



The Spanish version of the Cultural Competence Assessment (CCA-S): Transcultural validation study and proposed refinement



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ABSTRACT

Background: Cultural competence (CC) is becoming an essential component of healthcare professionals. There is a gap in the research evaluating CC in order to develop competency-based approach programs. Spain has become a multicultural society and it is necessary to evaluate and promote CC attitudes to reduce the disparity of care for vulnerable and minority groups.

Objectives: To adapt and validate the Cultural Competence Assessment (CCA) of Schim et al. (2003), to get evidence-based data of CC in Spanish healthcare professionals.

Method: A process of translation/back-translation and cultural adaptation was carried out in accordance with international standards. An on-line cross-sectional survey questionnaire was used. Statistical and metrical analysis was based in a sample of 568 healthcare professionals who worked daily with patients in a health care institution in South Catalonia in 2018.

Results: The results of the exploratory factorial analysis and subsequent confirmatory analysis showed that the data had an adequate fit for a four-factor model. The reliability analysis results confirm an acceptable consistency for each subscale: active behaviour (0.86), seeking information (0.86), awareness (0.94), and sensitivity (0.69). ANOVA showed no differences between healthcare professionals, age and gender. The scores showed a normal distribution and it was proposed a standardization of scores.

Conclusions: The translation and transcultural-validation process of the CCA resulted in a Spanish-language for the 25 items, like the original. The psychometric analysis proved that the Spanish version is a reliable and valid instrument. This scale is going to be useful to analyze healthcare professional's attitudes to create effectiveness training programs focused on specific needs. The four-factor model and the standardization of the scores will be useful to achieve future objectives about research in cultural competence in healthcare professionals.

1. Introduction

Cultural competence (CC) is a concept that has emerged recently from the sociodemographic changes. In general, it is a set of skills that allows someone to increase their understanding and appreciation of cultural differences between groups. Many things make up a person's cultural identity: country of origin, language, race, ethnicity, education, family, spiritual traditions, traditional medical and dietary practices, and much more. Globalization grows multicultural societies, and interaction between cultures emerge. Even though it could lead as a richness in social aptitudes, cultural heritage shows interactions based on superior-subordinate relationship (Ke and Hsu, 2015).

Healthcare providers should be made aware of racial and ethnic disparities in healthcare. But the educational system doesn't consider

the cultural competence as a main attitude (Bas-Sarmiento et al., 2015; Raigal Aran et al., 2017; Rodríguez-Álvarez et al., 2017). Repercussions of healthcare providers who are not CC are not palpable. Although evidence show that disparities in CC care involve failures in the healthcare system, cultural and linguistic barriers and prejudice during the clinical encounter (Belintxon and Dicastillo, 2014; Ganle, 2015; Murcia and Lopez, 2016; Vázquez et al., 2016). And what if we could be able to bring axiomatic evidence of having CC professionals? It would bring action in transcultural education which could have a dual beneficial strategy: decreasing the disparity of care for vulnerable and minority groups, and decreasing anxiety of healthcare professionals sensation as a result of not being able to respond at particular needs (Sandín-Vázquez^a et al., 2014).

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1.1. Sociodemographic Data

Spain is becoming increasingly multicultural. It was reported in the Eurostats statistics as the 3rd country with the largest number of immigrants and the 3rd country with the highest increases in residents who granted Spanish citizenship (Eurostat, 2014). In 2017 a total of 4,549,858 of immigrants were recorded in Spain: it represents the 10% (INE, 2017). The north-east represents one of the most elected places for immigrants. Catalonia has a total of 15%, and it oscillates from a 3% to a 31% in different villages. (IDESCAT, 2018).

1.2. Literature Review

The research in cultural competence goes back to 1982 (Shen, 2015). One of the most known model of culture interaction is from the nurse Madeline Leininger. She defined CC the provision of respectful care to people of diverse cultures, which leads to health and wellbeing as well as the strength to face death or disabilities for individuals or groups (Leininger, 2002). Campinha-Bacote (2002) defines cultural competence as a process/skill of effort to achieve the ability to work properly within a cultural context with an individual, family or community. She considers 4 necessary aspects to take into consideration to promote: cultural awareness, cultural skills, encounters and cultural desire. In this same line, the Three-dimensional Model of Cultural Congruence of Schim and Doorenbos (2010) defines CC as a puzzle with 4 components CC: diversity, conscience, sensitivity and behavior. Another expert author in this concept is Purnell (1999). He speaks of CC as a skill that can be evaluated on 4 levels: unconsciously incompetent, consciously incompetent, unconsciously competent, consciously competent. These models agree that CC is an adaptation of the attention that configures a non-linear process, so, it can improve or get back on track. It is considered a skill that requires constant work since it fluctuates with each cultural encounter (Marrero González, 2013; Poortinga, 2013).

In Spain, qualitative studies in healthcare professionals and students have been carried out showing required evaluation and formation of cultural competence (Macipe Costa et al., 2013; Martínez García and Encarnación, 2015; Plaza and Hernández, 2014; Rifà-Ros et al., 2013). Sandín-Vázquez et al. (2014) in her study about immigrant patient care inequalities concluded: “these professionals perceive the reception of immigrants as a challenge to the proper provision of healthcare”. Monge et al. (2015) in her review of methodological limitations and recommendations about immigrant health Spain, identified as a limitation “missing data mostly related to measurement tools”. In Spanish we found three validated instruments which tries to evaluate how healthcare professionals face cultural diversity, but we assess some deficiencies which make them not suitable instruments to evaluate the construct of CC. In the case of the “Scale of Ethnocultural Empathy” translated by Albar et al. (2015) it focuses only with empathy and don't evaluate behaviour. In the case of the only instrument made in Spain, which his translated name is “Behaviour in Front Immigration” (Antonín Martín and Tomás-Sábado, 2004), have some limitations with its validation but although this, it is not the best option to be used because it has some items directly related with ethnic groups (i.e. “in general, I can't bear Muslim people”). This can evolve bias with areas with more immigration related on the group the items regard. Another instrument is the “Cultural Sensitivity Tool: Hispanic Version” (Lee et al., 2006), but its content validity is poor (Cronbach's alpha: 0.60). Another instrument founded was from a European project called “Migrant Friendly and Culturally Competent Health” (Krajic et al., 2004) which includes different interesting areas of cultural competence like awareness and knowledge, but it does not evaluate the cultural competence as a construct and it was not found a validation or factorial analysis. The last instrument founded was from a psychology study and although it was designed considering some of the items from the scales of empathy and from the project explained before, it only have 14 items

(De Arenillas, 2017).

Although the “Clinical Cultural Competency Questionnaire” seemed suitable, we considered that it did not involve the full meaning of the CC construct and have not been a really used instrument since the project finished in 2004. We think it is because it's length and complexity. We decided to explore the idea of translating and validate an instrument from another country. Choosing one with of the best characteristics to be used in our context and not missing the meaning of CC. According to the Shen (2015), awareness, sensitivity and behaviour have been the most common domains of CC. A systematic review analysed the Cultural Competence Assessments of healthcare providers (Lin et al., 2017). A total of ten instruments were found. These instruments were analysed considering the following statements: a) considering at least the three domains awareness, sensitivity and behaviour; b) being supported by a theoretical model; c) being validated. After this analysis, two instruments were the most suitable as they were supported by a theoretical model and for its applicability with all healthcare professionals. One of this instruments was “Cultural Competence Assessment” (Doorenbos et al., 2005; Schim et al., 2003). It has been translated and validated into Italian (CCAI-25) and Korean (KCCA-16) (Caricati et al., 2015; Chae et al., 2018). It is related with the theory of 3D model of Cultural Congruence. Surprisingly, the authors elaborate the theory after testing the instrument, so it emerges from an hypotheticodeductive study. The other instrument was the “Inventory For Assessing The Process Of Cultural Competence Among Healthcare Professionals” (Campinha-Bacote, 2002). This instrument is designed to measure CC among healthcare professionals. The languages we could corroborate that it was properly translated were Swedish (Olt et al., 2010), and Japanese (Kawashima, 2008). This instrument is related with Campinha-Bacote Cultural Competence Model.

After a review of the contents of each one, the scale of Schim et al. (2003) was chosen. The original version of the CCA measure two main domains: Cultural Awareness and Sensitivity dimension, and Cultural Competence Behaviors. These categories are part of the Three-Dimensional Model of Cultural Congruence (Schim and Doorenbos, 2010) from the authors of the scale. It has several qualities which make it suitable to be the Spanish tool to evaluate CC: it has been already translated into other languages; it is relatively short and easy to administer; and it has been tested in several research studies; it uses a colloquial language; and has been demonstrated to be sufficiently reliable. This instrument have been used successfully in several studies (Cicolini et al., 2015; Doorenbos et al., 2016; Housman et al., 2012; Reyes et al., 2013; Schim et al., 2005, 2006).

Considering the clinical usefulness and consistent results that the original scale has shown, we aim to get a transcultural adaptation and determine the construct validity and internal consistency reliability of the “Cultural Competence Assessment” to Spanish context.

2. Methods

2.1. Overview of Study Design

The study design is an instrument adaptation and psychometric testing. Following the International Test Commission guidelines and the guidelines of revision of instrumental studies from Carretero-Dios and Pérez (2005), the study was conducted in two phases. In the first phase the transcultural adaptation was done. The second phase was a prospective cross-sectional survey design with a convenience sample of healthcare professionals.

2.2. Phase 1: Transcultural Adaptation Process of the Original Scale Into Spanish

2.2.1. Translation and Back-translation

The cultural adaptation process started with the translation from the original instrument. The English version was given to two bilingual

translators: a translator of Spanish origin and a bilingual nurse from an English origin. They were told that the translation of each item should be semantic rather than literal, with conceptual and linguistic equivalence. A reunion with the translators and members of the research group met to assess the semantic and conceptual aspects. The initial Spanish version of the scale obtained was back-translated by a third bilingual translator to evaluate the equivalence between the original and the Spanish version.

The members of the group and translators met again to assess the translated and back-translated versions, compared with the original, in order to obtain the final version. As the original, we obtained a scale of 25 items with two subscales. The Spanish version of the scale was called Cultural Competence Assessment Spanish Version (CCA-S).

2.2.2. Pilot Test

The pilot test was carried out with 10 healthcare professionals: 5 nurses, 2 professor nurses, 1 nursing assistance and 1 physician. We could determine a needed time of 15 min to complete the questionnaire (including 10 items of sociodemographic data and the 25 items of the CCA).

2.3. Phase 2: Validation Process of the Scale and Development of the Final Version, Statistical and Metric Analysis

2.3.1. Participants and Data Collection

The sample consisted of 568 healthcare professionals who worked daily with patients in a health care institution in South Catalonia. Data collection was carried out between September 2017 to January 2018. The sample included 435 nurses, 94 physicians, 23 nursing assistance, 6 physiotherapists, 3 social workers, 2 orderlies, and 1 social educator. The mean age was 43 (DS 10,9) and 80% were women. The scale was sent to the institutions the province of Tarragona (Spain) in an online version which included the informed consent and an explanation of the objectives of the scale. Participation was voluntary and anonymous, and informed consent was obtained.

2.3.2. Instrument

The original version, the CCA, was validated in 2003 with a Cronbach's alpha coefficient of 0,91. The responses are of the Likert type and have shown good stability in the retest (0.85). The CCA-S consisted in two parts. The first included sociodemographic variables. The second part included the 25 items divided into two sub-scales: cultural awareness and sensitivity (11) and cultural competence behavior (14). The last version of the original CCA scale uses a Likert-type response scale with scores ranging from 1 (strongly agree/always) to 7 (not agree/never). There are 4 items which score invers. It has a "no opinion" response.

2.4. Psychometric Testing

2.4.1. Content Validity

A Delphi method was applied. A qualitative analysis of the instrument by the opinion of experts was used. A group of 16 expert healthcare professionals in the care and teaching field around therapeutic relation and cultural encounters participated voluntarily. They assessed the importance of the scale and the suitability of its constituent items. The Index of Validity Content (IVC) was used. According to Lawshe (1975), from a sample around 14, the IVC need to be at least of 0,51.

2.4.2. Construct Validity

A Confirmatory Factorial Analysis (CFA) was done. Also an Exploratory Factorial Analysis (EFA) in order to analyze if the items could be redistributed as the Italian version of the CCA (Caricati et al., 2015).

2.4.3. Reliability

The reliability was calculated using Cronbach's alpha coefficient (α). The reliability was calculated for each scale.

Spearman and Pearson were calculated to analyze temporal stability of the test. Participants were asked to participate in the retest after 21 days of the first participation.

2.4.4. Analysis of Variance

To compare if there were differences between the mean results we realized an analysis of variance (ANOVA). A significant level of $p < 0,05$ was set to indicate significant differences between the mean score from age, gender and profession.

2.4.5. Standard Score

In order to make the CCA a suitable tool to analyze CC, we standardized the scores to have a normal distribution at Kolmogorov-Smirnov test ($p > 0,05$) and proposed a form to read individuals scores.

2.4.6. Data Analysis

Statistical analysis was performed using SPSS 21.00 Software for Mac.

2.4.7. Ethical Considerations

The research was approved by the Ethic Committee of the Pere Virgili Institute (IISPV) for the project "Adaptation and validation from the Cultural Competence Assessment to Spanish". Permission was obtained from the authors of the original scale and the participating centres who made diffusion of the scale which was adapted via online. The principles established in the Declaration of Helsinki (World Medical Association, 2001) and Spanish Law 15/1999 (BOE, 1999) on data protection were followed.

3. Data/Results

3.1. Phase 1

Items were translated without difficulty. The original format was maintained. During this phase, we obtained two version which were compared to the original version. As a result of this process, we changed the word "client" to "patient" as the references that in Spain we have mostly a public health system. Also, we considered more appropriate to use the formal form of the personal pronoun in Spanish.

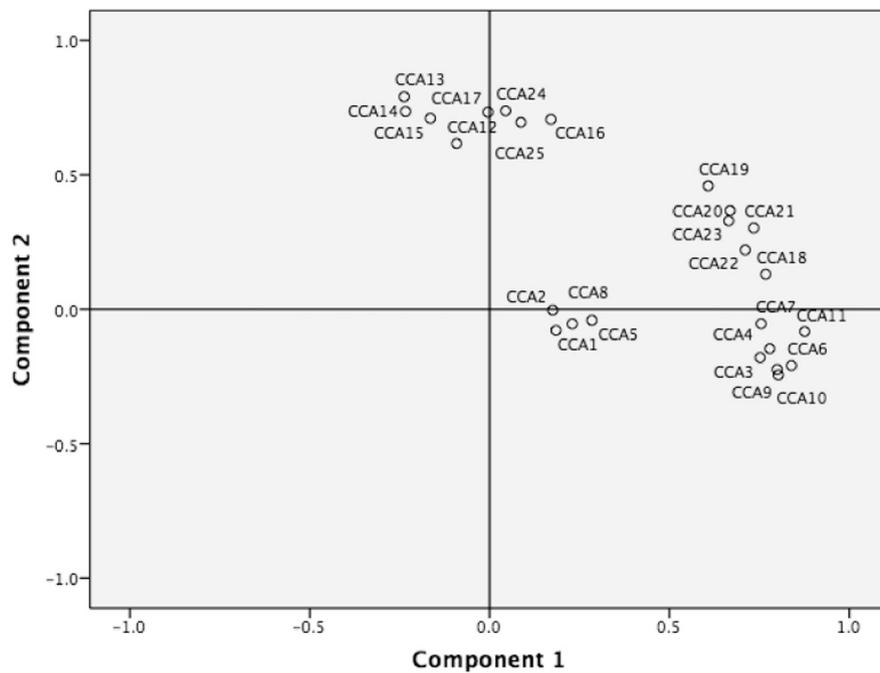
Two of the items which were taken into consideration were 15 and 17. Item 22 refers to including cultural evaluation and it considers "individual" and "organizational". Discussion with the research group and with the notes of the pilot test, "organizational" was changed into collectives, as it is better defined the evaluation that nurses made to the patients. Item 24 talks about the sources they use to learn about people from other cultures. The original item says, "books and other materials", and the CCA Spanish Version considered after a consensus that it was more accurate include "webpages, books or other material".

Furthermore, all the items but this concept changed were understood and well-formulated and understandable. All of the experts considered all the items essential to be included in the CCA Spanish Version (CVI = 1).

3.2. Phase 2

3.2.1. Analysis of Validity

The application of factorial analysis was considered appropriate with the index Kaiser-Meyer-Olkin (0,89) and the Barlett test was significant ($< 0,000$). After confirming that the sample was suitable for analysis, the CFA adjusted to the original two factor model obtaining a sufficient fit ($X^2 = 2550.430$, $g.l.l = 251$, $p = 0,000$) but communalities and pattern matrix show values below 0,3. With a model of two factors,



Graphic 1. Graphic of factor distribution by a two-factors model.

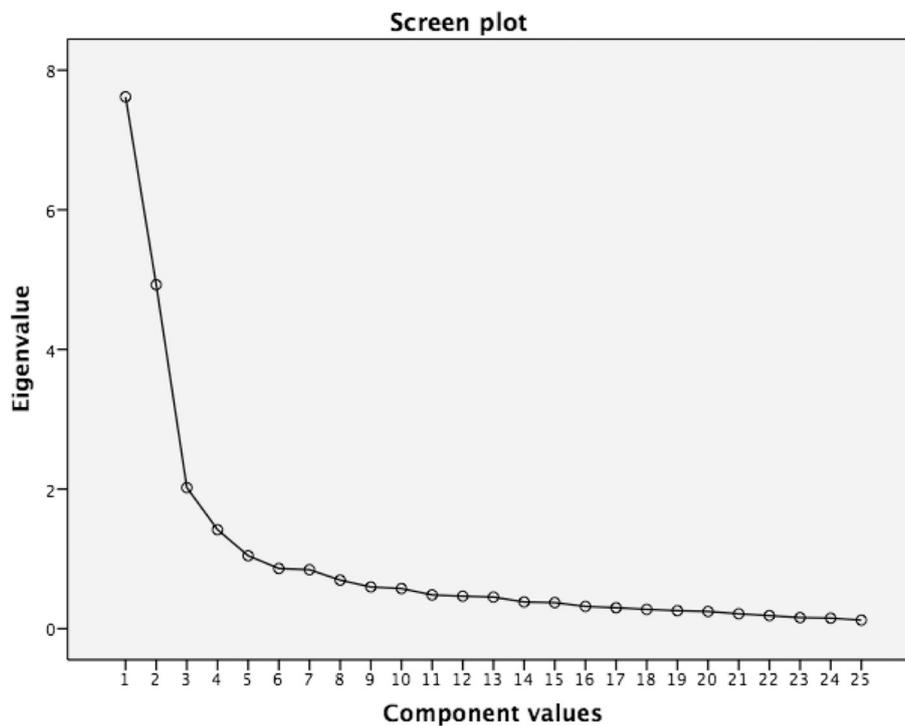
it explains the 51,8% of the total variance. If we observe Graphic 1, we will see the tendencies of model is better explained by 4 factor model.

For this reason, before considering removing any item, we decided to do an EFA ($X^2 = 786.208$, $g.l = 185$, $p = 0,000$). As the Italian Version, we want to explore if the scale fits by a four-factor model: awareness (CA), sensitivity (CS), seeking information (CSI) and active behavior (CAB). The total variance explained increases from to 65% by a (four-factor model). Even though factor 3 and 4 explain a % of variance lower than the 2 first factors, we find suitable to try to fit the scale by a four-factor model. It will give more useful information about each result. Table 1 shows CFA results by four-factor model ($X^2 = 1119.565$, $g.l = 206$, $p = 0,000$) and Graphic 2 shows the screen plot. Item 18 was considered to fit better in the CAB subscale rather than CA.

Table 1

Factorial structure four-factor, 25 items. Item 18 was considered for its information to fit better in the factor active behaviour.

Items	CA	CSI	CAB	CS
11. I think that knowing about different cultural groups helps direct my work with individuals, families, groups and organization	0.880			
4. Aspects of cultural diversity need to be assessed for each individual, group, and organization.	0.864			
6. Spirituality and religious beliefs are important aspects of many cultural groups	0.854			
3. Many aspects of culture influence health and healthcare	0.835			
10. I understand that people from different cultures may define the concept of “healthcare” in different ways	0.824			
9. I believe that everyone should be treated with respect no matter what their cultural heritage.	0.763			
7. Individuals may identify with more than one cultural group	0.751			
18. I avoid using generalizations to stereotype groups of people	0.550		0.535	
13. I seek information on cultural needs when I identify new patients and families in my practice		0.837		
14. I have resource webpages, books and other materials available to help me learn about patients and families from different cultures		0.833		
15. I use a variety of sources to learn about the cultural heritage of other people		0.779		
17. I ask patients and families to tell me about their expectations for care		0.746		
16. I ask patients and families to tell me about their own explanations of health and illness		0.714		
12. I include cultural assessment when I do patient or collective evaluation		0.639		
21. I act to remove obstacles for people of different cultures when patients and families identify such obstacles to me			0.773	
20. I act to remove obstacles for people of different cultures when I identify such obstacles			0.772	
23. I find ways to adapt my services to patient and family cultural preferences.			0.676	
22. I welcome feedback from patients about how I relate to others with different culture			0.617	
19. I recognize potential barriers to services that might be encountered by different people			0.608	
25. I document the adaptations I make with patients and families			0.593	
24. I document cultural assessments			0.579	
5. If I know about a person's culture, I do not need to assess their personal preferences for health services				0.728
1. Race is the most important factor in determining a person's culture				0.723
8. Language barriers are the only difficulties for recent immigrants				0.694
2. People with a common cultural background think and act alike				0.674



Graphic 2. Screen plot from the factorial analysis of CCA Spanish Version.

Table 2

Descriptive statistics, reliability and correlation of the CCA-SV dimensions by a four-factor model.

	M	SD	Cronbach's alpha	
			Two-factor	Four-factor
CAB active behaviour (8)	4.422	2.648	0.863	0.863
CSI seeking information (6)	3.691	3.072		0.865
CA awareness (7)	5.352	3.244	0.869	0.941
CS sensitivity (4)	5.132	2.692		0.697

Table 3

Descriptive results among mean score of age, gender and profession.

	N	Mean	DT	E	IC 95%		Min	Max
					Min. limit	Max. limit		
18–25	39	116.87	19.104	3.059	110.68	123.06	67	152
26–35	115	118.80	20.800	1.940	114.96	122.64	59	164
36–45	166	115.27	20.726	1.609	112.09	118.44	55	153
46–55	159	115.09	21.624	1.715	111.71	118.48	40	159
56–65	85	112.41	19.050	2.066	108.30	116.52	66	149
> 66	2	91.00	0.000	0.000	91.00	91.00	91	91
Total	566	115.53	20.688	0.870	113.82	117.24	40	164
Men	112	114.87	19.175	1.812	111.28	118.46	65	155
Women	455	115.68	21.041	0.986	113.74	117.62	40	164
Total	567	115.52	20.672	0.868	113.81	117.22	40	164
Nurse	435	114.87	22.351	1.072	112.76	116.98	0	164
Other	132	117.24	16.149	1.406	114.46	120.02	61	152
Total	567	115.42	21.081	0.885	113.68	117.16	0	164

We wanted to see if there were significant differences between professions. As the different samples we got, we decided to compare nurses (n = 435) and other healthcare professionals (n = 132). Although the significance for the Levene statistic for the profession (p = 0,000), the ANOVA result (p = 0,258) that there were no differences between variances (see Table 3).

3.2.4. Standard Score

The score was standardized to a maximum score of 10. The distribution of the scores resulted to be normal (Z Kolmogorov-Smirnov = 1109, p = 0,171). Each dimension had a score of 2,5.

4. Discussion

The main objective of this study was to adapt and obtain a scale which evaluates the CC. The chosen scale was the CCA developed by Schim et al. (2003). Its adaption into Spanish language show minimal difficulties. For the psychometric analysis, we obtained that the scale had an acceptable reliability. Although its temporal stability, we can consider that the response days mean was high, and it influences directly on its result. With this result we could include all the items in the CCA-S as the Italian version but not as the Korean version, which deleted 14 items.

In our results in the factorial analysis, we obtained similar results as the Italian version (Caricati et al., 2015). Although the original scale was structured by a model of two factors, the proposed refinement has been well explained by four-factor model present multiple opportunities to this instrument. The construct of CC can be better analysed as his correlation with the Three-Dimensional Model of the authors. The brake down of the two main subscales cause the opportunity to evaluate the first subscale in two main of the main dimension (CS&CA) that involves CC that Schen (2015) defended in his review. Moreover, the division of the subscale of cultural behaviour brought to get two dimensions related to behaviour: one which involves active cultural behaviour in clinical practice, and the other related to the interest/search of information about other cultures. This division in a four-factor model could be useful to get empirical evidence in front of the scarcity information we got since now to promote CC formation.

We considered the “age”, “gender” and “profession” three aspects to analyze if there were differences between mean scores. Being a man or a woman doesn't show significant differences to take into consideration in the future. It happens the same with the age. Although, the range of age from 18 to 25 it is smaller, the mean is very similar to the other ranges. The only range which could be taken into consideration could

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