

mediation. Such result substantiates previous findings and is in line with the studies conducted by Adler (2002), Csikszentmihalyi (1988), Cernevičiūtė & Strazdas (2014), all of which highlight and account for the importance of creativity in different modes of cross-cultural communications. Secondly, creativity in intercultural communications can foster the effectiveness of communication (Malyuga et al., 2018; Paul, 2006). In Translation and Interpreting Studies (T&I), cultural intelligence and creativity can make excellent interpreters and translators dealing with other people from various cultures by undergoing less stress, thus ensuring the ultimate goal, namely translation or interpreting (Ghonsooly & Shalchi, 2013; Ramsey, Leonel, & Gomes 2011). More specifically, translators and interpreters with greater creativity scores benefit more from cultural intelligence, which in turn could result in more efficient translating and interpreting practice than those with lower creativity scores. One general explanation may be that the former group may outperform the latter group in recognizing the target cultural norms, values, and differences so that they can make wiser decisions on choosing the most appropriate linguistic items to convey their messages. This may be due to their more efficient mental processes, which could lead to assessing different choices for a particular context and choosing the one which would well match that context. Further research, of course, is needed to see how more creative transition students with higher cultural intelligence ability may differ from those with less creativity and lower cultural intelligence in rendering a highly tangible cultural text or discourse in translating and interpreting contexts.

The second research question sought to see which components of creativity are significantly correlated with students' cultural intelligence. The results showed that two components of creativity, namely scholarly and self/every day, are moderately correlated with translation students' cultural intelligence. Translators and interpreters are involved in translating from one language into another. Culture is an inseparable part of communication among various languages. As self/everyday creativity's definition implies (Kaufman, 2012), it plays a significant role in understanding yourself and others in different modes of communication; it then can be very practical in translators' creativity to interact in various cultural settings. Another correlated component is scholarly. It can be noted that the reason for the such correlation is that translators are supposed to undergo some steps when interacting in different cultural settings. Firstly, they need to come to terms with the basic requirements of their own culture; secondly, they are required to have sufficient knowledge of other cultures to which they are translating. This knowledge cannot be obtained unless they explore and delve more into different cultural norms and customs. Excavating other cultures requires a sense of scholarly and a sense of curiosity to know more.

Generally speaking, for translating or interpreting various modes of culture, two important types of creativity should be taken into account. Firstly, self/everyday creativity is required to show how translators can understand their own culture, other cultures, and ways of interacting with different people. Secondly, the scholarly creativity type can help translators study and find out about other cultures and languages to facilitate the effectiveness of interaction.

The third research question asserts that artistic, self, and scholarly are the best predictors of translation students' cultural intelligence. Since scarce attention has been paid to the role of cultural intelligence and creativity in the field of Translation and Interpreting, no prior research has focused on such an idea before. Studies explored the correlation between creative lifestyle (Ivcecix & Mayer, 2009), interpersonal and intrapersonal intelligence (Gardner, 2000), interpersonal creativity (Kerr & Vuyk, 2013) can be said to be echoed in one of the predictors of cultural intelligence, i.e., self/everyday creativity. Furthermore, as enunciated in the second research question, scholarly and self/everyday creativity showed a moderate linear correlation with cultural intelligence. The analysis of multiple regression introduced other components of creativity, i.e., artistic, which can also predict translators' cultural intelligence. The result would suggest that apart from being cognizant of cultural norms and different modes of interaction and exploring them, translators are required to have a sense of artistic creativity in cross-cultural communications.

7. LIMITATIONS AND IMPLICATIONS

The results of the study might exert a pivotal role in the translation industry and pedagogy. Following the results, some practical implications can be assumed. Before entering the course on translation and interpreting, students can measure their type of creativity to see how much they are talented in different components of creativity; this may enhance the efficaciousness of their contribution, thus ensuring short and long-term success in the field of translation and interpreting. For instance, Walczynski (2020) suggests that admission into the courses of translator training should be preceded by aptitude tests. In a similar vein, gauging the creativity of translators before entering into a course might facilitate their success. Such ideas are also discussed and suggested by scholars such as Timarová & Salaets (2011), Schweda Nicholson (2005), and Zannirato (2013). Another implication can be on the part of translation agencies. Based on translation agencies' regulations in different parts of the world, translators must fulfil some courses and workshops to be competent to work in the industry. Commissioners and authorities of translation agencies can introduce the idea of creativity type before any official examination to see if the candidates

can be ideal for the job. Taking into consideration the level of cultural intelligence and the type of creativity, translators and interpreters can flourish in their would-be future aims and goals, such as working in agencies. Nonetheless, some limitations can be put forth concerning the finding of the study. Firstly, it could have been noteworthy if the study had incorporated the actual translation performance to see the effect of creativity and cultural intelligence on translation performance. Secondly, the issue of generalizability is at stake due to the relatively small sample size. To generalize the findings, a larger sample size is needed in future studies. Thirdly, this quantitative self-reported study might weaken or deteriorate the power of statistical analysis; thus, a qualitative approach such as portfolio information and interview can be applied to enrich the interpretation and understanding of findings (Yang & Wang, 2020).

8. CONCLUSION

Translators and interpreters are constantly involved in translating from one language into another. The nature of translating incorporates the concept of culture; hence, translators are dealing with both languages and cultures simultaneously. Dealing with different cultures and translating them is not feasible without meeting some cultural requirements. These requirements are felicitously manifested in cultural intelligence. Cross-cultural interactions require creativity to some extent. The focus of the present study was to see what types of creativity, i.e., scholarly, self/everyday, artistic, mechanical/scientific, and performance postulated by Kaufman (2012) can predict translators' cultural intelligence in cross-cultural interactions. The findings revealed that scholarly, self/every day, and artistic are the best predictors of translators' cultural intelligence. We hope that the findings can serve a twofold contribution: one is to help extend the body of knowledge on translation and cultural studies; secondly, we hope that such findings can pave the way for further studies in the field.

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