
An Italian validation of the Cultural Intelligence Scale: A preliminary study

Chiara Ghislieri, Monica Molino, Valentina Dolce, Chiara Mercogliano, Cristina O. Mosso

Department of Psychology, University of Turin

✎ **ABSTRACT.** L'intelligenza culturale (IC) viene definita come la capacità individuale di operare e muoversi efficacemente in situazioni e ambienti culturali differenti. La scala di IC proposta da Ang e colleghi (2007) distingue quattro dimensioni: metacognitiva, cognitiva, motivazionale e comportamentale. Lo studio presenta l'adattamento della versione italiana a 20-item della scala. Un campione di 526 soggetti, che era stato coinvolto in un programma di scambio durante le scuole superiori, ha completato un questionario self-report. I risultati dell'analisi fattoriale confermativa (AFC), con la quale è stata testata la validità della scala, suggeriscono una soluzione a quattro fattori. Inoltre, è stata confermata la correlazione con alcuni costrutti che la letteratura indica in relazione all'IC.

✎ **SUMMARY.** Cultural intelligence (CQ) is a multidimensional construct that refers to the capability to function effectively in culturally diverse settings. The Cultural Intelligence Scale (CQS; Ang et al., 2007) distinguishes between metacognitive, cognitive, motivational and behavioural dimensions. This study presents the adaptation of the Italian 20-item version of the scale. A sample of 526 Italian students who had participated to an exchange programme during high school completed a self-report on-line questionnaire. CFA was performed to test the factorial validity of the scale. The criterion validity has been tested exploring correlations between CQ and some constructs expected to be related. CFA confirmed the four-factor structure. The dimensions presented a good internal consistency and they significantly correlated with constructs related to CQ in literature (self-efficacy, resilience, openness to experience). The study contributes to the literature about international mobility experiences and cultural competence providing the Italian version of the CQS.

Keywords: *Cultural intelligence, International mobility, Scale adaptation*

INTRODUCTION

The increasing number of students involved in international mobility experiences and the different forms of expatriations and international assignments required by organizations (Barmeyer & Davoine, 2012; Desmarais, Ghislieri & Wodociag, 2012) are two important phenomena that recently have led the attention of some scholars toward international mobility studies (Ang et al., 2007). In this regard, some scholars suggest that internationalization in higher education might predict the development of specific skills and knowledge useful to stay and move abroad and manage efficaciously interactions with other cultures (Crossman & Clarke, 2010).

Generally, intercultural competencies can be interpreted in a variety of ways with various models and they have been defined differently (Deardoff, 2006). As suggested by Deardoff's study (2006), the terminology used by institutions administrators to refer to intercultural competencies is wide; more than six different terms have been used, including cross-cultural competence, global competence, intercultural competence, and global citizenship. Intercultural scholars tend to use various definitions also; some of them focus on behaviour and communication, other on cultural awareness, various adaptive traits, and cultural knowledge, and some others on cognitive cultural processes (Deardoff, 2006). Overall, definitions reflect the different representations between countries regarding the expected competences for academic and professional success; these competences depend also on labour market changes. Matsumoto and Hwang' meta-analysis (2013) has identified some of the latest tools able to capture specific cross-cultural aspects, fostering an explicative approach.

As highlighted by authors (2013), different instruments have been developed to test cross-cultural competences, including for instance *Cross-Cultural Adaptability Inventory (CCAI)*, *Intercultural Sensitivity Scale (ISS)*, *Intercultural Development Inventory (IDI)*, *Intercultural Communication Competence (ICC)*, *Cultural Intelligence Scale (CQS)* and so forth. The present study investigates the psychometric properties of the 20-item Italian version of the CQS developed by Ang and colleagues (2007).

CQ can be generally defined as "an individual's capability to function and manage effectively in culturally diverse settings" (Ang et al., 2007, p. 337). CQ is complex to define due to the similarity to other constructs such as cross-cultural

adaptability, cross-cultural or intercultural sensitivity, intercultural adjustment, intercultural communication competence (Matsumoto & Hwang, 2013).

Moreover, CQ is adaptable as regards the ability to act and reason effectively in various cultural situations (Ang et al., 2007). In other words, CQ transcends cultural boundaries, it is related to acquisition of cultural general capability applicable to whatever culture (Ng, Van Dyne & Ang, 2012).

CQ is a multidimensional construct, applying Sternberg multiple-loci of intelligence framework (1986), it consists of four different dimensions: metacognitive, cognitive, motivational, and behavioural dimensions (Ang et al., 2007; Ng et al., 2012).

The metacognitive dimension concerns with the awareness of mental processes adopted to move in culturally diverse settings. People with high level of metacognitive cultural intelligence tend continually to modify appropriately mental models and interaction strategies considering different cultural norms and assumptions that they have acquired. Metacognitive CQ reflects the ability to acquire and understand cultural knowledge, as well as cultural awareness of appropriate behaviours and interpersonal interactions (Ang et al., 2007).

Secondly, cognitive dimension pertains directly to a knowledge about legal norms, social practices, conventions, economic rules present in other cultures acquired from education and personal experiences. High level of cognitive cultural intelligence allows gathering similarity and differences across cultures also in terms of values systems that leads toward specific way of action.

Thirdly, motivational dimension reflects the desire to learn something about another culture and to act in another culture. This dimension might be conceptualized as an energy that leads toward the knowledge of something that is culturally different from us, based on intrinsic interest and high self-efficacy in cross-cultural competence (Ang et al., 2007; Bandura, 2002; Ng et al., 2012).

At the end, as suggested by Authors, behavioural dimension refers to what people do in a different cultural setting in terms of appropriate verbal and non-verbal actions, language, tone, posture and facial expressions. This dimension implies a wide range of possible behaviour appropriate for various cultural settings (i.e. value systems, practices, norms, conventions and so forth). These facets capture aspects that reflect the direction and energy devoted to culturally appropriate behaviours (behavioural and motivational CQ)

and knowledge of appropriate practices, conventions, value systems (metacognitive and cognitive CQ) (Ang et al., 2007; Ng et al., 2012).

The second purpose of this study is to explore the criterion validity examining the relation between CQ and some individual measures such as self-efficacy, resilience and openness to experience. Especially, as highlighted by Ang, Van Dyne and Koh (2006) all four aspects of CQ seem to be significantly related to openness to experience, a dimension of Big Five that refers to the tendency to be creative, imaginative and adventurous (Ang et al., 2007). “When people are dispositionally open to learning new things and willing to seek out and try out novelty, they have higher metacognitive CQ, cognitive CQ, motivational CQ, and behavioural CQ” (Ang et al., 2006, p. 118).

Self-efficacy, as motivational dimension, appears to be strongly related to CQ, indeed as claimed by Ang and colleagues (2007) high level of motivational cultural intelligence is related to confidence in their cross-cultural effectiveness (Bandura, 2002), that facilitates the adjustment in a different cultural situation. Furthermore, MacNab and Worthley’ study (2012) suggests that there is a significant relation between learning cultural intelligence (LCQ) and general self-efficacy. Furthermore, as suggested by scholars also resilience may be a construct related to CQ, in particular it might facilitate interaction in culturally diverse settings, characterized by uncertainty (Reichard, Dollwet & Louw-Potgieter, 2014).

METHODS

Participants

The research involved a convenience sample of 526 Italian students who had participated for one year, six months or three months to an exchange school program with a no-profit organization between 1996 and 2011 during their secondary school period. Intercultura (AFS Italy) is an organization that promotes international mobility in secondary schools through the exchange of pupils at the age of 16-17. Researchers contacted participants through both the official Intercultura email address and Facebook page. They completed a self-report on-line questionnaire (Uniquet). The voluntary participation to the research and the anonymity and confidentiality of the data were emphasized. We obtained

informed consent by participants.

Among the participants 384 were females (73%) and 142 were males (27%). They were aged 21 to 36 years ($M = 27.23$, $SD = 3.35$). Most respondents lived in Italy (77%) while the remaining part lived abroad (23%); furthermore, 31% lived with the birth family, 25% cohabited with the partner, 22% lived with friends or co-workers and 15% lived alone. Of all respondents, 45% worked full-time or part-time, 28% studied and 19% worked and studied at the same time. Concerning educational level, 75% of the sample had a bachelor, master degree or a higher educational qualification. As regards the experience with Intercultural, 75% had spent one year abroad, 15% three months and 10% had stayed six months abroad. Of the whole sample, 40% had left for a destination in North America, 35% in Europe, 10% in Central / South America, 7% in Oceania, 6% in Asia and 2% in Africa.

Measures

- *Cultural Intelligence* was measured by the Italian translation of the CQS (Ang et al., 2007; see Table 1). The 20 items were translated into Italian; then, an expert performed a back translation that was compared with the original version of the items. Finally, a good correspondence between the original scale and the back translation was found. Respondents were asked to indicate how each statement described their capabilities by means of a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree). In line with the original scale, 4 items measured the metacognitive CQ subscale (e.g. “I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds”); 6 items were referred to the cognitive CQ subscale (e.g. “I know the legal and economic systems of other cultures”); 5 items measured the motivational CQ subscale (e.g. “I enjoy interacting with people from different cultures”); and finally, 5 items the behavioural CQ subscale (e.g. “I change my verbal behaviour - e.g., accent, tone - when a cross-cultural interaction requires it”).
- *Self-efficacy* was detected using 10 items taken from the *Achievement Motivation Inventory* (Schuler, Thornton, Frintrup & Mueller-Hanson, 2002), with a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree); an example item is “I am confident that I will succeed”.
- *Resilience* was measured through 10 items of the *Connor-*

Table 1 – Italian version of the Cultural Intelligence Scale (CQS)

Original items	Italian translations
Metacognitive	<i>Metacognitiva</i>
1 I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds.	<i>Sono consapevole delle conoscenze culturali che uso quando interagisco con persone con diversi background culturali.</i>
2 I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.	<i>Sono consapevole delle conoscenze culturali che utilizzo nelle interazioni cross-culturali.</i>
3 I am conscious of the cultural knowledge I apply to cross-cultural interactions.	<i>Adatto le mie conoscenze culturali quando interagisco con persone provenienti da una cultura che è per me non familiare.</i>
4 I check the accuracy of my cultural knowledge as I interact with people from different cultures.	<i>Controllo l'esattezza delle mie conoscenze culturali quando interagisco con persone di culture diverse.</i>
Cognitive	<i>Cognitiva</i>
1 I know the legal and economic systems of other cultures.	<i>Conosco i sistemi giuridici ed economici di altre culture.</i>
2 I know the rules (e.g., vocabulary, grammar) of other languages.	<i>Conosco le regole (ad esempio vocaboli, grammatica) di altre lingue.</i>
3 I know the cultural values and religious beliefs of other cultures.	<i>Conosco i valori culturali e le credenze religiose di altre culture.</i>
4 I know the marriage systems of other cultures.	<i>Conosco il sistema di matrimonio di altre culture.</i>
5 I know the arts and crafts of other cultures.	<i>Conosco le arti ed i mestieri di altre culture.</i>
6 I know the rules for expressing nonverbal behaviors in other cultures.	<i>Conosco le regole per esprimere comportamenti non-verbali in altre culture.</i>
Motivational	<i>Motivazionale</i>
1 I enjoy interacting with people from different cultures.	<i>Mi piace interagire con persone di culture diverse.</i>
2 I am confident that I can socialize with locals in a culture that is unfamiliar to me.	<i>Sono fiducioso di poter socializzare con la gente del posto in una cultura che per me è sconosciuta.</i>
3 I am sure I can deal with the stresses of adjusting to a culture that is new to me.	<i>Sono sicuro di poter affrontare le sollecitazioni di adattarsi a una cultura che per me è nuova.</i>
4 I enjoy living in cultures that are unfamiliar to me.	<i>Mi piace vivere in culture che non sono familiari per me.</i>
5 I am confident that I can get accustomed to the shopping conditions in a different culture.	<i>Sono sicuro che posso abituarli alle condizioni economiche in una cultura diversa.</i>
Behavioural	<i>Comportamentale</i>
1 I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it.	<i>Cambio il mio comportamento verbale (ad es., accento, tono) quando una interazione culturale lo richiede.</i>
2 I use pause and silence differently to suit different cross-cultural situations.	<i>Uso pause e silenzi in modo diverso in base alle diverse situazioni interculturali.</i>
3 I vary the rate of my speaking when a cross-cultural situation requires it.	<i>Vario la frequenza del mio parlare quando una situazione interculturale lo richiede.</i>
4 I change my nonverbal behavior when a cross-cultural situation requires it.	<i>Cambio il mio comportamento non-verbale quando una situazione interculturale lo richiede.</i>
5 I alter my facial expressions when a cross-cultural interaction requires it.	<i>Modifico le mie espressioni facciali quando una interazione culturale lo richiede.</i>
Likert frequency scale from 1 – <i>Strongly disagree</i> to 7 – <i>Strongly agree</i>	Scala di risposta Likert da 1 – <i>Fortemente in disaccordo</i> a 7 – <i>Fortemente d'accordo</i>

Davidson Resilience Scale (Di Fabio & Palazzeschi, 2012), with a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree); an example item is “I tend to bounce back after illness, injury, or other hardships”.

- *Openness to experience* was measured by 3 items from the BFQ - *Big Five Questionnaire* (Caprara, Barbaranelli & Borgogni, 2000), with a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree); an example item is “I am a person who is always looking for new experiences”.

Statistical analysis

The psychometric characteristics of the CQS were examined through a confirmatory factor analysis (CFA) performed by Mplus 7. The CFA method of estimation was maximum likelihood (ML). Several goodness-of-fit criteria were considered: the χ^2 goodness-of-fit statistic; the Root Mean Square Error of Approximation (RMSEA); the Comparative Fit Index (CFI); the Tucker Lewis Index (TLI); the Standardized Root Mean Square Residual (SRMR). Two different solutions were tested, with respectively 1 factor and 4 factors. For comparison of models, the chi-squared difference test was used.

As measure of reliability, Cronbach’s Alpha of each subscales was calculated. In order to investigate the criterion validity of the CQ subdimensions, also correlations between them and other constructs, indicated in literature as potentially related to CQ were tested: resilience, self-efficacy, openness to experience (Ang et al., 2006; Ang et al., 2007; MacNab & Worthley, 2012). Finally,

analysis of variance (*t*-test for independent samples) has been calculated based on some demographic variables (gender and having spent other periods abroad) in order to evaluate the capability of the scale to discriminate among different groups. Descriptive data analysis, the calculation of Pearson correlations and Cronbach’s Alpha coefficients and the analysis of variance have been performed using the software IBM SPSS Statistics 24.

RESULTS

Confirmatory factor analysis

Confirmatory factor analysis was performed on the whole sample, testing two different solutions. Model 1 was a single factor model, tested to address the issue of unidimensionality. Model 2 tested the original 4-factor solution, investigating the dimensions metacognitive CQ, cognitive CQ, motivational CQ and behavioural CQ. Table 2 presents the results of these alternative solutions: Model 2 (4 factors, 20 items) had a statistically significant better fit than both Model 1 (1 factor, 20 items: $\Delta\chi^2 = 1328.13$, $\Delta df = 8$; $p < .001$) confirming the original 4-factor structure: $\chi^2 (162) = 457.42$, $p < .001$; RMSEA = .06 (.05, .07); CFI = .93; TLI = .92; SRMR = .05.

Figure 1 shows the standardized solution; all items loaded on the intended factors with good saturations. In particular, the factor loadings for metacognitive CQ ranged from .61 to .70; the factor loadings for cognitive CQ ranged from .52 to .77; the factor loadings for motivational CQ ranged from .57 to .72; the factor loadings for behavioural CQ ranged from .62 and .81.

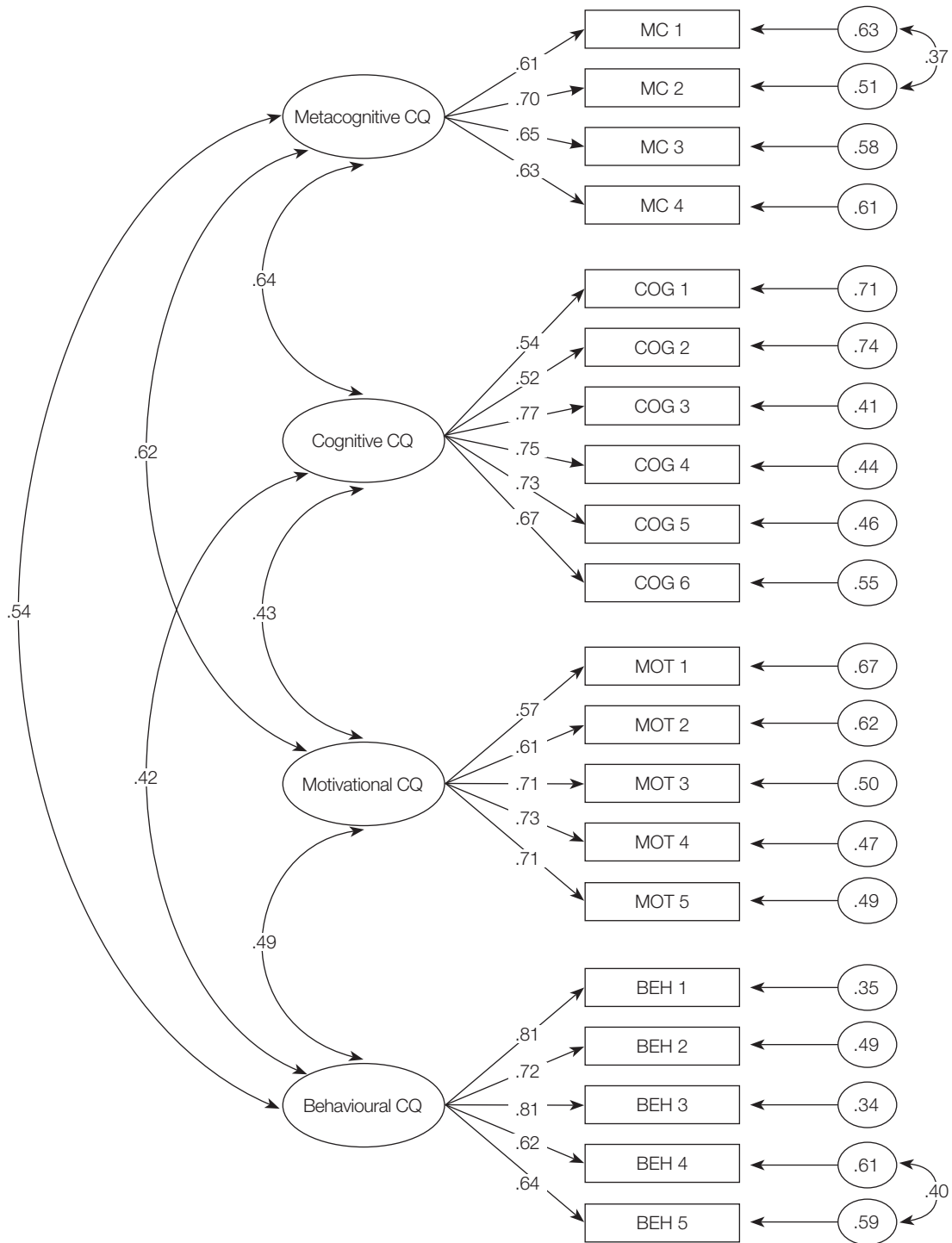
Table 2 – Results of CFA analysis, Goodness of Fit Statistics

	χ^2	<i>df</i>	<i>p</i>	CFI	TLI	RMSEA	SRMR	AIC	Comparison	$\Delta\chi^2$	<i>p</i>
M ₁	1785.55	170	<.001	.61	.56	.13	.10	31780.39	M ₁ – M ₂	1328.13	<.001
M ₂	457.42	162	<.001	.93	.92	.06	.05	30468.26			

Note. M₁ = 1-factor solution; M₂ = 4-factor solution.

Legenda. CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardization Root Mean Square Residual; AIC = Akaike Information Criterion.

Figure 1 – CFA (Model 2, 4 factors, 20 items; N = 526): standardized solution



Note. $p < .001$.

The final solution shows the covariance between residuals of two items of metacognitive CQ subscale, MC1 and MC2. They both measure the consciousness of the cultural knowledge used in interaction with people with different cultural backgrounds (MC1) and in cross-cultural interactions (MC2). In a similar way, the solution calculates the covariance between residuals of two items on the behavioural CQ subscale, BEH4 and BEH5. They investigated respectively nonverbal behaviours and facial expressions in cross-cultural situations. The two aspects are correlated since they detect non-verbal communication; the other three items refer to verbal and paraverbal communication.

Reliability

Table 3 shows reliability and correlations between the four dimensions of CQS. Internal consistency was good, since all values of Cronbach's Alpha met the criterion of .70: Alpha coefficient was .76 for metacognitive CQ, .82 for cognitive CQ, .79 for motivational CQ and .85 for behavioural CQ.

Correlations with other related dimensions

In order to test the criterion validity of the CQS Italian version, correlation between the 4 CQ subscales and other constructs potentially CQ-related were computed. Table 3 shows that all the four CQ dimensions significantly and positively correlated with resilience, self-efficacy and openness to experience.

Differences in the perception of CQ on the basis of some demographic variables were evaluated through *t*-test for independent sample. Results did not show significant differences for gender. Moreover, people who spent other periods abroad, in addition to the one with Intercultura, showed higher level of metacognitive CQ [$t(524) = 2.68, p < .01; M = 5.61, SD = .89$], cognitive CQ [$t(524) = 7.10, p < .001; M = 4.95, SD = .92$] and motivational CQ [$t(524) = 2.18, p < .05; M = 6.15, SD = .78$] than people who did not spend other periods abroad ($M = 5.40, SD = .85$ for metacognitive CQ; $M = 4.34, SD = .97$ for cognitive CQ; $M = 5.99, SD = .77$ for motivational CQ).

Table 3 – Means, standard deviations, correlations and Cronbach's Alphas

	M	SD	1	2	3	4	5	6	7
1. Metacognitive CQ	5.54	.88	(.76)						
2. Cognitive CQ	4.73	.98	.51**	(.82)					
3. Motivational CQ	6.10	.77	.47**	.36**	(.79)				
4. Behavioural CQ	5.27	1.14	.44**	.37**	.40**	(.85)			
5. Resilience	4.03	.48	.39**	.28**	.43**	.32**	(.78)		
6. Self-efficacy	3.70	.59	.41**	.27**	.36**	.33**	.67**	(.85)	
7. Openness to experience	4.44	.58	.32**	.25**	.59**	.25**	.37**	.30**	(.70)

Note. Cronbach's Alpha on the diagonal. ** $p < .01$.

DISCUSSION AND CONCLUSION

The aim of this study was to contribute to the validation of the Italian version of CQS proposed by Ang and colleagues (2007). Results confirmed the 4-factor structure, the reliability and the criterion validity of the Italian scale. The factorial validity of the Italian CQS has been tested through confirmatory factor analysis, which confirmed the presence of four distinct dimensions: metacognitive, cognitive, behavioural and motivational, in line with the original scale (Ang et al., 2007). Moreover, it has been confirmed the correlation between CQ subscales and self-efficacy, resilience and openness to experience in line with literature (Ang et al., 2006; Ang et al., 2007; Bandura, 2002; MacNab & Worthley, 2012; Reichard et al., 2014).

CQ subscales could be useful also for practical implications. This study allows the use of CQ scale in research on cross-cultural competence conducted in Italy. In particular, CQ is evaluated as tool to estimate the impact of the international student mobility. CQ could be developed through international mobility programmes; indeed, as suggested by various researches, international experience could be considered one of the antecedents of intercultural competences (Crossman & Clarke, 2010). "International experience reportedly impacts upon cognition, learning,

cultural sensitivity, personal and professional development and employability" (Crossman & Clarke, 2010, p. 602).

Despite the implications, this study has some limitations. The first one is the cross-cultural nature of the study that does not allow to establish a definite causality relationship between variables. Moreover, it is a cross-sectional study whereas it would be appropriate a longitudinal one and test-retest procedure in order to investigate the reliability of the scale. In this study, the sample filled-in the questionnaire only after their mobility experiences. As a self-report questionnaire, acquiescence bias could not be avoided. Future studies should consider also other-report and objective data, such as professors' evaluation for young participants or job performance and career paths for workers. Finally, the sample is not representative.

Taking into account these limitations, nevertheless CQ scale can be considered an appropriate instrument to evaluate cultural intelligence in Italian context.

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Intercultura (AFS Italy) promotes educational exchanges, sending every year about 2,000 Italian high school pupils to live and study abroad in about 65 countries and welcoming to Italy almost 1,000 young students from all over the world. From its foundation, it has been organized more than 60.000 exchanges.

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