

Conceptualising and measuring cultural intelligence: important unanswered questions

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Taras, V. (2019). Conceptualizing and Measuring Cultural Intelligence: Important Unanswered Questions. *European Journal of International Management*. 14(2): 273-293.

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Abstract:

Cultural intelligence (CQ) is rapidly gaining popularity as a construct that predicts and explains effectiveness and performance in cross-cultural settings, not only in the context of a multi-cultural workplace, but also in other domains of life. Thus, valid and reliable measurement of CQ is important for business, society and research. While dozens of CQ scales have been developed, they tend to suffer from some serious limitations. A number of important questions pertaining to measurement of CQ remain unanswered. The present paper reviews the limitations of existing instruments, points us the issues that must be addressed to advance our understanding of the phenomenon to the next level and provides directions for future research in this area.

Keywords: cultural intelligence | cross-cultural competencies | global mindset | survey development | cross-cultural management

Article:

1 Introduction

The onset of globalisation can be traced all the way back to the great exploration and colonisation times of the 15th–17th centuries (Osterhammel and Petersson, 2009). At those times, a tiny percentage of the global population, likely no more than a few tens of thousands international merchants and military leaders, had the need and opportunity to interact with foreigners on a regular basis. With an exception of the people involved in wars and slave trade, the vast majority of the planet's population probably never came in close contact with representatives of other cultures.

About 200 years ago, the telegraph and steam engine made transcontinental travel and communication a possibility for millions, greatly boosting international trade and interpersonal contact. The internet revolution in the 1990s and the subsequent rise of social media and crowd sourcing, crowd funding and trading platforms in the 2000s made it possible for just about anyone on the planet to connect with just about anyone else, making international contacts truly ubiquitous

(MacGillivray, 2006). Today, interacting with foreigners is inevitable, be it interactions with business partners and expatriate employees, immigrants, foreign exchange students or tourists.

In a world where exchanges with people from other cultures are common, the ability to function effectively in the cross-cultural context emerges as a critical skill required for organisational and personal success. Ability to recognise and navigate cultural cues, communicate and negotiate across cultures, avoid conflicts and achieve desirable outcomes when dealing with people of diverse cultural backgrounds can determine who gets a job, promotion or contract; who completes the project faster, better, and to a greater satisfaction of all involved parties (Schlaegel et al., 2017).

The constellation of competencies, skills and behaviours necessary to effectively function in cross-cultural contexts are often referred to as 'cultural intelligence', or as the Cultural Intelligence Quotient or 'CQ' (Ang and Van Dyne, 2008). Broadly speaking, CQ is defined as a system of interacting knowledge, adaptive skills and a repertoire of leadership behaviour that make one effective in different intercultural situations and allow to adapt to, select and shape the cultural aspects of their environment (Thomas et al., 2008). Simply put, the greater one's CQ, the more likely one is able to effectively manage culturally diverse settings (Ang et al., 2007). This can include both international situations requiring cross-border leadership effectiveness and domestic interactions that involve people of various cultural backgrounds (Alon and Higgins, 2005; Rockstuhl and Van Dyne, 2018).

1.1 The importance of cultural intelligence

Most research into the importance of CQ has focused on the workplace context, and understandably so. It had been estimated that approximately 60% of managers in OECD countries regularly complete tasks as members of globally dispersed virtual teams, and that number is only likely to grow (Hertel et al., 2005). As Crowne puts it (2008), even though "...some workers may never work outside their country of citizenship, many will interact with customers, clients, suppliers, and co-workers who are themselves outside their home country" (p.396).

A growing body of empirical evidence suggests that CQ predicts and explains organisational behaviours, attitudes and performance (for a recent meta-analytic review see Schlaegel et al., 2017). Research on the role and predictive power of CQ has intensified considerably in the recent years. This interest is supported by a substantial amount of empirical research showing that in a multicultural work environment CQ predicts various work-related outcomes, such as expatriation intent (Richter et al., 2019), cross-cultural adjustment (Huff et al., 2014), cultural effectiveness (Lee et al., 2014), negotiation performance (Lee et al., 2014), work satisfaction (Lee et al., 2014) or job performance (Ang et al., 2007). Some of these findings are summarised in recent metaanalyses. For example, based on a recent meta-analysis of data from 121 independent samples (110 studies), Schlaegel and colleagues (2017) showed that CQ explains a significant portion of variance in expatriation intent, adjustment to new cultural and work environments, work satisfaction at expatriate assignments, leadership effectiveness and, ultimately, job performance. Likewise, Rockstuhl and Van Dyne (2018) meta-analysed data from 199 independent samples (167 studies) and corroborated Schlaegel and colleague's (2017) findings that CQ plays a significant role in adjustment to new cultural environments and task performance, as well as in intercultural judgement and decision making.

The importance of CQ is not limited to the business context. CQ is equally critical for effective and enjoyable cross-cultural interactions outside the workplace. International migration

is on the rise globally, so much so that the term ‘immigration crisis’ has entered our lexicon (Czymara and Schmidt-Catran, 2017). According to the International Migration Report (United Nations, 2017), there were 278 million international migrants globally in 2017, which is almost 50% more than there were in 2000. Africa, Asia, Latin America and Caribbean saw the largest international migration increases, between 52% and 68% compared to 2000. However, even in the EU, the USA, Canada and Australia the increases were between 21% and 26% for the same time period. Accordingly, the percentage of foreign-born residents in most countries is also reaching all-time high, with the numbers reaching 70–80% for some of the Arab oil-producing countries such as UAE, Qatar and Kuwait, around 40% in developed Asian countries such as Singapore and Hong Kong (SAR of China), 33% in Australia, 22% in Canada and 19% in the USA. The figures vary for the EU countries, with the highest percentages of foreign-born populations in Switzerland at 29%, 19% in Sweden, 16% in Ireland and Austria or 15% in Germany (United Nations, 2015).

Importantly, the international migration issue dominates the policy debate in many countries. The ‘immigration crisis’ has certainly been among the most contentious issues in the ongoing Brexit saga, or during (and after) the recent elections in the USA, France, Italy and many other countries (Czymara and Schmidt-Catran, 2017). It is not even the number of international migrants per se that makes the issue salient, but the renewed prominence of the issue. Public opinion polls indicate an increasing anti-immigrant sentiment in most countries, notably in the EU (Hobolt and Tilley, 2016; BBC, 2019) and the USA (Van Ramshorst, 2018). In this political and social climate, the need for cultural awareness and sensitivity, ability engage in a civil cross-cultural dialogue, to adapt to new reality and remain effective in cross-cultural settings is greater than ever.

1.2 The importance of accurate measurement of CQ for business, society and research

Under the condition when cross-cultural contacts, and often cross-cultural clashes, are increasingly common, CQ emerges as a vital competency. However, while the importance of CQ has been widely recognised, our ability to measure it remains limited. How can a company develop effective personnel selection, training and development policies without being able to accurately measure cross-cultural competences, skills and knowledge that are so important for business success? If a university tries to measure improvements in CQ from before to after a study-abroad trip, how can it assess the effectiveness of these programs without valid and accurate measures of CQ? How can public officials know if their policies and programs designed to promote cultural awareness and sensitivity are working, unless they have a way to gauge these attitudes and skills of the people in their country? As Lord Kelvin put it in 1901:

When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind.

Most importantly, we cannot advance our understanding of the phenomenon and provide a solid theoretical foundation without being able to measure it. Developing and testing new theories of CQ, its antecedents and consequences, the way it fits in a larger nomological network or organisational and social processes and outcomes is impossible without valid and reliable instruments for measuring CQ.

As noted by Loken and Gelman (2017) in their recent Science paper, it is the measurement error that is the main cause of the ‘replication crisis’. The problem is especially acute in social sciences. Unlike their colleagues in natural sciences, who have objective and universality agreed-upon units of measurement such as metres, kilograms or watts, social scientists do not have a well-developed common measurement system. For some social constructs, no measurement instruments have been developed, while for others, cultural values being one of the examples, there are dozens or even hundreds of different and often conflicting instruments, each instrument relying on a different scale, which makes it impossible to directly compare and integrate the results obtained by the means of these different measures (Taras et al., 2009).

For measuring CQ, at least a few dozen instruments have been developed over the past few decades. However, we still do not have universally agreed-upon and accepted measures whose validity and reliability have been conclusively established (Thomas et al., 2008; Gabrenya et al., 2012). The present paper discusses the challenges of measuring CQ, points out some of the limitations of the existing CQ scales and, most importantly, calls attention to some of the fundamental questions of QC measurement that remain unanswered, and often unasked. The hope is that by pointing out the existing problems and asking the right questions this paper can help steer future CQ exploration and measurement efforts in the right direction.

2 Unanswered fundamental questions

It is unfortunate that much of the effort put into developing models of CQ and their accompanying CQ measurement instruments was without a consideration for the bigger picture, without seeing how these individual models and instruments fit with one another and the larger field. Below is a list of challenges that must be recognised and addressed before theory development and measurement of CQ can advance to the next level.

2.1 Confusing and conflicting terminology: can we speak a common language?

One of the challenges impeding research on CQ is what a lack of common language and terminology, which leads to confusion and hampers collaboration among researchers. The competencies, skills and knowledge that aid effectiveness of cross-cultural interactions have been labelled by different authors as ‘cultural intelligence’ (Earley and Ang, 2003; Thomas et al., 2008), ‘cross-cultural competences’ (Johnson et al., 2006), ‘cultural awareness’ (Tomalin and Stempleski, 2013), ‘intercultural competences’ (Deardorff, 2006; Witte and Harden, 2011), ‘intercultural communication competences’ (Wiseman, 2002b), ‘global competencies’ (Bird et al., 2004) or ‘global mindset’

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are largely a result of limited communication among researchers from different disciplines, such as management, sociology, psychology, education and communication studies, who have studied the phenomenon of CQ independently and came up with their own labels.

A lack of common terminology greatly complicates work with the literature on the subject. Are all of these just different names for the same construct that some call CQ, or do these different terms denote completely different concepts? Can these terms be used interchangeably where cross-cultural competences is just another name for cultural intelligence or are these fundamentally different concepts? Or perhaps these are different facets that together form cultural intelligence? Is CQ comprised of cultural awareness, global mindset, cultural sensitivity and cultural mindfulness, or are these concepts separate from CQ? Or are cross-cultural competencies, global mindset and cultural sensitivity manifestations or consequences of CQ?

The conflicting terminology makes it very difficult to find and build upon all relevant literature on the topic, to integrate related theories proposed by different authors, to review and meta-analyse the available empirical evidence. Recognising the problem, there have been several attempts to disentangle the constructs (Gertsen, 1990; Ng and Earley, 2006; Levy et al., 2007; Spitzberg and Chagnon, 2009; Leung et al., 2014), but some confusion still remains. A comprehensive review that would show how all these different terms relate and overlap with one another and propose common terminology for moving forward would do a great service to the field.

2.2 Conceptualising CQ: what is CQ and what is it not?

Before we start reconciling the conflicting and confusing terminology, we should perhaps first answer the question of what CQ is and what it is not. An important question to start with would be whether CQ is a formative or reflective construct. This question is fundamental to theory building (Diamantopoulos and Siguaw, 2006; Coltman et al., 2008). Although some research has addressed the issue (Rockstuhl and Van Dyne, 2018), it is generally overlooked in the literature on CQ.

A reflective measurement model assumes that the latent construct is an innate trait, or a propensity inherent and engrained in one's mind. As such, it cannot be observed or measured directly, but only through its reflections in behaviours or attitudes which are caused by this latent constructs. For example, general cognitive ability is generally thought to be an innate ability or attribute. It is measured by the means of IQ tests that allow to observe the performance on cognitive tasks as a reflection of the general cognitive ability (van der Maas et al., 2014). The general cognitive ability is independent of an IQ test; the test scores merely reflect and allow to gauge the latent construct.

A formative measurement model assumes that the latent construct is nothing but a combination of its indicators (Coltman et al., 2008). A good example would be socioeconomic status. It is a combination of income, education and occupation. SES does not exist independent of these indicators and is literally a combination these three indicators. Another example could be performance. Performance could be defined as a combination of output quantity, quality and timeliness and it cannot be described independent of these indicators, because by definition is a combination of these factors. It appears the reflective vs. formative distinction has never been explicitly addressed in the literature on CQ.

Let us consider a few specific models of CQ and whether they would conceptualise CQ as a reflective or formative construct. As reviewed by Schlaegel et al. (2017) and Rockstuhl and Van Dyne (2018), the most popular model of CQ and its accompanying CQ measurement instrument

has been developed by Ang et al. (2007). According to this model, CQ comprised of four factors: motivational (interest in contact with people from other cultures), behavioural (change in communication pattern to accommodate conversation partners from other cultures), cognitive (factual knowledge about other cultures) and meta-cognitive (monitoring and trying to improve effectiveness of crosscultural communication).

Ang and Van Dyne (2008) have described in detail their model of CQ and the instrument for measuring the construct, as well, discussed in detail the underlying concept of CQ (e.g., Ang et al., 2007; Ang and Van Dyne, 2008; Ng et al., 2009). However, they never addressed directly the issue of whether the CQ is a reflective or formative construct. They alluded to the formative nature of CQ, stating “[g]iven that we designed the measure to reflect the four theoretical dimensions of CQ, we expected to confirm a four-factor structure and assessed dimensionality with CFA. ... Like facets of job satisfaction, the dimensions of CQ may or may not correlate with each other. Thus, overall CQ represents an aggregate multidimensional construct, which ... includes: (i) dimensions at the same level of conceptualization as the overall construct; and (ii) dimensions make up the overall construct” (p.314). However, this is a rather superficial treatment of this important issue that has important theoretical and empirical implications, and the questions about the nature of CQ remain largely open.

Is CQ, similar to IQ, an innate trait or ability? Is it something that we are born with or develop through training or international experience? If so, then looking at the components of Ang et al.’s model (2007), our motivation to interact with people from other cultures, changes in our communication patters when we talk to people from other cultures, our knowledge of traditions and rituals in other cultures, and our constant monitoring and checking of the accuracy of this knowledge are merely reflections of our innate CQ. Or is CQ, similar to performance, merely a combination of factual knowledge about other cultures, readiness to engage in conversation with people from other cultures, adjusting speech pace and accent to accommodate understanding of the messages by international conversation partners, and perpetual monitoring and improvement of quality of these cross-cultural interactions? The answers to these questions determine not only how we see CQ, but also how we measure it

If we assume that that CQ is a reflective construct, the survey items in CQ instrument would need to share a common theme. The instrument items would be interchangeable and dropping or adding items to the instrument would not alter the domain of CQ. Furthermore, we would expect the instrument items to be highly inter-correlated and the internal consistency (e.g., Cronbach’s alpha) of the instrument as a whole to be high and the factor loadings to load on one factor. For example, people with high CQ would be expected to do all of these: seek contact with other cultures, know about other cultures, adjust behaviour when interacting with other cultures, and constantly monitor effectiveness of these interactions. Moreover, because all of these indicators are just reflections of a common latent domain, we would also expect all items (or factor scores) to correlate similarly with external criteria, such antecedents or consequences of CQ (c.f., Coltman et al., 2008)

In contrast, if we assume that CQ is a formative construct, the instrument items do not need to share a common theme and the selection of the items will determine the domain of CQ. The items would not be interchangeable: we could not drop an item or dimension because it would fundamentally alter the conceptual domain of CQ that we defined as a combination of the indicators that these items represent. Furthermore, we would not expect strong correlations among the items and our model would not be invalidated if one was found to be highly motivated to interact with people from other cultures but have absolutely no knowledge about other cultures, or

vice versa, have extensive knowledge about other cultures but have absolutely no interest in interacting with foreigners. Accordingly, high internal consistency of the instrument would not be expected, and the instrument items could form distinct uncorrelated factors. It would also be plausible that different items (or CQ dimensions) have different antecedents and lead to different consequences (c.f., Coltman et al., 2008).

It is important to highlight that this discussion is not an attempt to answer the question of whether CQ is a reflective or formative construct. It is merely an attempt to highlight the importance of this question. Ignoring the question leaves us in the dark not only with respect to the selection of the CQ instrument items, conceptualising its factor structure, assessing the instrument's psychometric properties and assessing its validity and reliability, but also with respect to how to theorise and test the relationship between CQ factor scores and external criteria, such as the CQ antecedents or consequences, or the relationships CQ mediates or moderates.

It is encouraging that the issue appears to be getting more attention. In their recent meta-analytic review, Rockstuhl and Van Dyne (2018) address the topic more directly, test several competing models and make a case for the reflective nature of the CQ construct. They note that empirical tests appear to provide more support for the reflective model of CQ, which agrees with the view of CQ as a trait, not merely as a collection of behaviours and attitudes. However, the debate does not appear to be fully settled, and further discussion and testing are warranted.

2.3 The dimensionality of CQ: how many dimensions or facets does CQ have?

The answer to the question of whether CQ is a reflective or formative construct has critical implications for the issue of the dimensionality of CQ models and instruments. If CQ is a formative construct, the list of the dimensions (and possibly even items) must be fixed. If we add or drop dimensions to the model, we would fundamentally alter the construct itself. For example, if we define SES as a combination of income, education and profession, we cannot simply drop or add components to this mix. For example, a combination of only education and profession is something different from SES, perhaps 'social class', which is distinct from SES. Or if we add international experience or political affiliation to the mix, it would change the construct to something else, something more complex than SES.

As noted earlier, the four-dimensional CQ model offered by Ang et al. (2007) has enjoyed the greatest popularity in the literature. Other models of CQ postulate a different number of dimensions. Just as a few examples from a much longer list of CQ models and instruments, a very popular commercial CQ measurement instrument called Intercultural Development Inventory (IDI) is based on a unidimensional model (Hammer, 2011). This model assumes that development of CQ progresses from denial of cultural differences (mono-cultural mindset) to adaptation to cultural differences (multi-cultural mindset). In contrast, a recently introduced model and corresponding instrument by Thomas et al. (2015) postulates a three-dimensional view of CQ with Knowledge, Skills and MetaCognition as its components. Yet another popular CQ model developed by the Kozai Group includes six dimensions, including Exploration, Interpersonal Engagement, Relationship Interest, Hardiness, Open-Mindedness and Emotional Resilience (Mendenhall et al., 2008).

Is Ang's four-dimensional model compatible with these other models that rely on a different set of dimensions? If we assume that CQ is a reflective construct and the test scores merely reflect some innate trait, the two models may well be compatible and even interchangeable. They measure the same latent construct, just by the means of different sets of questions and the

choice of the instrument should not change the conclusion about one's CQ level. The set of test items and dimensions is not fixed and the only difference between the two instruments would be that the instrument that captures the more relevant indicators is longer, but its scores reflects the latent construct better. However, if we assume that CQ is a formative construct, then the two instruments are incompatible, because they measure two fundamentally different latent constructs and the choice of the instrument can greatly affect the conclusions about one's CQ.

Previous research has explored the dimensionality of CQ and provided mixed findings. For example, Bückner et al. (2015) assessed the dimensionality of the popular model developed by Ang et al. (2007) and found that a two-factor solution fits the data better than the originally proposed four-factor model. In contrast, Richter et al. (2019) assessed the predictive power of Ang et al. (2007) original four-dimensional model vs. their later expanded model that splits the four dimensions into 11 sub-dimensions (Van Dyne et al., 2012), and found the expanded model to be superior.

Adding further complexity to the issue, some research suggests that the dimensionality of CQ may vary across cultures. For example, research conducted by Schlägel and Sarstedt (2016) and Bückner et al. (2012) shows that the cultural background of the respondents and the language of the survey may affect the dimensionality, factor loadings and functioning of the CQ instrument items. This means that the models of CQ supported by the data from one country may not generalise across cultures and languages of the survey.

2.4 What constitutes cross-cultural effectiveness?

As noted earlier, definitions of CQ focus on the ability to effectively function in crosscultural context (Earley and Ang, 2003; Bird et al., 2004; Ang and Van Dyne, 2008; Thomas et al., 2008). However, what does it mean to be 'effective' in cross-cultural context? A review of the existing models and instruments for measuring CQ (c.f., Gabrenya et al., 2012) seems to imply that being cross-culturally 'effective' is being interested in cross-cultural contact, changing our accent, speech pace, tone and gestures when talking to foreigners, or accepting that people from different cultures are different.

Given the emphasis on adjustment of behaviours and speech patterns, as well as deep knowledge about local culture and traditions (c.f., Behavioural and Cognitive components in the Ang et al., 2007 model), one may assume that assimilation and 'going native' would be the ultimate manifestation of CQ, at least in the context of immigration and expatriation. However, while some could see the ability to blend in and mimic locals as cross-cultural effectiveness, under some circumstances such behaviours could be seen as inappropriate or even offensive and labelled as cultural appropriation (Rogers, 2006). However, from economic point of view, effectiveness is merely achieving one's objectives. It is possible that changing how we speak and being accommodative when interacting with representatives from other cultures may not be necessary, or can even be detrimental to achieving the desired outcome from the cross-cultural interaction? For example, masterfully depicted by George Cukor in the 1964 film 'My Fair Lady', and supported by numerous experimental studies (e.g., Giles and Sassoon, 1983; Stewart et al., 1985), credibility attributions, perceptions of trustworthiness and a sense of solidarity with a person are greatly affected by the speakers accent and manners. In the film, the main character is a flower girl who received training in high-class English from a linguist professor to hide her low social class origin. She succeeds at commanding respect and acceptance as she learns how to speak like a lad of a high social class. No wonder then, people often strive to shed some accents and

communication patterns but retain others. Who is more culturally intelligent, a person from the UK who retains an upper-class British accent for decades after moving to a new country, or an immigrant from a former colony who moves to the metropolis and quickly adopts the accent and manners common there? So while the behaviours are just opposite (refusing to adopt local accent and instead retaining old speech patterns versus a quick action of local accent), depending on the circumstances and context these opposite behaviours could be effective strategies of cross-cultural adaptation.

Another apparently paradoxical example could be a businessman from Mexico who can speak Italian but insists on using English when doing business with Italians. The businessman could hypothesise based on his experience that the need to negotiate in a foreign language could impede his counterparts' ability to effectively argue their position, make them less confident and more anxious, which he hopes would make them weaker negotiators. Thus, is his trying to lure Italians to use English, a language that is less comfortable for them, to get a better outcome of the negotiations a sign of high or low cultural inelegance? According to the CQ models reviewed above (Ang et al., 2007; Hammer, 2011), the businessman's unwillingness to adjust and accommodate his Italian counterparts is a sign of low CQ, but his ability to leverage his cross-cultural experience to get a better result suggests otherwise. Or if CQ develops from uni-cultural to multi-cultural mindset (Hammer, 2011), will focusing on differences among people from different cultures bound to lead to better results than the belief that all people are ultimately the same in their desires and understandings. The IDI model seems to suggest that recognising and adapting to the differences is a more effective strategy, but one can think of situations when being oblivious to cultural differences may actually be helpful.

Further complicating the issue, some research suggests that depending on the personality and background of the person, different traits and skills may be needed for effectiveness in cross-cultural context. For example, Shaffer et al. (2006) explored what factors contribute to cross-cultural effectiveness and adaptation of expatriates. The results of their study suggest that there is no universal formula of cross-cultural effectiveness, but that people with different personalities and in different settings may need to display different traits and behaviours to be effective in cross-cultural context. Additionally, when it comes to evaluating cross-cultural effectiveness, it may not even be clear what outcome could be called 'success'. For example, Caligiuri (1997) explored what constitutes cross-cultural effectiveness in the context of expatriation and came to the conclusion that there is no simple answer to this question. Not only there could be multiple indicators of expatriate success, such as completion of the foreign assignment, cross-cultural adjustment while on assignment, and performance on the foreign assignment, but different people see differently what constitutes effective adaptation and performance of expatriates in cross-cultural settings.

Another interesting refinement in the definition of cross-cultural performance was offered by Wiseman (2002a) who differentiated between cultural effectiveness and appropriateness. In cross-cultural interactions, one could achieve certain goals despite (or due to) ignoring certain cultural customs and thus behaving culturally inappropriately. Would a failure at cultural appropriateness but a success at obtaining the desired outcome still constitute cross-cultural effectiveness? And is it possible that the cultural inappropriateness that allowed to achieve the desired outcome the first time would backfire and preclude future success? It is possible that the definition of cross-cultural effectiveness may vary depending on the type of outcome and the long vs. short term view of the interaction.

3 Limitations of existing CQ measures

Perhaps partly due to the absence of answers to the questions about CQ listed above, the existing instruments for measuring CQ seem to share some glaring limitations, which are reviewed below. Although CQ is a relatively new construct, dozens of instruments have already been developed to measure it. However, based on a review of 32 measures of CQ and cross-cultural competencies in a variety of disciplines, Gabrenya and colleagues (2012) concluded that CQ measurement is still in its infancy and there is a clear need for better measures. Below is a review of some of the most critical (and common) limitations of the existing CQ measures that have been described in the literature.

3.1 Self-report makes test results easy to manipulate

Probably the biggest limitation of the existing CQ instruments is their reliance on subjective self-report. This may not matter if the test is taken for a self-assessment and the test taker is interested in an accurate evaluation and, thus, answers all test questions honestly. However, if the test is used for recruitment and selection or for monitoring performance and learning, the test takers may be motivated to manipulate their test results.

It is not hard to guess which answer choices would yield higher CQ scores. Although most CQ instruments were not designed to serve as personnel selection tools, given the importance of CQ in the workplace, they are likely often used for appraising capabilities of prospective employees, or for assessing suitability of employees for assignment that require cross-cultural competences. If the test taker wanted to receive more favourable test results, it would be easy to guess which answers inflate test results and fake the responses. For example, here are a few randomly selected items from the CQ instruments mentioned earlier.

Sample items from the instrument by Ang et al. (2007):

I know the legal and economic systems of other cultures.

I know the arts and crafts of other cultures.

I enjoy interacting with people from different cultures.

I am confident that I can socialize with locals in a culture that is unfamiliar to me.

Sample items from the instrument by Thomas et al. (2015):

I know the ways in which cultures around the world are different.

I enjoy talking with people from different cultures.

I have the ability to accurately understand the feelings of people from other cultures.

I can change my behaviour to suit different cultural situations and people.

Sample items from the instrument by the Kozai Group (Mendenhall et al., 2008):

I like to have contact with people from different cultures.

I regularly read the travel section of the newspaper.

I can often be found reading about world geography.

I enjoy making friends with people from other cultures.

It is easy to deduce that indicating a strong agreement with these statements would improve the test scores, and thus the test results can be easily manipulated.

Let me explain this problem by comparing a general cognitive ability test (IQ) to its cultural intelligence counterpart (CQ). The defining feature of IQ tests is that they comprised of items that have correct and wrong answers. The respondent either knows the answer (indicates high IQ) or does not (indicates low IQ). In contrast, almost all of the 32 CQ tests reviewed by Gabrenya and colleagues (2012), rely on self-assessment. Table 1 provides an illustrative comparison of the two approaches, highlighting the limitations due to subjectivity of the approach used in most CQ measures. For example, in an IQ test, the question could be (and I simplify here to illustrate the point), ‘2+2=?’ If the respondent answers ‘4’, a point is awarded. An answer other than ‘4’ results in no credit for the question. CQ measures, in contrast, do not directly assess one’s cultural competencies or knowledge. Instead, they ask the respondent to subjectively evaluate and self-report them.

Table 1 Comparison between illustratively simplified IQ and CQ approaches

<i>IQ</i>	<i>CQ</i>
<i>Comparison between real IQ and CQ questions</i>	
	Do you agree with the following statement:
Which number should come next in the series 1, 3, 6, 10, 15, ____	I know the legal and economic systems of other cultures
A. 8	1. Strongly disagree
B. 11	2. Disagree
C. 24	3. Somewhat disagree
D. 21	4. Neither agree, not disagree
E. 27	5. Somewhat agree
	6. Agree
	7. Strongly agree

Some of the instruments, such as the BCIQ scale by Alon et al. (2016), try to address the problem by including a set of cultural knowledge questions that have correct and incorrect answers. The questions could be open-ended or multiple choice and unless the respondent knows the subject, guessing the correct answer would be unlikely (e.g., What is the currency used in Switzerland? or Is a knife an appropriate gift in Russia?). However, this approach to preventing test score manipulations would work only for the cognitive dimension of CQ. The other dimensions, notably the motivational and metacognitive deal with feelings and self-reflections and, thus, can only be assessed through self-report, and are thus open to manipulation by the test taker. Likewise, the

behavioural adjustment could only be objectively measured through an observation of how the test taker behaves in the real cross-cultural settings, which is usually prohibitively costly and, thus, self-report is the only practically viable option. Some researchers have tried developing techniques for assessing cross-cultural competencies through observation of behaviours. For example, Ruben (1976) proposed a methodology for behavioural observation along several predetermined dimensions, using role play or scenarios, for measuring cross-cultural interactive skills. Despite its obvious advantages, the method never gained popularity, probably due to the difficulties of administration the procedure compared to a more efficient self-report questionnaire approach.

A team of researchers at the Simon Fraser University led by David Thomas tried to simplify the process by asking the test takers to watch videos depicting various crosscultural interactions and answer questions about appropriateness and effectiveness of the behaviours displayed by the characters in the video. Unfortunately, the technique proved to be relatively difficult to administer and score and the project was officially shut down (personal correspondence with the researchers, but also see Inkson and Thomas, 2011 for a brief description of that project). A more recent attempt to reconcile measurement objectivity and the cost of test administration by Bartel-Radic and Giannelloni (2017), who proposed a use of critical incident technique to assess cross-cultural competencies. Under this approach, the respondents are presented with a series of scenarios and are asked to evaluate the appropriateness and suitability of different behaviours in the described situations. We are yet to see if this instrument will gain popularity.

3.2 Self-evaluation hinders test accuracy

Self-evaluation bias is different from self-report bias described above. Even if the test taker attempts to answer the test questions as honestly as possible, the challenges of self-evaluation can introduce a significant error and render the test results inaccurate. The test taker may simply be unable to provide an accurate self-evaluation, and may instead report a confidence level, which is different from the actual knowledge or trait prominence

Consider this sample item from Ang et al.'s (2007) instrument that asks the test taker to self-evaluate and report the level of agreement the following statement, 'I know the legal and economic systems of other cultures'. If IQ test questions followed the same subjective self-report format, they would not ask '2+2=?', but instead would be phrased like this:

Do you agree with the following statement: 'I know the answer to the question "2+2=?" Please answer by indicating your agreement on a seven-point scale, where 1 = Strongly disagree and 7 = Strongly agree'.

Clearly, one's honest belief that one knows the answer to the question does not necessarily mean this is actually the case. What level of cultural knowledge exactly does the anchor 'somewhat agree' represent? The evaluation is inherently subjective, unreliable and incomparable across test takers. First, these sorts of questions are just hard to interpret. Assume one has some knowledge about 'legal and economic systems of other cultures' and wants to report this level honestly and correctly. The person realises his or her knowledge is not comprehensive. Should the respondent choose '2 = Disagree' because the respondent knows he/she does not know everything about 'the legal and economic systems of other cultures' and thus cannot agree with the statement that says, 'I know', because it implied complete knowledge, whereas the reality is limited knowledge? Should the respondent choose '5 = Somewhat agree' because one knows something, but not

everything? Or should the respondent choose '7 = Strongly agree' because the respondent does have some knowledge in the area and thus 'knows' at least something? At which point should one move from 'Disagree' to 'Agree'? Some knowledge in general? Deep knowledge about at least two countries? Deep knowledge about all countries? Deeper knowledge than that of some 'average' person? All of these are logically defensible choices and, thus, the number the respondent would choose on the scale is much stronger affected not by the extent of the cultural knowledge, but by the interpretation of this 'agree-disagree' question.

All kinds of other factor can sway subjective self-evaluations away from the objective truth. For example, the test taker may not have a good reference point. If the respondent's friends and acquaintances have very limited international experience, the respondent may award her/himself a 7 just because her/his knowledge is higher than that of his acquaintances. Other personal biases, such a superiority or inferiority complex (Adler, 2013) can also affect one's self-evaluation.

The problem of the difficulties of self-assessment could be partially mitigated if instead of asking for the level of agreement, the answer choices are expressed in more objective terms, such as a frequency of specific observable behaviours. For example, the 'quasi-observational' CQ instrument developed by Taras (2017) mirrors Ang et al.'s (2007) model in terms of the dimensionality and content of the instrument, but instead of asking to state agreement with generic statements, asks the respondents to recall the frequency and report the frequency of specific behaviours and reactions in cross-cultural interactions. The test starts with priming. The respondent is asked to recall several recent cross-cultural encounter, such as international trips. A series of clarifying questions about the purpose and duration of the trip helps the respondent better recall the experience and start a retrospective 'quasi-observation'. The following items ask about the same issues that are commonly included in traditional CQ instruments. For example, an abstract item

Do you agree with the following statement: I spend a lot of time learning about cultures of the countries I am about to visit. Answer options: 1 = Strongly disagree to 5 = Strongly agree.

becomes a retro-observational item

In the weeks before your trips, how much time did you spend preparing and learning about the cultures and traditions of those new countries? Answer options: 1 = Did not spend any time to prepare for the above-mentioned international trips, 2 = A few minutes; 3 = About an hour; 4 = Many hours.

As another example, an abstract item:

As I interact with people from different cultures, I try to learn about their cultures. Answer options: 1 = Strongly disagree to 5 = Strongly agree.

becomes a retro-observational item

If you had to write down the new things you learnt about the cultures of the countries you visited recently, how much could you write? Answer options: 1 = A

few sentences; 2 = One page; 3 = Several pages; 4 = I learned so much I could write a book.

Clearly this retrospective observation approach does not preclude test results manipulations. The test taker can still cheat and select more favourable responses. However, if the test taker is trying to provide honest objective answers, reporting a specific objective number or duration of past occurrences or behaviours reduces interpretation confusion and bias.

3.3 Cross-cultural response set

Lastly, the answer may be affected by cross-cultural response style differences. The retrospective approach with its questions about frequencies and durations of specific behaviours may help mitigate the problem, but only partially. Research has shown that extreme response and acquiescence bias can be affected by one's culture and personality (Smith, 2004; Johnson et al., 2005; Harzing, 2006; Smith and Fischer, 2008). The extreme response bias manifests itself in the propensity of some people to choose extreme scores on the scale, while others tend to choose points that are closer to the middle of the scale. For example, people from collectivist cultures, such as those of many Asian countries, tend to choose middle points on the scale, while people from individualist cultures tend to choose points closer to the extremes (Harzing, 2006; Gabrenya et al., 2012). Likewise, people from some cultures, notably those characterised by collectivist, high-power distance and uncertainty avoidance, tend to choose points on the scale that indicate agreement with the statement, while people from collectivist, low power distance and high uncertainty avoidance cultures express their disagreement with the statements more readily (Johnson et al., 2005; Harzing, 2006).

Different methods have been suggested to prevent the extreme response and acquiescence bias. For example, mixing positively and negatively worded items when designing the test, or standardising the data within subjects after the tests are completed can remove some of the bias (for a more detailed review of these and other methodologies see Smith, 2004; Smith and Fischer, 2008). Unfortunately, the use of these techniques has not been commonly used by the authors of the existing CQ instruments (Gabrenya et al., 2012). As a result, two test takers may select the same answer option, for example, '4' on a five-point scale, but this same number may represent a different level of agreement, knowledge or behaviour tendency.

Also, as discussed earlier, research into measurement invariance of CQ in different countries is suspect, as the psychometric properties and the factor structure of the data collected using CQ instruments in different countries is often not equivalent (Bücker et al., 2012; Schlägel and Sarstedt, 2016). It is possible that the cross-cultural differences in the way people respond to Likert-type scales could be one of the reasons for differences.

A related issue is the emic vs. etic approach to assessing CQ, a topic that is often discussed in the context of measurement of cultural values (Triandis et al., 1993; Berry, 1999). The etic approach assumes that the same measures universally apply to all populations. It is based on the premise that the concepts and questions described in the questionnaire are understood and interpreted exactly the same way by representatives from all cultural groups, which of course may not be the case. However, the reality is that respondents from different countries may not be familiar with the concepts referred to in the CQ questionnaires, and thus would answer the survey questions very differently. For example, the concepts of 'saving face' and 'xuangi' are among the fundamentals of the Chinese culture, but could be completely foreign and uninterpretable to the

representatives of Western cultures, while related, but distinctly different concepts may exist in the Middle East (Velez-Calle et al., 2015).

4 A checklist for selecting/designing an optimal CQ measure

It is beyond the scope and purpose of the present paper to provide the answers and resolve the challenges of measuring CQ. However, the future researchers could benefit from recognising the challenges and asking the questions listed above before developing a new CQ measure or selecting one from among the many existing instruments. The following checklist could help in this endeavour.

Prior to administering the measurement:

- Use proper terminology: Beware that different authors use different terminologies when talking about CQ. Always check the definitions and content of the existing instruments and always provide clear definitions for the next concepts and models to ensure proper interpretation.
- Decide if you treat your CQ as a reflective or formative construct: Your choice and understanding of the nature of CQ, that is whether it is an innate or a combination of different skills and competencies, will determine the content of the survey, how the survey items and dimensions relate to the latent construct and one another and to the external factors and how the psychometric properties of the instrument are assessed.
- Decide what constitutes effectiveness in cross-cultural context: It is commonly assumed that recognising and accepting cultural differences and adjusting communication style and behaviour to make the interaction more comfortable and enjoyable for international partners is the best strategy in cross-cultural settings. However, depending on the nature of the project and the goals of the parties, different strategies may be more effective. Check if the instrument recognises and accounts for the differences of these strategic choices.
- Use CQ dimensions/measures that fit the research purpose: The CQ measure and the CQ dimensions selected for the study should also fit the theoretical model of the study; that is, the CQ dimensions must be directly relevant and be able to explain the outcome or intermediate factors in the hypothesised model. The theoretical arguments about the effect of CQ should not be general, but instead focus on the specific dimensions and how they are related to the outcomes hypothesised in the study
- Consider if observation or quasi-observation could be used instead of self-report: Remember about the dangers of self-report and self-evaluation. If the situation and resources allow, consider assessing CQ by observing actual behaviours in crosscultural settings, or at least asking about actual behaviours during past cross-cultural encounters.
- Check if answer options can be subject to subjective interpretations: Try to avoid survey items that are open to interpretation and the answers can be affected by the choice of reference point, personal experiences, misinterpretation or biases.

- Use a mix of positively and negatively worded items: Favour instruments that use a combination of positively and negatively worded items. This approach can help mitigate the extreme response and acquiescence bias.
- Check if there is a fee for using the instrument: Lastly, be aware that there is a multitude of instruments for measuring CQ. Some of them require a fee for using the instrument, while others are published in the public domain and are free to be used for academic and research purposes, but not always for commercial purposes. Check with the author of the instrument to be sure and avoid unsanctioned use of the instrument.
- Use measures in the mother tongue of respondents: If possible, use the native language of the respondents, or at least ensure that the respondents are fluent enough in the language of the survey. Either way, if possible, use scales that have shown broad measurement invariance across countries.
- Consider standardising responses within subjects or cohorts: Such standardisations can help minimise the response set bias. However, be careful as such data manipulations can also remove useful variations and change the interpretation of the findings.

We are still far from having a universal, valid, accurate, reliable and efficient instrument for measuring CQ. The present paper attempted to point out some of the challenges encountered by the researchers in our field and provide directions for future efforts in this area. Recognising and avoiding the past problems and asking the right questions can help the field move in the right direction.

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