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Cultural Intelligence: Measuring the CQ level in a Portuguese university

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Master's degree in, International Studies

Supervisor:
PhD., Álvaro Augusto Rosa, Associate Professor w/ Aggregation,
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I would like to express my gratitude to the ISCTE professors for take their own time to answer my survey and specially for the professors who contributed and showed interest in some way in this study. While most societies do not value their professors to change the world, you keep changing and inspiring someone's world every day.

ABSTRACT

The objective of this thesis is to discover the cultural intelligence (CQ) level of ISCTE professors and their cross-cultural effectiveness through the comparison and validation of two constructs ICK & ECF two-factor model and the four-factor Cultural Intelligence Scale (CQS) using a self-report survey, involving Metacognitive, Cognitive, Motivational and Behavioral aspects. The respondents are professors in the University Institute of Lisbon – ISCTE-IUL, in Portugal. That is, professors with foreign experience and contact frequency with other cultures.

The understanding of cultural intelligence (CQ), which according to Ang & Van Dyne (2008), and Earley & Ang (2003) is the capability to function effectively in intercultural contexts, is the core of this work. Therefore, one may find the theoretical part written chronologically with selected references by the researcher to build the conceptual framework. To support the empirical research a quantitative methodological analysis using SPPS was performed. Farther, the results are analyzed to identify more characteristics of the sample.

Finally, findings shows that the original CQ model was the best one to analyze the data and the alternative model could not been validated. Also, surprisingly the time spent abroad and cultural intelligence do not have a significant relationship. This study delivered the cultural intelligence level and effectiveness of the university professor from ISCTE-IUL.

Keywords: Cultural Intelligence (CQ); CQS; Culture; Intelligence.

RESUMO

O objetivo desta dissertação é conhecer o nível de inteligência cultural (CQ) dos professores do ISCTE e a sua eficácia intercultural por meio da comparação e validação de dois constructos, o modelo ICK & ECF de dois fatores e da Escala de Inteligência Cultural (CQS) de quatro fatores por meio de uma pesquisa de autorrelato, envolvendo aspetos Metacognitivos, Cognitivos, Motivacionais e Comportamentais. Os respondentes são docentes do Instituto Universitário de Lisboa - ISCTE-IUL, em Portugal, ou seja, docentes com experiência estrangeira e frequência de contacto com outras culturas.

A compreensão da inteligência cultural (CQ), que segundo Ang & Van Dyne (2008), e Earley & Ang (2003) é a capacidade de funcionar eficazmente em contextos interculturais, é o cerne deste trabalho. Portanto, pode-se encontrar a parte teórica escrita cronologicamente com referências selecionadas pelo pesquisador para a construção do

quadro conceitual. Para dar suporte a pesquisa empírica foi realizada uma análise metodológica quantitativa utilizando o SPPS. Em seguida, os resultados foram analisados entre si para identificar mais características da amostra.

Finalmente, os resultados mostram que o constructo original foi o melhor para analisar os dados e o modelo alternativo não pôde ser validado. Além disso, surpreendentemente, o tempo passado no exterior e a inteligência cultural não têm uma relação significativa. Este estudo entregou o nível de inteligência cultural e eficácia do professor universitário do ISCTE-IUL.

Palavras-chave: Inteligência Cultural (CQ); CQS; Cultura; Inteligência.

INDEX

GLOSSARY

CQ – Cultural Intelligence.

CQS – Cultural Intelligence Scale.

ECF – Effective Cultural Flexibility.

ICK – Cultural Knowledge Intelligence.

KMO – Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

ISCTE – University Institute of Lisbon.

SPSS - Statistical Package for the Social Sciences.

1. INTRODUCTION

Doubt is the beginning not the end of wisdom.
George Iles.

We currently live times which personal contact is not recommended due to the global health crises yet people around the globe are still close from each other. We manage to keep it working in an acceptable way and despite the lack of face-to-face contact the technology took the role of connecting people –even more than before–, whether to work, study or meet friends. Nevertheless, does not matter if people interact face-to-face or through some technology, the cultural aspects of one's life still have a huge role in decision making, conflict management, cultural adaptation, sociocultural adjustment, psychological well-being, task performance, leadership performance, relationships, and every other daily basis situation which involves people with different cultural backgrounds. It is valid to say that even when face-to-face interaction is not available, the cultural shock happens anyway. Therefore, to overcome these cultural differences and to be successful in a global context, this work suggests that people should have a high level of Cultural Intelligence (CQ), defined by Ang & Van Dyne (2008), and Earley & Ang (2003) as the capability to function effectively in intercultural contexts.
Ang, Van Dyne, & Rockstuhl (2015) believe that understanding why some people can function more effectively in intercultural contexts than others has never been more crucial than today. But before understanding "why", first one shall introduce two core concepts, "Culture" and "Cultural Intelligence".

First, one need to understand the concept of culture and how it is related with cultural intelligence. In order to deeper our knowledge in this concept the well-known book Cultures and Organizations: Software of the mind by Hofstede, which objective is to help in dealing with the differences in thinking, feeling, and acting of people around the globe. Finally, the book Culture: A critical review of concepts and definitions, by Kroeber and Kluckhon.

The second concept is based on the chapter six of the book Culture & Psychology, "Cultural Intelligence: Origins, Conceptualization, Evolution, and Methodological Diversity", written by Soon Ang, Linn Van Dyne and Thomas Rockstuhl, in 2015. In this chapter, the authors not only talk about the Cultural Intelligence (CQ) evolution, but also emphasize the importance of the theme in people's lives. This chapter is divided in four parts: origin of their research program, CQ conceptualization, evolution of empirical research on CQ, and increasing methodological diversity in CQ research. Another source

that one cannot fail to quote is “Handbook of Cultural Intelligence Theory Measurement and Application”, 2008, by Ang and Dyne, which fulfil the same goal as the chapter above, but with a more up to date view. At last, but not least, Earley (2002) in “Redefining Interactions Across Cultures and Organizations: Moving Forward with Cultural intelligence”, focused on introduce and explore the implications of cultural intelligence (CQ), a construct intended to improve understanding of intercultural interactions.

Also, one will investigate what is news in this area and some important characteristics that must be observed in the field and its evolution, through the lens of most recent papers in well-known journals. In order to do so, a theory-based review is needed. This literature review is composed with papers select by the author on the Web of Science, Scopus, Elsevier, Online Knowledge Library (b-on) and Google Scholar platforms, and the papers are briefly introduced below.

The oldest paper found was published on Elsevier Science by Earley, 2002, named Redefining Interactions Across Cultures and Organizations: Moving forward with Cultural Intelligence, by Christopher Earley. The author discusses the implications for cultural intelligence in key aspects of international organizations, motivated specially by the terrorist act on September l1th, 2001, in the United States. Among the core questions asked is why would people hate Americans enough to inflict such a toll on its citizens? His focus in this writing is to introduce and explore the implications of cultural intelligence (CQ), a construct intended to improve understanding of intercultural interactions.

Published on the well-known Harvard Business Review, by Earley and Mosakowski, 2004, entitled “Cultural Intelligence”. This paper carries theories about cultural intelligence and its sources, but most important it brings to the table the first tool that allow us to measure the level cultural intelligence level in people using three facets, cognitive, physical, and emotional/motivational. It is known that the cultural intelligence model often is presented with four facets instead of three, however it was only the beginning of this theory.

Our third paper from 2006 written by Ng and Earley, named “Culture + Intelligence: Old Constructs, New Frontiers”. The authors enlighten two streams, the first one is the “Cultural Variation of Intelligence” (Berry, 1974; Ferguson, 1956; Sternberg, 1985) and the concept called “Cultural Intelligence (CQ)” (Earley, 2002; Earley & Ang, 2003; Thomas & Inkson, 2004) and their goal is to reconcile and integrate both

approaches under a broader framework that considers the universal and culture-specific aspects of intelligence.

In 2009, with the cultural intelligence theme well-founded, the authors Ng, Dyne and Ang integrate research on experiential learning and cultural intelligence to propose a process model that focuses on how leaders translate their international work assignment experiences into learning outcomes critical for global leadership development, through the paper "From Experience to Experiential Learning: Cultural Intelligence as a Learning Capability for Global Leader Development". And, for the first-time cultural intelligence is viewed as a moderator.

The cultural intelligence field starts to draw attention in several other fields of study, for example, in 2011, Rockstuhl, Seiler, Ang, Dyne and Annen wrote the paper "Beyond General Intelligence (IQ) and Emotional Intelligence (EQ): The Role of Cultural Intelligence (CQ) on Cross-Border Leadership Effectiveness in a Globalized World", which showed the CQ concept and its importance into the military/cross-border field.

Ang, Rockstuhl and Tan, 2015 brings to light why some people excel in intercultural contexts whereas others do not, through the paper "Cultural Intelligence and Competencies". This paper is an overview of the cultural intelligence and other theories that can be related with CQ, e.g., other forms of intelligence or personality traits, also, shows the CQ as mediator or moderator and its own outcomes.

In 2015 Bücker, Furrer and Lin published on the International Journal of Cross-Cultural Management their broke up with the previous/very used four-factor model developed by Ang and Koh (2008) affirming that the model have some problems and they propose to change it into a two-factor model in order to solve the issues from the previous one. But the two-factor model still must be tested in other cultural contexts than the Chinese, in which they ground their research.

As happened in 2006, Andresen and Bergdolt, 2016 in "A systematic literature review on the definitions of global mindset and cultural intelligence: merging two different research streams", they compare two streams, but instead of reconciling and integrating both theories, the authors used them as complementary and claim that cultural intelligence cannot be applied in strategic or normative decisions, only operative management who mainly apply predetermined processes and do not have to consider business complexities.

So far, the article "Cultural Intelligence: A Review and New Research Avenues" written in 2016 by Ott and Michailova give us the broadest view about the cultural

intelligence field. They review 73 conceptual and empirical articles, from 2002 to 2015 in management and international business journals as well as in education and psychology. The authors discuss two distinct conceptualizations of CQ, developments within the conceptual research, and opportunities for further theorizing. They also cluster the empirical studies based on how CQ was used and identify patterns, achievements, and challenges within the literature.

In 2016 Presbitero could not be more up to date. In his paper "Cultural intelligence (CQ) in virtual, cross-cultural interactions: Generalizability of measure and links to personality dimensions and task performance" the author highlights the relevance of cultural intelligence (CQ) as an intercultural capability in cross-cultural communications that are virtual.

Following the same line of thinking, Li, Rau, Li and Maedche, 2017, studied about "Effects of a Dyad's Cultural Intelligence on Global Virtual Collaboration". Their purpose was to examine the effects of the cultural intelligence of a dyad (a team of two persons) on its global virtual collaboration processes and outcomes.

With another review in the field, Fang, Schei and Selart, 2018, entitled "Hype or hope? A new look at the research on cultural intelligence", help us to reveal the true potential of CQ in contemporary organizations and thus, affirm that the promise of CQ is more than just hype.

Due to the explosion of research on cultural intelligence, Rockstuhl and Dyne, 2018 "A bi-factor theory of the four-factor model of cultural intelligence: Meta-analysis and theoretical extensions", explicate the benefits of conceptualizing and modeling CQ as a bi-factor model where each factor provides both unique and holistic information. They also advance and test a theoretical model delineating differential relationships between the four CQ factors and three forms of intercultural effectiveness.

To understand how this theory can be applied nowadays one bring the paper "Cultural Intelligence of the Jordan Teachers and University Students from the Hashemite University: Comparative Study", 2019, by Mahasneh, Gazo and Al-Adamat. They aimed to compare the level of cultural intelligence among teachers and university students, and to define whether there are statistically significant differences in the level of cultural intelligence due to gender variables.

The most up to dated article so far was written by Presbitero in 2021, named "Communication accommodation within global virtual team: The influence of cultural intelligence and the impact on interpersonal process effectiveness". His study establishes

and examines cultural intelligence (CQ) and how it can relate and influence a global virtual team (GVT) member's interpersonal process effectiveness.

After introducing the theme and deeper understand its importance, this work also aims to show how to measure the CQ level in individuals, since according to Ang, Van Dyne, & Rockstuhl. (2015) the research on CQ has evolved rapidly […] over the past 10 years, CQ has developed from a theoretical concept to a measurable construct with strong psychometric properties and evidence of construct validity.

Once seen how to measure the CQ level in individuals this research aims to find a model or a construct and apply it, based on several authors, that allow us to measure the CQ level of professors from the Lisbon University Institute - ISCTE-IUL.

At least three major issues come to mind regarding this matter, first is that ISCTE-IUL is a global university, and it receives students from all over the world, thus it is important to measure the professors' level of CQ. The knowledge transfer is a double way path, on one side the professors must be ready to deal with multicultural classes but on the other hand the students also must be prepared to overcome the acculturative difficulties that may come as a result of a multicultural context.

Most of the articles related to cultural intelligence and knowledge transfer have been showing interest only on business, managers and employees expatriates leaving aside the exactly place where most of them start their career: in the universities.

So, in short, this work intends to answer why cultural intelligence is relevant to the society, what the researchers are looking into lately, get to know how the cultural intelligence field of research is configured through the literature review, contribute to the growth of academic-scientific production on cultural intelligence related to its genesis in universities, and finally, use a model based on the cultural intelligence theories in order to apply it and answer the following question: Do ISCTE-IUL professors have a well-developed level of cultural intelligence (CQ)?

This thesis is organized as follow: (2) history and conceptual framework; (3) literature review and current research in the cultural intelligence field; (4) research model and methodology; (5) analysis and presentation of results; and finally, (6) discussion, conclusions, and final considerations.

2. HISTORY AND CONCEPTUAL FRAMEWORK

Observation and theory get on best when they are mixed together, both helping one another in the pursuit of truth.
Sir Arthur Stanley Eddington

Before developing the cultural intelligence theory applied in the university context first it is necessary to clarify and define culture and its importance for this thesis. To do so, one brings Triandis (1972) which propose that culture is composed by objective and subjective components. Ang, S. and Inkpen, A., C. (2008) explain that objective culture describes what we can see – the observable and visible artifacts of cultures, which include the human-made part of the environment; the economic, political, and legal institutions; as well as social customs, arts, language, marriage, and kinship systems.

Other stream gained strength with Hofstede (1980) and remains the main theory so far, which affirms that culture is the collective programming of the mind that distinguishes the members of one group or category of people from others, based on Kluckhohn (1951) Culture consists in patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values. In other words, while Triandis (1972) believes that culture is more practical and extrinsic, Hofstede (1980) thinks in culture as an abstract and intrinsic factor.

Hall and Hall (1990) state that culture can be likened to a giant, extraordinary complex, subtle computer. Its programs guide the actions and responses of human beings in every walk of life and Schein (2010) concludes that a better way to think about culture is to realize that it exists at several levels, and that we must understand and manage the deeper levels.

Following these affirmations above, one arrives in two models, first the one created by Hall and Hall (1990), called The Iceberg Model of Culture[1]. In this model the authors affirm that culture should be understood in two levels, visible and invisible – the first one is the explicit way in an external level, that is, the customs and behaviors that one can see, hear e/or touch. It has basically four main characteristics, it can be explicitly

[1] The Iceberg Model of Culture is shown in the Appendix.

learned, it is conscious, can be easily changed and it is an objective knowledge. For example, clothes, food, holiday customs, music, language, visual arts, dance, etc.

On the underside, one may see the tacit way in an internal level, in other words, words, traditions, beliefs values and assumptions, which is implicitly learned, unconscious, difficult to change and it is a subjective knowledge. Good examples of these would be communications styles, notions of courtesy, family, attitude toward elders, sexuality, marriage, decision making, problem solving, death, religion, etc.

The second model is the "Onion": Manifestations of Culture at Different Levels of Depth[2], developed by Schein in the 1980s and popularized by Hofstede (2010), this construct has four layers, pictured as the skins of an onion, neatly composed by Symbols, Heroes, Rituals and Values. The first/most superficial layer are the symbols, which according to Hofstede (2010) are words, gestures, pictures, or objects that carry a particular meaning that is recognized as such only by those who share the culture. The words in a language or jargon belong to this category, as do dress, hairstyles, flags, and status symbols. New symbols are easily developed, and old ones disappear; symbols from one cultural group are regularly copied by others. Therefore, symbols have been put into the outer, most superficial layer.

Going into the model, the next layer are the Heroes, which the author states that are persons, alive or dead, real, or imaginary, who possess characteristics that are highly prized in a culture and thus serve as models for behavior. Even Barbie, Batman, or, as a contrast, Snoopy in the United States, Asterix in France, or Ollie B. Bommel (Mr. Bumble) in the Netherlands have served as cultural heroes.

Delving a little deeper one may see the Rituals, defined by Hofstede (2010) as collective activities that are technically superfluous to reach desired ends but that, within a culture, are considered socially essential. They are therefore carried out for their own sake. Examples include ways of greeting and paying respect to others, as well as social and religious ceremonies. Business and political meetings organized for seemingly rational reasons often serve mainly ritual purposes, such as reinforcing group cohesion or allowing the leaders to assert themselves. Rituals include discourse, the way language is used in text and talk, in daily interaction, and in communicating beliefs.

Before show the deepest part of culture in the "Onion" example, it is worth to mention the main difference between the "Iceberg model" and the "Onion model". While

[2] The "Onion" model is shown in the appendix.

in the “Iceberg” one has the visible and the invisible part of culture very well defined, in the “Onion” Hofstede (2010) says that the symbols, heroes, and rituals have been subsumed under the term practices. As such they are visible to an outside observer; their cultural meaning, however, is invisible and lies precisely and only in the way these practices are interpreted by the insiders. In other words, they are not separated from each other.

Finally, the Values considered as the core of the culture, and due to the acceptance of this Hofstede’s theory, the most famous/most used stream of thinking for a long time now, conceptualized by Hofstede (2010) as broad tendencies to prefer certain states of affairs over others, acquired early in our lives. Values are feelings with an added arrow indicating a plus and a minus side. They deal with pairings such as evil versus good, dirty versus clean, dangerous versus safe, forbidden versus permitted, decent versus indecent, moral versus immoral, ugly versus beautiful, unnatural versus natural, abnormal versus normal, paradoxical versus logical, irrational versus rational. That is, Values are basic convictions that people have regarding what is right and what is wrong, good and bad, important or unimportant. These values are learned from the culture in which the individual is reared, and they help to direct the person’s behavior.

One must question, why is this important to study and learn about cultural intelligence? The answer resides in the fact that no group can escape culture. Hofstede (2010) exemplify as follow, if you were caught in a gale at sea and found yourself stranded on an uninhabited island with twenty-nine unknown others, what would you do? If you and your fellow passengers were from different parts of the world, you would lack a common language and shared habits. If one extrapolates the uninhabited island example to one’s real lives, one may realize that if one is not currently living in this island, one is at least getting there, since the access and contact between cultures is becoming easier and even more necessary on a daily basis.

Now that the basic theory of culture was explained, it is time to better understand the dimensions of culture. Once again one turns to Hofstede to illuminate the path through his insights on the topic, specifically his study about the five dimensions of culture, empirically found and validated. There are five dimensions, as explained by Hofstede (2001) Power distance, which is related to the different solutions to the basic problem of human inequality. Uncertainty avoidance, related to the level of stress in a society in face of an unknown future. Individualism vs. Collectivism, which is the integration of individuals into primary groups. Masculinity vs. Femininity, which is related to the

division of emotional roles between men and women. And, finally, Long-term vs. Short-term orientation, which is related to the choice of focus for people's efforts: the future or present.

There is still another dimension that was conceptually associated with uncertainty avoidance, but Hofstede did not find objective ways of measuring it, which is Indulgence vs Restraint. According to Hofstede (2010), Indulgence stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its opposite pole, restraint, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms.

Knowing these basics, yet complexes, culture specifics help one to open the eyes for a new world and start to be aware of all these differences between the others, which on the one hand it is beautiful, but on the other hand it can be difficult to deal with – whether in an informal context, at work and even within the classroom. These cultural nuances were always there, however nowadays it is more evident since it is easier to connect with people around the world. So, when one decides to explore, negotiate with, or live in another country, state, and even city where one has not grown up and do not know well, one may act or speak inappropriately without realizing it. In the professional sphere, one might cause discomfort, even repulsion, in others and lose business deals simply because one does not know fundamental elements of the social environment. One may then lack the ability to relate and work effectively between cultures. In other words, one lacks Cultural Intelligence (CQ).

Therefore, this thesis will present in the following chapters the Cultural Intelligence concepts, its applicability in several areas, its evolution over the years, and a field research in a Portuguese university, which receives students from all over the world.

3. LITERATURE REVIEW

He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may cast.
Leonardo da Vinci

Culture linked with intelligence is not a new issue in the academic world, and together with other types of intelligence like social intelligence, emotional intelligence, and practical intelligence these topics emerged from the academic world to the "real world" specially motivated by the practical reality of globalization in the workplace, according to Earley and Ang (2003). It is worth to mention that according to Dyne, Ang and Koh (2008) CQ differs from other types of intelligence, such as IQ and EQ, because it focuses specifically on settings and interactions characterized by cultural diversity.

The definition of cultural intelligence, or CQ, was carved by Earley (2002), based on Sternberg and Detterman's (1986) multidimensional perspective of intelligence, as a person's capacity to adapt to new cultural settings based on multiple facets including cognitive, motivational, and behavioral features. Ng and Earley (2006) complemented that CQ can be developed and enhanced through intervention, and it is a capability that is posited to predict, but is distinct from, the actual outcome arising from a specific situation or episode of interaction. In other words, Ng and Earley (2006) believe that in general, individuals with high CQ are likely to adapt faster and more effectively, although the presence (or absence) of other factors may alter this relationship. However, an individual who is effective in a particular cross-cultural situation should not be presumed to have high CQ, as such a judgment is based purely on the outcome of effectiveness, and not from an analysis of the individual's relevant capabilities.

This concept could not be more related with the meaning of intelligence itself, which was given by Schmidt and Hunter (2000), among others, as the ability to grasp and reason correctly with abstractions (concepts) and solve problems.

The concept spread quickly through papers and Earley and Mosakowski (2004) ratify this topic affirming that while it shares many of the properties of emotional intelligence, CQ goes one step further by equipping a person to distinguish behaviors produced by the culture in question from behaviors that are peculiar to particular individuals and those found in all human beings. So, if culture can be considered the step further for CQ, this issue shall be also discussed on the next chapters too.

Soon after the emergence of the CQ concept Earley and Ang (2003) took the next step affirming that CQ is a multidimensional concept that includes metacognitive, cognitive, motivational, and behavioral dimensions. What started with a three factor construct now is a multifactor construct, well explained and structured. Ang and Dyne (2008) clarify that the Meta-cognitive CQ reflects the mental capability to acquire and understand cultural knowledge. Cognitive CQ reflects general knowledge and knowledge structures about culture. Motivational CQ reflects individual capability to direct energy toward learning about and functioning in intercultural situations. Behavioral CQ reflects individual capability to exhibit appropriate verbal and nonverbal actions in culturally diverse interactions.

Ng and Earley (2009) agreed with Ang and Dyne (2008) when they sum up the four CQ factors, metacognition (cognitive strategies to acquire and develop coping strategies), cognition (knowledge about different cultures), motivation (desire and self-efficacy), and behavior (repertoire of culturally appropriate behaviors).

Also, Ang and Dyne (2008) understand that the dimensions of CQ may or may not correlate with one another. This implies that the overall CQ construct may be best conceptualized as an aggregate multidimensional construct, that is, these dimensions are different types of capabilities that together form the overall CQ construct.

Despite of having a lot of streams linked to cultural intelligence Dyne, Ang and Koh (2008) affirm that none of them was specifically focused on the individual level capabilities to function effectively in situations characterized by cultural diversity. So, to strength the CQ conceptual foundation and psychometric measures they developed and validated the first Cultural Intelligence Scale (CQS).

The first CQS[3] is a self-report scale and it was created with 40 items and after comprehensive series of specification searches Dyne, Ang and Koh (2008) excluded items with high residuals, low factor loadings, small standard deviations or extreme means, and low item-to-total correlations, therefore only 20 items were retained with the strongest psychometric properties as the CQS: four meta-cognitive CQ, six cognitive CQ, five motivational CQ, and five behavioral CQ.

The CQS from Dyne, Ang and Koh (2008) is still the most used one and its validity is confirmed in several countries around the world, however Bücker, Furrer and Lin (2015) warn that the preliminary tests of the CQS are encouraging, such that the

[3] The first CQS is shown in the Appendix.

reliability and convergent validity of the scale and its dimensions demonstrate acceptable properties. On the other hand, most validation studies rely on samples of respondents with limited overseas experience, and few of them report the discriminant validity of the four-dimensional CQ structure, despite indications of high correlations between these dimensions, which might cause multicollinearity issues when using the scale to assess performance measures.

In order to overcome these issues Bücker, Furrer and Lin (2015) found that the CQ construct is best represented by two dimensions with adequate psychometric properties. They label these two dimensions: ICK, which is the Metacognitive combined with Cognitive item, and ECF for its part is the Motivational and Behavioral items combined. In other words, the first Dyne, Ang and Koh (2008) model that was built on four dimensions with twenty self-reported affirmations, now is a two-dimensional[4] construct reduced to a twelve self-reported scale. According to the authors, despite of their research limitations, which is the use of self-reported CQ measures, comprehensive series of specification searches, and data from cross-culturally experienced respondents from only one country (China) the discriminant validity and possible multicollinearity are solved. However, the authors affirm that it is necessary to assess their psychometric properties with samples from more countries and different parts of the world, such as Europe, the Americas, and Africa.

Therefore, based on the information brought so far, despite of the current unfinished empirical methods discussion, CQ has been evolving over the years and its importance has been proven in several areas, for example, in Rockstuhl, T., Seiler, S., Ang, S., Van Dyne, L., & Annen, H. (2011) showed the critical importance of CQ in predicting leadership effectiveness in cross-border contexts.

Presbitero (2016) highlighted that the four-factor model by Ang and Koh (2008) structural validity of the four-factor CQ model was supported with minor issues in some of the items indicating the need to modify the CQ measure when utilized in the virtual context and CQ predicts task performance highlighting the importance of developing CQ among call center representatives and other working professionals who virtually engage and interact with clients and customers from culturally diverse backgrounds.

Cross-border contexts usually is a conflict area, but what if one tries to apply the CQ on the Global Virtual Collaboration? Li, Y., Rau, P.-L. P., Li, H., & Maedche, A.

[4] The Two-Dimensional model is shown in the Appendix.

(2017) clarify that cultural intelligence influences global virtual collaboration; the lower cultural intelligence and the higher cultural intelligence in a dyad exert different effects on global virtual collaboration. Specifically, the lower cultural intelligence significantly influences the frequency of collaborative behaviors, which further influence group satisfaction. In contrast, the higher cultural intelligence significantly influences the deliverable quality.

More recently Mahasneh, A. M., Gazo, A. M. & Al-Adamat, O. A. (2019) tried to apply a similar idea of this thesis, which is to compare the level of cultural intelligence among teachers and university students, but in their paper, they did not consider the Bücker, Furrer and Lin (2015) affirmations and follow the previous model from Ang and Koh (2008). Nevertheless, this shows that CQ is finding its way into the universities, which can be considered the ignition point for the development of CQ, rather than being applied just outside of it, which is ironic given that CQ studies are still relatively new in the "real world", that is, outside the academic world.

This literature review could not leave out the most recent event which has been influencing all world and changing the way of working. Due to the Covid-19 global virtual teams are increasingly common, therefore Presbitero, A. (2021) found that a global virtual member's CQ relates positively and significantly to effectiveness on both interpersonal processes of synergy and direction. Furthermore, results showed that communication accommodation of a GVT member is influenced by CQ which consequently impacts both effectiveness on interpersonal processes of synergy and direction.

The present literature review aimed to contribute to the Cultural Intelligence field of research and to show its importance in the most varied areas from conflict resolution to knowledge transfer, and to demonstrate how the concept has been developing over the years since its first formal emergence in 2002 until the most updated version which can be applied even in a global virtual context, so needed nowadays. Also, looking into the past was essential to ground this research and to understand what stream should be followed to apply the theory the best way possible in the next chapter, which will show the field research in a Portuguese University. Now, with the core concepts well established, it is time to clarify the research model and methodology that this work will follow.

4. RESEARCH MODEL AND METHODOLOGY

All research is a practical activity requiring the exercise of judgement in context; it is not a matter of simply following methodological rules.
Hammersley and Atkinson

4.1 INTRODUCTION

In this chapter one begins the Cultural Intelligence (CQ) empirical study, based on the questionnaire developed by Bücker, Furrer and Lin (2015) and the Cultural Intelligence Scale (CQS) self-report by Dyne, Ang and Koh (2008). It was conducted a survey with professors from the University Institute of Lisbon (ISCTE) with foreign experience, which is important according to Bücker, Furrer and Lin (2015) because the samples used in most CQ studies tend to consist of respondents with little cross-cultural experience which could threaten the validity of their results. Also, the authors suggest that the original CQS does not fit this analysis. So, this thesis also tested the original four-dimensional CQS[5] versus the two-dimensional model[6] proposed by them.

4.2 SAMPLE

The sample is composed by 140 professors from University Institute of Lisbon (ISCTE), with overseas experience and contact frequency with other culture, mainly through work and/or study. The link for the survey was sent through email found in the ISCTE official website, in which contain the email accounts of the ISCTE professors. In total, 500 emails have been sent, with 140 surveys fully answered. The choice of professors as respondents instead of students, for example, resides in the fact that according to Huang et al. (2012) sufficient foreign experience is necessary to fully understand the subtleties of the items and accurately respond to the survey.

4.3 QUESTIONNAIRE

The questionnaire was created and applied through an online platform called "SurveyMokey". The respondents received it in a web link which make the response easier because it can be answered even using a smartphone, and, especially for the current situation, contactless.

This survey is divided in three parts and all the questions are mandatory, that is, the platform will not allow the respondent to finish it without answering all the questions.

[5] Item 3 appendix.
[6] Item 4 appendix.

First, the demographic questions, Gender (Male, Female or Other); Age (Less than 25 years old, between 25 and 30 years old, between 31 and 40 years old, between 41 and 50 years old, and more than 50 years old); Education (bachelor's degree or less, master/MBA, and PhD); Time spent abroad (How long have you lived/studied/worked outside your home country in total?), which uses six categories (less than 3 months, 3–6 months, 6–12 months, 1–3 years, 3–5 years, and more than 5 years); and contact frequency, using the categories "seldom," "occasionally," "often," and "all the time. And these last two questions of the second part defined if the respondent has enough experience to be part of the final analysis.

Second, the Dyne, Ang and Koh (2008) CQS version divided in four dimensions (Metacognitive, Cognitive, Behavioral and Motivational) with twenty items, four metacognitive items, six cognitive, five motivational and five behavioral. It is worth to mention that all CQS items were measured on 7-point Likert-type scales, ranging from 1 (strongly disagree) to 7 (strongly agree).

Still following the steps of Bücker, Furrer and Lin (2015), the third part contains three questions to measure the effectiveness of the respondents' communication behavior across national cultures, also as a self-report, based/adapted from Hammer, Gudykunst and Wiseman (1978). These authors' results suggest that to understand if the person consider his/her experience abroad satisfied one must measure three factors, ability to deal with psychological stress, ability to effectively communicate and ability to establish interpersonal relationships. So, this survey presents three questions (Considering the following factors: frustration, stress, anxiety, different political systems, pressure to conform, social alienation, financial difficulties, and interpersonal conflict. How effective were/are you in dealing with the psychological stress?; How effective were/are you in expressing your opinion to, in absorbing information from, in starting a conversation with, in understanding people from other cultures during your time abroad?; and How effective were/are you in develop satisfying interpersonal relationships with other people, maintain satisfying interpersonal relationships with other people, accurately understand the feelings of another person, effectively work with other people, empathize with another person and effectively deal with different social customs?), on a 5-point Likert-type scale.

5. ANALYSIS AND PRESENTATION OF RESULTS

A statistical analysis, properly conducted, is a delicate dissection of uncertainties, a surgery of suppositions.
M.J. Moroney

5.1 INTRODUCTION

This chapter is concerned with the analysis and presentation of the results, and it is divided into five sections including this introduction. The second section shows the descriptive statistics related to the demographics of the respondents. The third section deals with the comparison of the construct validity of CQS (Dyne, Ang and Koh (2008)) vs ICK&ECF (Bücker, Furrer and Lin (2015)) applied to our sample. The fourth section presents the ISCTE professors cultural intelligence (CQ) level also aims to show the analysis to measure the effectiveness of the respondents' communication behavior across cultures. A last section is dedicated to a brief chapter summary.

5.2 DESCRIPTIVE STATISTICS

The utilized sample (N=140) represents the total of responses received electronically after the self-report survey and it shows interesting frequencies which are presented in the following table. The first six items – gender, age, educational level, time spent outside own culture, motive and contact frequency with another culture were taken as control variables because according to Mabe and West (1982) older and more educated respondents tend to respond more accurately to surveys assessing intelligence. Moreover, Koo Moon et al. (2012) states that it is critical to control the characteristics of the sample.

The descriptive characteristics[7] shows that the sample consists of 57.14 percent consider themselves male respondents, 42.14 percent female respondents and 0.71 percent answered as other, 95.00 percent of whom are older than 31 years, whereas only 5.00 percent are younger than 25 years old. Furthermore, 5.00 percent of the respondents have completed only a bachelor's degree, 15.00 percent has a master/MBA, and 80.00 has a PhD. In terms of time spent abroad, 47.14 percent have spent more than a year, 30.71 percent more than 3 years, and 20.00 percent more than 5 years, in most cases to study (31.43 percent), to work (28.57 percent) and tourism (30.00 percent). Finally, 92.85 percent of the respondents have occasionally, often, or constantly interact with people

[7] Table 1 – In table section.

from another culture. These data indicate that the respondents in this sample are likely to possess the adequate level of ability to answer self-reported intelligence measures.

Also, it is worth to ratify that the respondents had to fulfil all the questions before finishing the questionnaire. So, it means that only the more motivated respondents completed the survey. And, on average, to answer the full questionnaire, the respondents took 06:03 minutes per person, which indicates satisfactory levels of attention.

5.3 ICK & ECF vs. CQS

The ICK & ECF twelve items model designed by Bücker, Furrer and Lin (2015) was first developed because their data did not fit the CQS twenty items model, by Dyne, Ang and Koh (2008). However, the model always should fit the data, not the other way around. So, the present thesis compared these two models. First, through the Cronbach's alpha analysis, in which according to Hair Junior et al. (2005), reliability is the degree to which a set of indicators of a latent variable (construct) is consistent in its measurements.

When one says that the model does not fit the data, among other things, happens because the reliability statistic does not match the current theory, which states that the Alpha should be greater or equal than 0.70. Second, Discriminant Validity which according to Finch, H. (2006) is a tool commonly used by measurement specialists to identify both the presence and nature of multidimensionality in a set of test items, that is a high correlation among the variables. The items taken into consideration was KMO and Bartlett's Test, Communalities, and Variance, through Promax rotation, using the Principal Component Analysis extract method, in SPPS, to validate which one fit better this data, as you may see below.

The Cronbach's alpha for the ICK & ECF is $\alpha = 0{,}865$[8], which means that there is a high level of reliability for this model. The KMO and Bartlett's Test is also meeting the theory that suggest KMO should be greater than 0,8 and the significance of Bartlett's < 0,05. (KMO= 0,821 Sig. < 0,001)[9]. But on the other hand, the Communalities[10] do not show good results because in four (ICK1 = 0,400, ICK2 = 0,473, ECF1 = 0,465 and ECF2 = 0,419) of twelve items it shows a number lower than 0,5, which is theoretically the minimum acceptable value for them, that is, four of twelve items are poorly explained by the factors. It is worth to mention that the Communalities results were forced to fit into

[8] Table 2 – In table section.
[9] Table 3 – in table section.
[10] Table 4 – in table section.

two factors, but the SPSS analysis suggested that better Communalities when there are three factors[11] instead of two. Regarding the Total Variance Explained[12], it is possible to state that, following Kaiser's (1960) rule of simply retain factors whose eigenvalues are greater than 1 – Kaiser's rule is based on the assumption that to retain a factor that explains less variance than a single original variable is not psychometrically reasonable – those three components are responsible for 56,72 percent of the variance when forced into two factors, which is not so good when compared with the 66,83 percent with three factors[13].

Finally, the Promax Rotation which is also influenced by two[14] or three[15] model. In this case the SPSS analysis also suggests a three-factor model as better than two-factor. The two-factor model mix two metacognitive items with motivational and behavioral items. And, even when we analyze the results with a three-factor model as suggested we would have a mix of ICK metacognitive items with ECF motivational items.

Now, in order to compare the ICK & ECF model, one brings the CQS model, in which has a great Cronbach's alpha ($\alpha = 0{,}898$)[16]. Also, to verify the four dimensions separately this work found their individual Cronbach's alpha (Metacognitive $\alpha = 0{,}812$; Cognitive $\alpha = 0{,}889$; Motivational $\alpha = 0{,}774$; and Behavioral $\alpha = 0{,}835$)[17]. The KMO and Bartlett's Test suited this research well (KMO= 0,849 Sig. < 0,001)[18]. All the Communalities[19] items presented good results above 0,5, except for MC2 = 0,484, which can be considered close enough to the acceptable. The Total Variance Explained[20] has four factors above 1, which means that these four items are responsible for 63,61 percent of the variance. At last, but not least, the Promax Rotation[21] which smoothly presents all the variables in place and with good figures. Even items without complex variables as one may see in the Table 14, except for the motivational items, which violates the .0 rule, and all the variables can be considered complex.

After analyzing both ICK & ECF two-factor model vs CQS four-factor model, the best model for this work is the CQS four-factor model, in which presented great results in all items. It is worth to state that it does not prove that the four-factor model is a

[11] Table 5 – in table section.
[12] Table 6 – in table section.
[13] Table 7 – in table section.
[14] Table 8 – in table section.
[15] Table 9 – in table section.
[16] Table 10 – in table section.
[17] Table 11 – in table section.
[18] Table 12 – in table section.
[19] Table 13 – in table section.
[20] Table 14 – in table section.
[21] Table 15 – in table section.

universal model and always should be used, but one can say that for this thesis, the best model is the CQS four-factor model created by Dyne, Ang and Koh (2008).

5.4 ISCTE PROFESSORS CQ LEVEL AND EFFECTIVINESS ACROSS CULTURES

The final analysis of this work is to get to know the ISCTE professors' cultural intelligence level[22]. So, the frequency analysis showed the average results for each one of the four dimensions, Metacognitive (Me = 5,62; SD = 0,80), Cognitive (Me = 4,52; SD = 1,06), Motivational (Me = 5,56; SD = 0,78) and Behavioral (Me = 4,91; SD = 0,98), that is, the cultural intelligence level is Me = 5,15.

One also performed a Mann-Whitney test[23], in which showed that ISCTE professors have the same distribution level of CQ Metacognitive, Cognitive, Motivational and Behavioral across gender ($U_{(2468,5)} = 0{,}336$; $p > 0{,}05$, $U_{(2449,5)} = 0{,}254$; $p > 0{,}05$, $U_{(2375,5)} = -0{,}059$; $p > 0{,}05$ and $U_{(2424,5)} = 0{,}275$; $p > 0{,}05$). The Mann-Whitney teste can only analyze two variables within the gender (male and female). So, for didactic purposes the respondent that answered "other" in gender was placed with male for the present analysis.

Since this data is not a normal distribution one used the Spearman's correlation to identify which variables are correlated with the four dimensions of CQ. First, one analyzed if the time that professors spent abroad[24] was relevant to their CQ level. There was a statistically significant positive correlation only for the Cognitive dimension ($r_s = 0{,}382$; $p < 0{,}01$) and Motivational ($r_s = 0{,}213$; $p < 0{,}01$) the other two dimensions Metacognitive ($r_s = 0{,}130$; $p > 0{,}01$) and Behavioral (Metacognitive ($r_s = 0{,}076$; $p > 0{,}01$) do not have a statistically significant result. Regarding these two which have statistically significant positive correlation, one can say, based in Cohen & Holliday (1982), that the correlation is weak (between 0,20 – 0,39).

Now, if one compares the relationship between the CQ dimensions with the contact frequency[25] with other cultures the results show a statistically positive significant result for all variables, but also with a weak intensity ($MCr_s = 0{,}266$, $p < 0{,}0$; $COGr_s = 0{,}201$, $p < 0{,}01$; $MOTr_s = 0{,}276$, $p < 0{,}01$ and $BEHr_s = 0{,}201$, $p < 0{,}01$). In other words, the more the professors have contact with other culture, better are their CQ level.

[22] Table 16 – in table section.
[23] Table 17 – in table section.
[24] Table 18 – in table section.
[25] Table 19 – in table section.

The three effectiveness factors[26] regarding dealing with the psychological stress while being in other culture, expressing themselves, absorbing information and interacting with others in other culture and developing satisfying interpersonal relationships with other people from other culture also have a statistically positive significant result for all dimensions, most of them with weak intensity, except for $MOTr_s = 0,400$, $p < 0,01$ and $MOTr_s = 0,486$, $p < 0,01$, in which have a moderate intensity, respectively. The relationship for the third effectiveness question is $MOTr_s = 0,309$, $p < 0,01$, which is considered weak.

Again, looking into the time spent abroad, the Independent-Samples Kruskal-Wallis[27] test showed through the pairwise comparison that there are differences only among the following categories within the Cognitive dimension: less than 3 months with more than 5 years and 3 to 6 months to more than 5 years ($p < 0,05$), which means that the distribution of this CQ dimension is not the same across these two pair of categories. The other three dimensions are the same across categories of time abroad.

The same test is even more relevant when it comes to contact frequency[28] with other culture. The only distribution that is the same across the categories of contact frequency is Behavioral ($p > 0,05$), while Metacognitive, Cognitive and Motivational ($p < 0,05$). That is, the distribution of these three dimensions is not the same across the categories of contact frequency. The Metacognitive dimension shows statistically significant differences in the following parings: seldom with all the time and seldom with often. The Cognitive dimension despite of being considered different by $p < 0,05$, the categories are do not show a statically relevant difference. Finally, the Motivational dimension shows one difference in the pair: occasionally with often.

At last, the three-effectiveness[29] level of ISCTE professors regarding being in another culture, through the Likert-type scale from 1 to 5, in psychological stress ($Me = 3,72$; $SD = 0,700$), opinion expression, information absorption and interaction ($Me = 3,80$; $SD = 0,691$) and satisfying interpersonal relationships with other people ($Me = 3,91$; $SD = 0,673$). So, the final results of these three questions is $Me = 3,81$.

[26] Table 20 – in table section.
[27] Graphic 1 – in graphic section.
[28] Graphic 2 to 4 – in graphic section.
[29] Table 21 – in table section.

5.5 CHAPTER SUMMARY

This chapter aimed to present the statistical analysis in a logical and comprehensive way. Each section has its own goal to provide essential information with all the data and contextual interpretation. The Descriptive Statistics intended to familiarize the reader with the population/sample studied, also to better understand the posterior tests and analysis. The model comparison ICK & ECF vs. CQS served to validate the ideal model for our data. Tests are presented to prove the consistency of the sample, like correlations matrix, Cronbach's alpha, Spearman's, among others nonparametric tests, since our sample is not normally distributed. Finally, the answer to the hypotheses was presented together with tables and graphics, to show relevant information and visual illustration of each measure and testing.

6. DISCUSSION AND CONCLUSIONS

A hypothesis is a novel suggestion that no one wants to believe. It is guilty, until found effective.
Edward Teller

6.1 INTRODUCTION

This chapter brings the conclusions of this research in which include an overall discussion about CQ and culture, interpretation of the results regarding the CQ level of ISCTE professors and their effectiveness across cultures, also the various manipulations within the sample and the CQ construct validation.

Finally, limitations of this study and recommendations for future research are available in this chapter, to provide an overview for subsequent research on the subject.

6.2 CONCLUSIONS ON CQ AND CULTURE

This work focused on a specific topic in which its core resides in two words: culture and intelligence. A lot was written about this separately but in 2002 these words started to be seen together to build the theory of Cultural Intelligence (CQ). From 2002 until nowadays a lot was discussed and absorbed from intelligence and from culture to continuously develop this theory which now can be put into practice, that is, what was just a theory, now thank to the Cultural Intelligence Scale (CQS), can be proven effectively as a person's capacity to adapt to new cultural settings.

6.2.1 Results

To bring the theory to the empirical world this study applied a self-report survey to the professors in a Portuguese university and found out that the professors have a high level of cultural intelligence (Me = 5,15) from 1 to 7, also their effectiveness across cultures showed a good result (Me = 3,81), from 1 to 5.

In between the main analysis a lot more things have been found based on the sample study through the SPSS software. First, the ISCTE professors have the same level of cultural intelligence across gender. Second and surprisingly, the time spent abroad did not have much impact in the cultural intelligence level of professors, only in Cognitive and Motivational dimensions, but with weak intensity. In a similar analysis called contact frequency the numbers are better because all dimensions have statistically significant and positive correlation, but still weak in intensity. The professors' effectiveness across culture certainly contributed and have a relationship with the cultural intelligence

dimensions. All dimensions statistically positive significant correlated and have two items with moderate intensity.

These results are all possible because of the CQS, in which was validated and compared with the ICK & ECF construct in this study, based in the Cronbach's alpha analysis, KMO and Bartlett's test, Communalities, Total Variance and the Promax Rotation in SPSS. The CQS model has been used successfully in a lot of research and for this one it is not different, the four-factor model demonstrated to perfectly fit the data.

In conclusion, in this study with university professors with foreign experiences and contact frequency with other cultures has proven that the professors have a high level of cultural intelligence and effectiveness across cultures and the CQS model is valid for this work and the ICK & ECF, no.

6.2.2 Limitation and Further Research

Every research has limitations and this one is not an exception. First, it was used a self-reported CQ measures, which can influence the results. Usually, to reduce this possibility one uses the Social Desirability measure. However, due to limitations, this measure did not take place in the survey. Second, despite of the goal of this research be analyzing the CQ level within the Portuguese university, it can be considered a limitation to CQ theory that most of the respondents are from Portugal. Third, this is the first field research conducted solely by this author. Therefore, the lack of experience might make this author miss some important points in the analysis.

Regarding the further research, continuing what was proposed by Bücker, Furrer and Lin (2015) the two-dimensional structure of CQ and the two new ICK and ECF intelligence dimensions will have to be validated in future replication and extension studies across diverse samples and countries, in this work it was not validated. Also, it was suggested by Prof. dr. Elizabeth Collins to ask, in the survey, whether the respondent is currently living in a culture that is not their own. This question could have been used to measure the current effectiveness of people, instead of the current effectiveness that measure only past situations or if the CQ level is influenced by the fact that the person is currently leaving the cross-cultural situation at the moment. Thinking about the university level, it would have been possible to measure the CQ level among schools (Social Sciences, Sociology and Public Policy, Technology and Architecture and Business School), to find if there is room to improve in each school in reference to cultural intelligence.

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TABLES

Table 1 – Sample characteristics

Profile	Percent (%)	Frequency	Cumulative (%)
Gender			
Male	57,14%	80	
Female	42,14%	59	100%
Other	0,71%	1	
Age (years)			
Less than 25	5,00%	7	
Between 25 and 30	5,00%	7	
Between 31 and 40	10,00%	14	100%
Between 41 and 50	38,57%	54	
More than 50	41,43%	58	
Educational Level			
Bachelor's degree or less	5,00%	7	
Master/MBA	15,00%	21	100%
PhD	80,00%	112	
Time spent outside own culture			
Less than 3 months	38,57%	54	
3–6 months	7,86%	11	
6–12 months	6,43%	9	100%
1–3 years	16,43%	23	
3–5 years	10,71%	15	
More than 5 years	20,00%	28	
Motive			
Work	28,57%	40	
Study	31,43%	44	
Just live	5,00%	7	100%
Tourism	30,00%	42	
Other (specify)	5,00%	7	
Contact frequency with another culture			
Seldom	7,14%	10	
Occasionally	33,57%	47	100%
Often	37,14%	52	
All the time	22,14%	31	

Source: Created by the author (2021).

Table 2 – Reliability statistics ICK & ECF

Reliability Statistics	
Cronbach's Alpha	N of Items
0,865	12

Source: Created by the author (2021).

Table 3 – KMO and Bartlett's Test ICK & ECF

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,821
Bartlett's Test of Sphericity	Approx. Chi-Square	788,049
	df	66
	Sig.	0,000

Source: Created by the author (2021).

Table 4 – Communalities with two factors ICK & ECF

Communalities	Initial	Extraction
ICK1(MC1) - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	1,000	0,400
ICK2(MC3) - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	1,000	0,473
ICK1(COG1) - I know the legal and economic systems of other cultures.	1,000	0,607
ICK2(COG2) - I know the rules (e.g., vocabulary, grammar) of other languages.	1,000	0,561
ICK3(COG3) - I know the cultural values and religious beliefs of other cultures.	1,000	0,747
ICK4(COG4) - I know the marriage systems of other cultures.	1,000	0,613
ICK5(COG5) - I know the arts and crafts of other cultures.	1,000	0,710
ECF1(MOT2) - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	1,000	0,465
ECF2(MOT3) - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	1,000	0,419
ECF1(BEH2) - I use pause and silence differently to suit different cross-cultural situations.	1,000	0,597
ECF2(BEH3) - I vary the rate of my speaking when a cross-cultural situation requires it.	1,000	0,577
ECF3(BEH4) - I change my non-verbal behavior when a cross-cultural situation requires it.	1,000	0,637

Source: Created by the author (2021).

Table 5 – Communalities with three factors ICK & ECF

Communalities		
	Initial	Extraction
ICK1(MC1) - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	1,000	0,707
ICK2(MC3) - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	1,000	0,743
ICK1(COG1) - I know the legal and economic systems of other cultures.	1,000	0,642
ICK2(COG2) - I know the rules (e.g., vocabulary, grammar) of other languages.	1,000	0,607
ICK3(COG3) - I know the cultural values and religious beliefs of other cultures.	1,000	0,779
ICK4(COG4) - I know the marriage systems of other cultures.	1,000	0,644
ICK5(COG5) - I know the arts and crafts of other cultures.	1,000	0,710
ECF1(MOT2) - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	1,000	0,573
ECF2(MOT3) - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	1,000	0,470
ECF1(BEH2) - I use pause and silence differently to suit different cross-cultural situations.	1,000	0,651
ECF2(BEH3) - I vary the rate of my speaking when a cross-cultural situation requires it.	1,000	0,737
ECF3(BEH4) - I change my non-verbal behavior when a cross-cultural situation requires it.	1,000	0,757

Source: Created by the author (2021).

Table 6 – Variance Explained with two factors ICK & ECF

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4,944	41,199	41,199	4,944	41,199	41,199	4,342
2	1,863	15,523	56,722	1,863	15,523	56,722	3,719
3	1,214	10,113	66,835				
4	0,959	7,994	74,829				
5	0,616	5,131	79,960				
6	0,471	3,921	83,882				
7	0,453	3,778	87,659				
8	0,406	3,385	91,044				
9	0,327	2,724	93,768				
10	0,280	2,330	96,099				
11	0,266	2,215	98,313				
12	0,202	1,687	100,000				

Source: Created by the author (2021).

Table 7 – Variance Explained with three factors ICK & ECF

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4,944	41,199	41,199	4,944	41,199	41,199	4,186
2	1,863	15,523	56,722	1,863	15,523	56,722	3,604
3	1,214	10,113	66,835	1,214	10,113	66,835	2,858
4	0,959	7,994	74,829				
5	0,616	5,131	79,960				
6	0,471	3,921	83,882				
7	0,453	3,778	87,659				
8	0,406	3,385	91,044				
9	0,327	2,724	93,768				
10	0,280	2,330	96,099				
11	0,266	2,215	98,313				
12	0,202	1,687	100,000				

Source: Created by the author (2021).

Table 8 – Promax Rotation two factors with Kaiser Normalization ICK & ECF

Pattern Matrix[a]		
	Component	
	1	2
ICK5(COG5) - I know the arts and crafts of other cultures.	0,890	-0,136
ICK3(COG3) - I know the cultural values and religious beliefs of other cultures.	0,887	-0,057
ICK4(COG4) - I know the marriage systems of other cultures.	0,786	-0,007
ICK1(COG1) - I know the legal and economic systems of other cultures.	0,751	0,063
ICK2(COG2) - I know the rules (e.g., vocabulary, grammar) of other languages.	0,741	0,019
ECF3(BEH4) - I change my non-verbal behavior when a cross-cultural situation requires it.	-0,266	0,871
ECF2(BEH3) - I vary the rate of my speaking when a cross-cultural situation requires it.	-0,137	0,807
ECF1(BEH2) - I use pause and silence differently to suit different cross-cultural situations.	0,000	0,773
ICK2(MC3) - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	0,251	0,544
ECF1(MOT2) - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	0,317	0,486
ICK1(MC1) - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	0,253	0,484
ECF2(MOT3) - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	0,336	0,431

Source: Created by the author (2021).

Table 9 – Promax Rotation three factors with Kaiser Normalization ICK & ECF

Pattern Matrix[a]			
	Component		
	1	2	3
ICK3(COG3) - I know the cultural values and religious beliefs of other cultures.	0,902	-0,030	-0,021
ICK5(COG5) - I know the arts and crafts of other cultures.	0,819	0,125	-0,201
ICK4(COG4) - I know the marriage systems of other cultures.	0,807	-0,027	0,027
ICK2(COG2) - I know the rules (e.g., vocabulary, grammar) of other languages.	0,785	-0,065	0,077
ICK1(COG1) - I know the legal and economic systems of other cultures.	0,777	-0,012	0,089
ICK1(MC1) - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	-0,081	0,904	-0,075
ICK2(MC3) - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	-0,069	0,897	-0,009
ECF1(MOT2) - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	0,093	0,672	0,077
ECF2(MOT3) - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	0,166	0,535	0,109
ECF3(BEH4) - I change my non-verbal behavior when a cross-cultural situation requires it.	-0,109	-0,004	0,897
ECF2(BEH3) - I vary the rate of my speaking when a cross-cultural situation requires it.	0,039	-0,067	0,872
ECF1(BEH2) - I use pause and silence differently to suit different cross-cultural situations.	0,078	0,131	0,714

Source: Created by the author (2021).

Table 10 – Reliability statistics CQS

Reliability Statistics	
Cronbach's Alpha	N of Items
0,898	20

Source: Created by the author (2021).

Table 11 – Reliability statistics per dimension CQS

Reliability Statistics MC		Reliability Statistics COG	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
0,812	4	0,889	6

Reliability Statistics MOT		Reliability Statistics BEH	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
0,774	5	0,835	5

Source: Created by the author (2021).

Table 12 – KMO and Bartlett's Test CQS

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0,849
Bartlett's Test of Sphericity	Approx. Chi-Square	1398,197
	df	190
	Sig.	0,000

Source: Created by the author (2021).

Table 13 – Communalities CQS

Communalities		
	Initial	Extraction
MC1 - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	1,000	0,752
MC2 - I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	1,000	0,484
MC3 - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	1,000	0,797
MC4- I check the accuracy of my cultural knowledge as I interact with people from different cultures.	1,000	0,581
COG1 - I know the legal and economic systems of other cultures.	1,000	0,643
COG2 - I know the rules (e.g., vocabulary, grammar) of other languages.	1,000	0,570
COG3 - I know the cultural values and religious beliefs of other cultures.	1,000	0,755
COG4 - I know the marriage systems of other cultures.	1,000	0,645
COG5 - I know the arts and crafts of other cultures.	1,000	0,692
COG6 - I know the rules for expressing non-verbal behaviors in other cultures.	1,000	0,649
MOT1 - I enjoy interacting with people from different cultures.	1,000	0,606
MOT2 - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	1,000	0,611
MOT3 - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	1,000	0,550
MOT4 - I enjoy living in cultures that are unfamiliar to me.	1,000	0,588
MOT5 - I am confident that I can get accustomed to the shopping conditions in a different culture.	1,000	0,608
BEH1 - I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it	1,000	0,513
BEH2 - I use pause and silence differently to suit different cross-cultural situations.	1,000	0,633
BEH3 - I vary the rate of my speaking when a cross-cultural situation requires it.	1,000	0,564
BEH4 - I change my non-verbal behavior when a cross-cultural situation requires it.	1,000	0,812
BEH5 - I alter my facial expressions when a cross-cultural interaction requires it.	1,000	0,669

Source: Created by the author (2021).

Table 14 – Variance Explained CQS

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7,025	35,126	35,126	7,025	35,126	35,126	5,274
2	2,510	12,549	47,675	2,510	12,549	47,675	4,525
3	1,748	8,740	56,415	1,748	8,740	56,415	4,707
4	1,439	7,196	63,611	1,439	7,196	63,611	4,109
5	0,884	4,419	68,030				
6	0,750	3,752	71,782				
7	0,710	3,548	75,330				
8	0,691	3,454	78,784				
9	0,588	2,939	81,723				
10	0,537	2,684	84,407				
11	0,470	2,350	86,757				
12	0,459	2,296	89,053				
13	0,397	1,984	91,037				
14	0,364	1,820	92,857				
15	0,315	1,573	94,430				
16	0,296	1,482	95,912				
17	0,249	1,247	97,159				
18	0,209	1,043	98,202				
19	0,185	0,925	99,127				
20	0,175	0,873	100,000				

Source: Created by the author (2021).

Table 15 – Promax Rotation with Kaiser Normalization CQS

Pattern Matrix[a]				
	Component			
	1	2	3	4
MC1 - I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	0,008	-0,097	0,928	-0,070
MC2 - I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	-0,166	0,270	0,470	0,208
MC3 - I am conscious of the cultural knowledge I apply to cross-cultural interactions.	0,026	-0,034	0,924	-0,071
MC4- I check the accuracy of my cultural knowledge as I interact with people from different cultures.	0,142	0,031	0,653	0,051
COG1 - I know the legal and economic systems of other cultures.	0,771	0,063	0,079	-0,078
COG2 - I know the rules (e.g., vocabulary, grammar) of other languages.	0,747	0,063	0,018	-0,064
COG3 - I know the cultural values and religious beliefs of other cultures.	0,884	0,002	-0,010	-0,035
COG4 - I know the marriage systems of other cultures.	0,798	-0,017	0,032	-0,008
COG5 - I know the arts and crafts of other cultures.	0,797	-0,210	0,045	0,157
COG6 - I know the rules for expressing non-verbal behaviors in other cultures.	0,805	0,051	-0,090	0,048
MOT1 - I enjoy interacting with people from different cultures.	-0,253	-0,047	0,333	0,672
MOT2 - I am confident that I can socialize with locals in a culture that is unfamiliar to me.	0,117	0,008	0,287	0,546
MOT3 - I am sure I can deal with the stresses of adjusting to a culture that is new to me.	0,188	0,123	0,109	0,526
MOT4 - I enjoy living in cultures that are unfamiliar to me.	-0,005	-0,164	-0,090	0,844
MOT5 - I am confident that I can get accustomed to the shopping conditions in a different culture.	0,091	0,194	-0,289	0,756
BEH1 - I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it	0,104	0,606	-0,053	0,187
BEH2 - I use pause and silence differently to suit different cross-cultural situations.	0,110	0,632	0,335	-0,247
BEH3 - I vary the rate of my speaking when a cross-cultural situation requires it.	-0,004	0,732	0,020	0,029
BEH4 - I change my non-verbal behavior when a cross-cultural situation requires it.	-0,126	0,952	-0,065	0,015
BEH5 - I alter my facial expressions when a cross-cultural interaction requires it.	0,010	0,869	-0,097	-0,054

Source: Created by the author (2021).

Table 16 – Cultural intelligence level ISCTE professors

Statistics					
		Metacognitive Dimension	Cognitive Dimension	Motivational Dimension	Behavioral Dimension
N	Valid	140	140	140	139
	Missing	0	0	0	1
Mean		5,6250	4,5167	5,5586	4,9137
Std.		0,79595	1,06133	0,78125	0,98335

Source: Created by the author (2021).

Table 17 – Mann-Whitney test

Metacognitive Dimension across Gender Independent-Samples Mann-Whitney U Test Summary	
Total N	140
Mann-Whitney U	2468,500
Wilcoxon W	4238,500
Test Statistic	2468,500
Standard Error	234,865
Standardized Test Statistic	0,336
Asymptotic Sig.(2-sided test)	0,737

Cognitive Dimension across Gender Independent-Samples Mann-Whitney U Test Summary	
Total N	140
Mann-Whitney U	2449,500
Wilcoxon W	4219,500
Test Statistic	2449,500
Standard Error	236,611
Standardized Test Statistic	0,254
Asymptotic Sig.(2-sided test)	0,800

Motivational Dimension across Gender Independent-Samples Mann-Whitney U Test Summary	
Total N	140
Mann-Whitney U	2375,500
Wilcoxon W	4145,500
Test Statistic	2375,500
Standard Error	235,391
Standardized Test Statistic	-0,059
Asymptotic Sig.(2-sided test)	0,953

Behavioral Dimension across Gender Independent-Samples Mann-Whitney U Test Summary	
Total N	139
Mann-Whitney U	2424,500
Wilcoxon W	4194,500
Test Statistic	2424,500
Standard Error	234,173
Standardized Test Statistic	0,275
Asymptotic Sig.(2-sided test)	0,783

Source: Created by the author (2021).

Table 18 – Spearman's correlation time abroad vs. CQ dimensions

Correlations							
			Metacognitive Dimension	Cognitive Dimension	Motivational Dimension	Behavioral Dimension	Time Abroad
Spearman's rho	Metacognitive Dimension	Correlation Coefficient	1,000	,458**	,501**	,492**	0,130
		Sig. (2-tailed)		0,000	0,000	0,000	0,126
		N	140	140	140	139	140
	Cognitive Dimension	Correlation Coefficient	,458**	1,000	,454**	,367**	,382**
		Sig. (2-tailed)	0,000		0,000	0,000	0,000
		N	140	140	140	139	140
	Motivational Dimension	Correlation Coefficient	,501**	,454**	1,000	,402**	,213*
		Sig. (2-tailed)	0,000	0,000		0,000	0,011
		N	140	140	140	139	140
	Behavioral Dimension	Correlation Coefficient	,492**	,367**	,402**	1,000	0,076
		Sig. (2-tailed)	0,000	0,000	0,000		0,375
		N	139	139	139	139	139
	Time Abroad	Correlation Coefficient	0,130	,382**	,213*	0,076	1,000
		Sig. (2-tailed)	0,126	0,000	0,011	0,375	
		N	140	140	140	139	140

Source: Created by the author (2021).

Table 19 – Spearman's correlation contact frequency vs. CQ dimensions

Correlations							
			Metacognitive Dimension	Cognitive Dimension	Motivational Dimension	Behavioral Dimension	Contact Frequency
Spearman's rho	Metacognitive Dimension	Correlation Coefficient	1,000	,458**	,501**	,492**	,266**
		Sig. (2-tailed)		0,000	0,000	0,000	0,002
		N	140	140	140	139	140
	Cognitive Dimension	Correlation Coefficient	,458**	1,000	,454**	,367**	,201*
		Sig. (2-tailed)	0,000		0,000	0,000	0,017
		N	140	140	140	139	140
	Motivational Dimension	Correlation Coefficient	,501**	,454**	1,000	,402**	,276**
		Sig. (2-tailed)	0,000	0,000		0,000	0,001
		N	140	140	140	139	140
	Behavioral Dimension	Correlation Coefficient	,492**	,367**	,402**	1,000	,201*
		Sig. (2-tailed)	0,000	0,000	0,000		0,017
		N	139	139	139	139	139
	Contact Frequency	Correlation Coefficient	,266**	,201*	,276**	,201*	1,000
		Sig. (2-tailed)	0,002	0,017	0,001	0,017	
		N	140	140	140	139	140

Source: Created by the author (2021).

Table 20 – Spearman's correlation effectiveness vs. CQ dimensions

Correlations									
			Metacognitive Dimension	Cognitive Dimension	Motivational Dimension	Behavioral Dimension	Psychological stress	Opinion expression, information absorption and interaction	Satisfying interpersonal relationships with other people
Spearman's rho	Metacognitive Dimension	Correlation Coefficient	1,000	,458**	,501**	,492**	,276**	,293**	,246**
		Sig. (2-tailed)		0,000	0,000	0,000	0,001	0,000	0,003
		N	140	140	140	139	140	140	140
	Cognitive Dimension	Correlation Coefficient	,458**	1,000	,454**	,367**	,277**	,389**	,266**
		Sig. (2-tailed)	0,000		0,000	0,000	0,001	0,000	0,002
		N	140	140	140	139	140	140	140
	Motivational Dimension	Correlation Coefficient	,501**	,454**	1,000	,402**	,400**	,486**	,309**
		Sig. (2-tailed)	0,000	0,000		0,000	0,000	0,000	0,000
		N	140	140	140	139	140	140	140
	Behavioral Dimension	Correlation Coefficient	,492**	,367**	,402**	1,000	,254**	,353**	,324**
		Sig. (2-tailed)	0,000	0,000	0,000		0,003	0,000	0,000
		N	139	139	139	139	139	139	139
	Psychological stress	Correlation Coefficient	,276**	,277**	,400**	,254**	1,000	,477**	,408**
		Sig. (2-tailed)	0,001	0,001	0,000	0,003		0,000	0,000
		N	140	140	140	139	140	140	140
	Opinion expression, informati	Correlation Coefficient	,293**	,389**	,486**	,353**	,477**	1,000	,578**
		Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000		0,000
		N	140	140	140	139	140	140	140
	Satisfying interpersonal relationships with	Correlation Coefficient	,246**	,266**	,309**	,324**	,408**	,578**	1,000
		Sig. (2-tailed)	0,003	0,002	0,000	0,000	0,000	0,000	
		N	140	140	140	139	140	140	140

Source: Created by the author (2021).

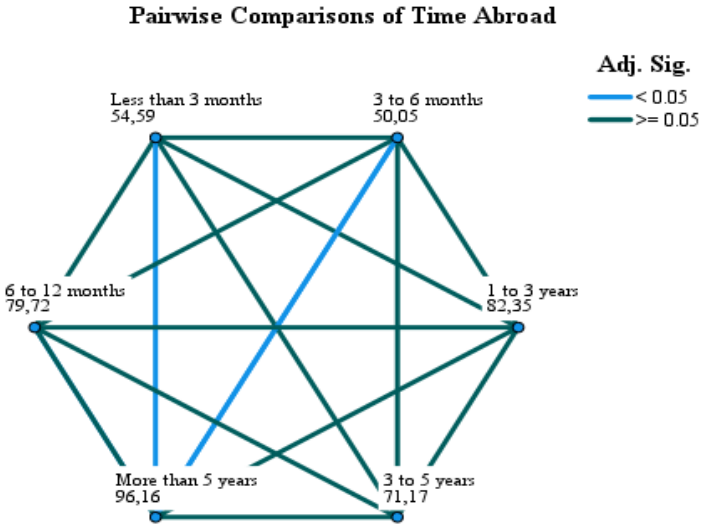
Table 21 – Effectiveness across cultures level in ISCTE professors

Statistics				
		Psychological stress	Opinion expression, information absorption and interaction	Satisfying interpersonal relationships with other people
N	Valid	140	140	140
	Missing	0	0	0
Mean		3,72	3,80	3,91
Std.		0,700	0,691	0,673

Source: Created by the author (2021).

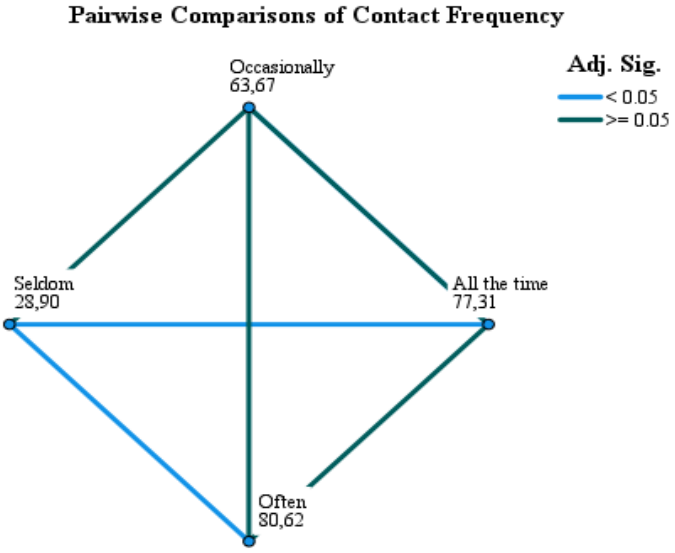
GRAPHICS

Graphic 1 – Independent-Samples Kruskal-Wallis for time abroad COG



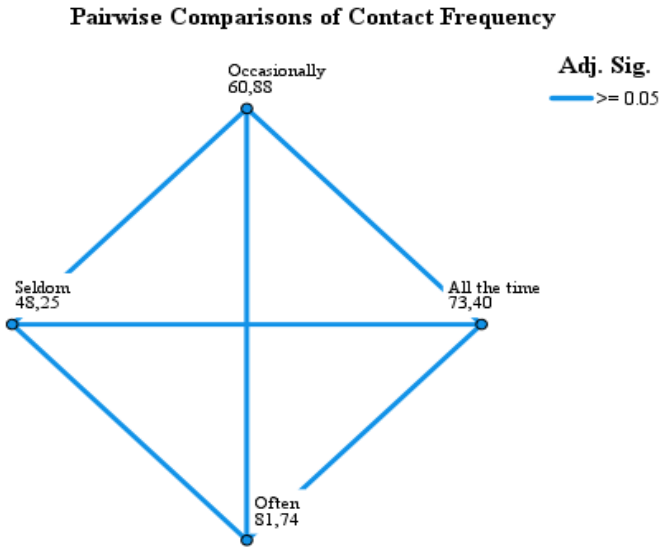
Source: Created by the author (2021).

Graphic 2 – Independent-Samples Kruskal-Wallis for contact frequency MC



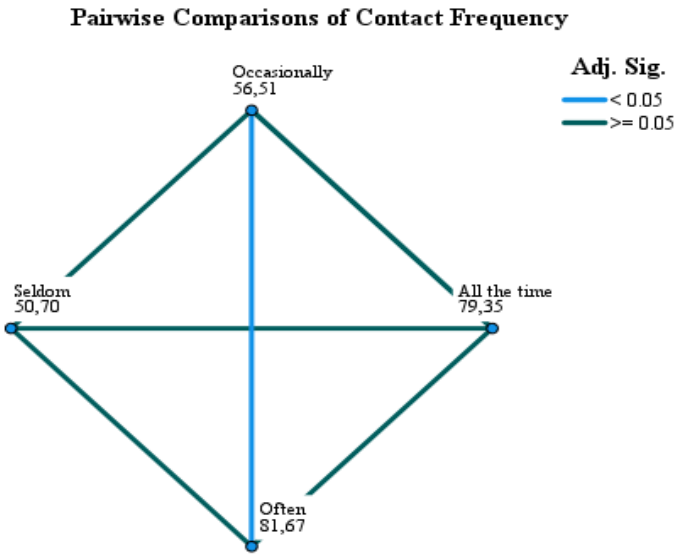
Source: Created by the author (2021).

Graphic 3 – Independent-Samples Kruskal-Wallis for contact frequency COG



Source: Created by the author (2021).

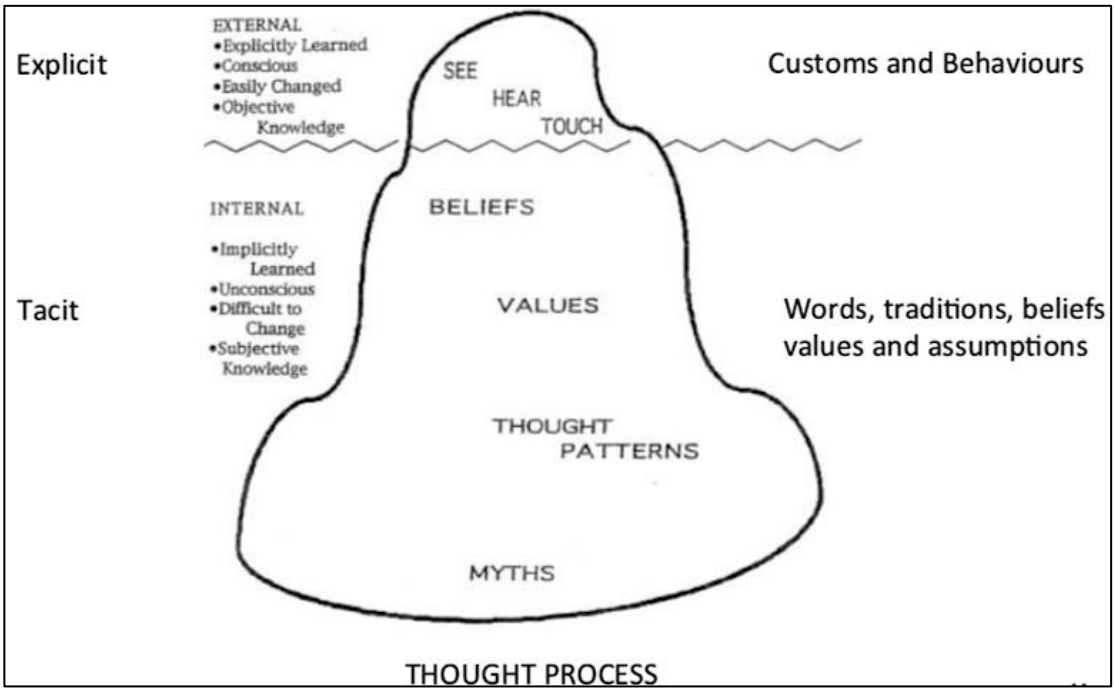
Graphic 4 – Independent-Samples Kruskal-Wallis for contact frequency MOT



Source: Created by the author (2021).

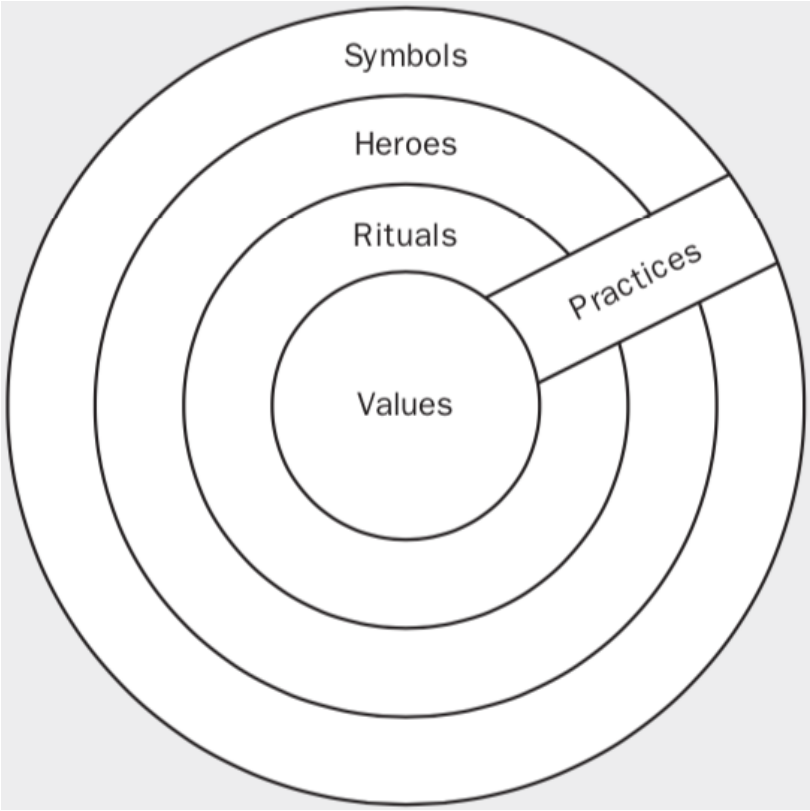
APPENDIX

1. The Iceberg Model of Culture



Source: Created based on Hall & Hall (1990).

2. "Onion": Manifestations of Culture at Different Levels of Depth



Source: Created based on Hofstede et al. (2010).

3. Cultural Intelligence Scale (CQS) – Self-Report

Read each statement and select the response that best describes your capabilities. Select the answer that BEST describes you AS YOU REALLY ARE (1 = strongly disagree; 7 = strongly agree)

CQ Factor	Questionnaire Items
Metacognitive CQ	
MC1	I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.
MC2	I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.
MC3	I am conscious of the cultural knowledge I apply to cross-cultural interactions.
MC4	I check the accuracy of my cultural knowledge as I interact with people from different cultures.
Cognitive CQ	
COG1	I know the legal and economic systems of other cultures.
COG2	I know the rules (e.g., vocabulary, grammar) of other languages.
COG3	I know the cultural values and religious beliefs of other cultures.
COG4	I know the marriage systems of other cultures.
COG5	I know the arts and crafts of other cultures.
COG6	I know the rules for expressing nonverbal behaviors in other cultures.
Motivational CQ	
MOT1	I enjoy interacting with people from different cultures.
MOT2	I am confident that I can socialize with locals in a culture that is unfamiliar to me.
MOT3	I am sure I can deal with the stresses of adjusting to a culture that is new to me.
MOT4	I enjoy living in cultures that are unfamiliar to me.
MOT5	I am confident that I can get accustomed to the shopping conditions in a different culture.
Behavioral CQ	
BEH1	I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.
BEH2	I use pause and silence differently to suit different cross-cultural situations.
BEH3	I vary the rate of my speaking when a cross-cultural situation requires it.
BEH4	I change my nonverbal behavior when a cross-cultural situation requires it.
BEH5	I alter my facial expressions when a cross-cultural interaction requires it.

Source: Created by Cultural Intelligence Center (2005).

4. Two-Dimensional CQ Model Bücker, Furrer and Lin (2015)

ICK
MC – I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds. **MC** – I am conscious of the cultural knowledge I apply to cross-cultural interactions. **COG** – I know the legal and economic systems of other cultures. **COG** – I know the rules (e.g., vocabulary, grammar) of other languages. **COG** – I know the cultural values and religious beliefs of other cultures. **COG** – I know the marriage systems of other cultures. **COG** – I know the arts and crafts of other cultures.
ECF
MOT – I am confident that I can socialize with locals in a culture that is unfamiliar to me. **MOT** – I am sure I can deal with the stresses of adjusting to a culture that is new to me. **BEH** – I use pause and silence differently to suit different cross-cultural situations. **BEH** – I vary the rate of my speaking when a cross-cultural situation requires it. **BEH** – I change my nonverbal behavior when a cross-cultural interaction requires it.

Source: Created based on Bücker, Furrer and Lin (2015).

Note: ICK: Internalized Cultural Knowledge intelligence; **ECF**: Effective Cultural Flexibility intelligence. **MC**: Metacognitive Cultural Intelligence; **COG**: Cognitive Cultural intelligence; **MOT**: Motivational Cultural intelligence BEH: Behavioral Cultural intelligence.