

Measuring Global Management Competencies: a Search for Systematic Instrument Comparison.

**Paper for
35th EIBA ANNUAL CONFERENCE
RESHAPING THE BOUNDARIES OF THE FIRM IN AN ERA OF GLOBAL
INTERDEPENDENCE
Valencia, Spain, - December 13th-15th, 2009**

DRAFT VERSION. PLEASE DO NOT QUOTE!

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Measuring Global Management Competencies: a Search for Systematic Instrument Comparison.

Abstract

Managers today need ‘global management competencies’ in order to operate effectively in international business. In order to prepare managers for the global arena, an instrument measuring ‘global management competencies’ (GMC) is very welcome. In this article we design a framework from which to systematically assess measurement instruments that aim to measure the construct of ‘global management competencies’. Based on elaborate search, we found 23 instruments, all measuring aspects of GMC, with special focus on the measurement of how to cope with cultural diversity. Despite the large number of instruments, these instruments show a large diversity in quality. These instruments are mostly focused on self-reporting survey questions only, often measuring attitudes, without any indication of actual behaviour in cross-cultural interaction. Using the assessment framework, we selected a limited number of instruments that may be useful for assessing global management competencies.

Keywords: International business, global management competencies, methodology, measurement instruments, intercultural adjustment, assessment.

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Introduction

“The continued globalization of industries has led to the relentless quest by organizations worldwide for global leaders who can help their companies survive and, perhaps thrive, in this highly competitive environment” (Tung, 2004). To prepare global leaders for their role it is important to support them developing the right mindset. To do that, we need “to discover the states of mind that shape the dynamic process of corporate internationalisation” (Bonache and Cervino, 1997). Insight in the competencies of a global manager is very welcome. In this paper we explore instruments that intend to measure these ‘global management competencies’.

Having established an appropriate theoretical construct for ‘global management competencies’, the first step towards finally composing an instrument is to ask oneself the question how to measure it. The availability of a good quality instrument, measuring Global Management Competencies, supports the quality of selection and development processes of global leaders. But when can we speak about a good quality instrument?

According to Nunnally (1967), the process of measuring involves “rules for assigning numbers to objects to represent quantities of attributes” (Nunnally, 1967, 2). Churchill (1979) adds to this: “it is the attributes of objects that are measured and not the objects themselves”, and “the rigor with which the rules are specified and the skills with which they are applied determine whether the construct has been captured by the measure” (Churchill, 1979, 65).

Of course there are the basic requirements of validity and reliability which must be met. Next, a specific requirement in measuring competencies is that we must measure not only the potential availability of global management competencies but also the ability to act and to behave effectively. So we must measure not only the intent to act but also the action itself. This implies to measure as close as possible the behaviour of a person and not so much the attitude. However, most of the existing instruments regarding competencies, measure mainly attitudes. As we want to get grip on the behaviour manifested while interacting cross-culturally, we must measure the behaviour in complex circumstances where the person must monitor, interpret, and behave rapidly under ambiguous conditions. To measure this, a traditional survey questionnaire may be insufficient. What may be used is a description of a

cross-cultural interaction or a critical incident and ask the respondent to choose from different behavioural repertoires.

In this article we address the following questions:

- What is the conceptual model of the theoretical construct ‘Global Management Competencies’ (GMC) for which we aim to develop a measurement instrument?
- How do we want to measure the construct?
- If we use a measurement instrument, how can we make sure that the measures are appropriate?
- Which measurement instruments are available and what quality do they have?

We answer these questions by starting to develop a global management competencies model drawing on an extensive literature review (next paragraph). In addition, an extensive review of existent measurement instruments is done. To the best of the authors’ knowledge such a review is not done before. To be able to critically review existing GMC instruments and select the most valuable ones or parts of them, it is necessary to define the requirements that a measurement instrument of ‘global management competencies’ must fulfil. These requirements are discussed in the following paragraph. After that, we will critically analyse the existent measurement instruments according to the requirements and select the most promising ones for further research. But first let us start with the description of the conceptual model of GMC.

The GMC conceptual model

Figure 1 shows the conceptual model, integrating the most critical components of four constructs, the global mindset construct, the cultural intelligence construct, the intercultural effectiveness construct, and the cultural competence construct. This model will be published in a special issue of the Journal of Managerial Psychology (Bücker-Poutsma forthcoming) and represents the ‘global management competencies’ construct which forms the starting point for building a measurement instrument. Here we provide a brief summary of the model.

Figure 1 Conceptual model of the Global Management Competencies construct.

<Figure 1 about here>

The model presented in figure 1 consists of a number of independent variables presented in the bottom circle; they are described in the paper as the behavioural aptitudes or

personal characteristics, often summarised under the acronym KSAOs, which stands for Knowledge, Skills, Abilities, and Other personal characteristics (Schippmann et al., 2000). These KSAOs together constitute a configuration and are related. The strategic and cultural knowledge together with the skills and abilities determine the behavioural repertoires, which can be used in global strategic management and decision-making.

The top circle in figure 1 is described as ‘mindfulness or meta-cognition’, a component introduced in the ‘cultural intelligence’ literature and representing a learning factor that continuously monitors, interprets and adjusts the KSAOs in the bottom circle. “Metacognitive CQ is the higher-order mental capability to think about personal thought processes, anticipate cultural preferences of others and adjust mental models during and after intercultural experiences (Ang et al., 2007, 341). The meta-cognition component can be found in the example of a young Dutch manager, operating as an interim manager in the Indian subsidiary of a Dutch IT company who decides to formally install a senior Indian manager as his/ her spokesperson and relates him-/ her-self open but respectful to this senior manager. In this case the Dutch manager makes use of cultural knowledge of the Indian management system where formalisation and respect for seniority play an important role (Tayeb, 1996) and of the context of an IT firm where relations are more open than in other industries (e.g. manufacturing industry). Furthermore, this Dutch manager inhibits the (typical Dutch) motivational drive to act independently (Hofstede, 1991), and makes respectfully use of the senior role of the Indian manager. Based on this experience, the manager may adjust his/ her mental model regarding the behaviour of senior Indian managers in the IT industry.

The influence of meta-cognition is transmitted via the mechanism of ‘cognitive processing’ and ‘motivational processing’. Cognitive processing results in the adaptation of general and specific cultural and strategic knowledge, and leads to the development of new cognitive frameworks or schemata, the seeking of multiple perspectives and the adaptation of value propositions. Cognitive processing is closely related to the cognitive intelligence construct of Ang et al. (2007), which refers to knowledge structures. Cognitive processing in the former example consists of the awareness and recognition by the Dutch manager of the Indian rather formal culture where respect for seniority is important. On top of that, the Dutch manager observes that the younger generation in India expresses a different interpretation of the principles of seniority and formality and that especially in the IT branch a more open and informal use of language seems appropriate. Motivational processing stimulates the awareness and interpretation of our, culturally different, assumptions, ideas, and emotions and how they influence what is desirable, and thus affect our behaviour. (Thomas, 2006). Motivational

processing supports the Dutch manager's decision to hand over part of his power to the senior Indian manager although the Dutch manager feels the pressure from headquarters to prove himself as an independent manager (not relying on other senior managers) in his first overseas job (Hofstede, 1991). Despite the pressure from above, the Dutch manager suppresses his need for power and gives up part of his independence.

The combination of cognitive processing and motivational processing leads to the development of new behavioural repertoires. Developing behavioral repertoires is closely related to the construct of 'Behavioral Intelligence' described as "the capability to exhibit appropriate verbal and non-verbal actions when interacting with people from different cultures" (Ang et al., 2007, 338). In the former example, this is reflected by the manager, expressing his/ her respect, and delegating part of the attributed power to the Indian senior manager while communicating this in a rather informal ceremony. Both the cognitive processing as well as the motivational processing is influenced by cultural differences. First, depending on the culture, we develop different cognitive frameworks or schemas, second, culture will influence the composition of the self, e.g. the personal values. The values are the starting point for motivation. The ambition to live according to the values is what defines motivation (Sandbert, 2000). For a Dutch manager in an Indian IT company, giving in on power and formality, is expected to cost less effort than it would cost for a French manager (higher power distance, Hofstede, 1991) in an Indian automotive plant (automotive industry more formal than IT industry) due to cultural distance (Kogut & Singh, 1988) with respect to national culture, French-Dutch, (Hofstede, 2001), and industry culture, IT-Automotive industry.

The role of the personality traits in the model is an intermediary one of accelerating or inhibiting the cognitive and motivational processing. Starting from the Big Five personality traits, 'conscientiousness' and 'openness', enable faster and more accurate monitoring, interpreting, and acting upon a cultural interaction. (Ang et al., 2006). . These traits also stimulate the learning process that takes place when the success and failure experiences lead to the development of new knowledge, skills, and behavioural repertoires represented by the feedback loop in the model, following the three steps of monitoring, interpreting, and adjustment. Ang et al. (2006) also found relations between the other Big Five traits and components of cultural intelligence.

Finally, the cultural and 'strategic success- and failure- behavioural experiences' are the dependent variable, which will finally lead to (more or less) effective cultural and global strategic performance. A feedback loop from the 'cultural and strategic success- and failure-

experiences' to the configuration of KSAOs triggers the learning process via cognitive and motivational processing.

Methods for measuring GMC

Single or mixed methods

To answer the question what kind of research methods are needed, we first need to look at the research question and the research field. International business is a multi-disciplinary and multi-faceted area of research, crossing different kinds of boundaries, like national, cultural, disciplinary, and organisational, bringing forward complicated research questions. Making use of only one or a limited number of research methods would not do justice to the rich reality to explore. According to Weick (1979), making use of only a narrow methodological approach in a complex context would reveal only a small slice of reality. McGrath (1982) follows another reasoning by saying that research methods in itself are imperfect and incomplete. This legitimates the use of methodological pluralism. However, in reality most researchers have a strong preference for one specific research method, often leading to a rigid exclusion of the 'other' method.

Hurmerinta-Peltomäki & Nummela (2006), see an opportunity in International Business as a new research area which "still offers several avenues of exploration for which theoretical roadmaps do not exist or are inadequate" (Hurmerinta-Peltomäki & Nummela, 2006, 440). Consequently, for our research concerning 'global management competencies', we propose to make use of multiple methods which will eventually benefit the quality of the outcome. Although the 'Global Management Competencies' construct can be measured on individual, team, and organisational level, in this research the construct will be measured only on an individual level.

We stress the use of combinations of research strategies, e.g. triangulation of methods. Creswell (2003) defines mixed methods as one that combines qualitative data collection and/or analysis with quantitative data collection and/or analysis in a single study. This combination may be used at various stages of the research process: problem setting, theory building, data collection, analysis and interpretation (Creswell, 2003). The solution of today's problems in International Business "requires a holistic, multidisciplinary and multi-method approach" (Hurmerinta-Peltomäki and Nummela, 2006, 453). Also Johnson claims the use of triangulation. "To this end, the triangulation method for assessing tacit knowledge, as expounded by Sternberg et al. (2000) should prove useful for capturing both the multidimensional nature of the construct and the tacit knowledge aspects of Cultural

Competence" (Johnson et al., 2006, 538). Qualitative research methods could play here a complementary role (Kwanjai & Den Hertog, 2008).

In the area of cultural intelligence, Thomas et al., 2008, claim that "conventional testing methods such as surveys, interviews, observations, computer simulations, critical incidents, and verbal protocols may all be profitably employed to measure one or more aspects of cultural intelligence" (Thomas et al., 2008, 136). Furthermore, they claim: "We suggest that any single approach to measurement of this complex construct is likely to be inadequate" (Thomas et al., 2008, 136). Johnson further refers to a method, which makes use of written scenarios for which the respondent is asked to select the most appropriate response. Byram (1997) suggests using portfolios in which individuals record critical incidents from their own experience and explain how they reacted to them: these portfolios could be used to supplement the written scenarios (Byram, 1979).

Summarising, the International Business research field is a field demanding a mixed methods research strategy. To what extent do the existent measurement instruments make use of mixed methods?

Methods for measuring components of GMC

Apart from the use of mixed methods, certain elements of the model probably require specific measurement. For elements such as personality, knowledge and skills the instruments are straightforward and probably available. For other elements such as metacognition, this is not so obvious.

Operationalization of cultural metacognition comes down to the believe in the ability of individuals to provide true introspection into their own cognitive processes, which has long been questioned (Nisbett and Wilson, 1977). Although much of the research on metacognition relies on retrospective self-reports, some researchers have investigated metacognition using process tracing techniques under the name of verbal protocol analysis. It assumes that the whole process of information search, evaluation of alternatives, and the choice of courses of action can be registered through their verbalisation. The verbalisation can be collected during (concurrent with) the cognitive processing or afterwards (retrospective) (Thomas, 2008). Indirect indicators of metacognition are "the speed of cognitive processing and the ability to convert specific information into general guidelines for cross cultural interaction" (Thomas et al., 2008, 137). Thomas et al. (2008) suggest that the dynamic nature of cultural intelligence suggests the possible application of dynamic types of tests of intelligence (Sternberg, 1997b in Thomas, 2008, 137; Sternberg & Grigorenko, 2002, 127-

136). Dynamic tests of intelligence assess the participant's ability to profit from feedback, which gives an indication of the difference between his/ her latent capacity and observed ability; also called the zone of proximal development (Vygotsky, 1978). Thomas (2008) concludes that no single method will assess cultural intelligence as defined in their model. - Retrospective self-reports of cognitive processes seem inadequate; rather a matrix of assessment approaches will be required to tap this new construct (Thomas, 2008, 138).

In addition and regardless of methods, the psychometric context that defines the operationalization(s) and measurement of the construct must be established. It is important to define the assessment of the construct in such a way that cultural bias is not introduced. Lack of cross-cultural equivalence is a common problem in most western intelligence tests (e.g. Sternberg, 2000), and GMC is an inherently cross-cultural construct. Regarding the analysis of measurement instruments, we must investigate whether dynamic methods are used and if measurement bias is introduced.

Requirements for survey methods

If we make use of a survey instrument certain procedures have to be met as to guarantee sufficient validity (e.g. construct validity or criterion validity) and reliability. Hinkin (1995) declares that the development of measures falls into three stages. The first stage is item development or the generation of individual items, the second stage is scale development or the manner in which items are combined to form scales, and the third stage is scale evaluation or the psychometric examination of the new measure (Hinkin, 1995, 969). Each stage is then split up in further steps as done by Hinkin (1995). Stage one, item generation can be done inductively by asking experts to describe their thoughts or feelings about the organisation or their behaviour in the organisation or deductively by deriving items from a theoretical classification scheme, known as classification from above. Stage two, step 1, consists of a proper choice of a sample and sample description, reverse scored items, the scaling of items (e.g. Likert-type scales) and the number of items. Stage two, step 2, scale construction consists of confirmatory factor analysis. Stage two, step 3, reliability assessment consists of internal consistency reliability and test-retest reliability. Stage three, scale evaluation, consists of demonstrating criterion-related validity (Hinkin, 1995, 969-980). For this research we need to investigate to what extent the composition of the more quantitative measurement instruments followed the steps described above.

For appropriate measurement of the construct of global management competencies, we need to fulfil the following requirements:

- the use of quantitative surveys to measure personality, meta-cognition, cognition, skills and behaviour must fulfil appropriate measure development and scaling requirements as described by Hinkin, 1995, Podsakoff et al. (2003) and others.
- to get closer to how managers and employees really behave in cultural interaction, there is a need to complement the quantitative survey scales with some qualitative research methods as discussed by Hurmerinta-Peltomäki & Nummela (2006). A plea for more qualitative methods can be found in Kwanjai and Den Hertog (2008).
- As this research is about competencies and as the term intelligence is part of the construct, a strong drive for social desirable answers will be a fact. This must be recognised by bringing in a 'social desirability scale' to correct for this bias.
- to make the measurement instrument valid across cultures, the cultural equivalence of the instrument must be tested. This can be done by testing the instrument in different countries among a diverse group of respondents.
- as the predictability of bio-data is promising, important life events influencing 'global management competencies', must be included as part of the data collection. "Furthermore, bio-data items are able to tap into experiences that research suggests are influential in shaping individuals' attitudes, beliefs, and values of interest with fewer of the problems that are commonly associated with social desirability and faking" (Kilcullen et al., 1995 in Douhitt et al., 1999, 113).

Existing instruments measuring parts of GMC

We now consider existing instruments and assess to what extent the above requirements are met. We selected these instruments from a thorough in depth research of the international business literature. Eventually, we discovered 38 instruments. After first scrutinizing the specific content in terms of substance of the measurement and academic roots and relationship with our model of GMC, we came up with a list of 23 instruments (see Annex, p. 20-23). The instruments measure the degree of sensitivity to cultural differences, the ability to adjust to diversity or the degree of coping with cultural differences. Only one instrument is

related to strategic dilemmas. All these instruments are of a scaling type. Although a lot of these instruments are measuring comparable items, we do see some variety:

- 1) Most instruments only measure attitudes, while only a few instruments measure behaviour (e.g. the Cultural Intelligence test).
- 2) All these instruments refer only to the cultural side of the global management competencies and not to the strategic side of coping with strategic dilemmas with the exception of Spreitzer's Prospector scale. This scale measures the ability to cope with strategic dilemmas and also focuses on the ability to learn.
- 3) Some instruments focus only on one or more of the personality traits, like Montei's ATDS scale.
- 4) Some instruments only focus on communication, like Koester and Olebe's BASIC scale. Another instrument, Hammer's ICS measures the ability to cope with intercultural conflict only.
- 5) Some instruments are specific for an industry only, like the D'Andrea's MAKSS.
- 6) Most instruments are validated among students only, whereas some of these were validated among only western students .
- 7) Some instruments were poorly validated in later research, e.g. Kelly & Meyers CCAI.
- 8) Not all instruments are easily accessible for researchers, as they are commercially exploited. ¹

Some of these 23 instruments appear to be more promising, due to more rigorous testing, to more direct access to information and to a wider and more recent application. To be able to evaluate the large number of instruments we need to put them in order from highly relevant to less relevant. In order to do this, we need a number of selection criteria for selecting the stronger ones from the weaker ones.

Regarding content:

- measuring (one or more) building blocks of the GMC model
- measuring behaviour instead of attitudes
- measuring behaviour in dynamic cross-cultural interaction situations
- measuring bio-data that could predict effective behaviour in cross-cultural interaction

¹ The authors experienced this for the following: the Kelley & Meyers Cross-Cultural Adaptability Inventory, Kozai's Global Competencies Inventory, Tucker's Overseas Assignment Inventory, Tucker's International Mobility Assignment, Self-Assessment for Global Endeavors (SAGE), Rosinski's Cultural Orientations Framework (COF), Caligiuri's SAGE scale.

- measuring coping strategies for strategic dilemmas

Regarding methods:

- an open process of item generation with a diverse group of professionals
- a process of validation of the model with diverse groups of respondents, not only students
- a reliability test by using the instrument at different times for the same group

Regarding conditions for use

- accessible for non-commercial use by researchers
- ability to measure across cultures

Reviewing existing measurement instruments with the help of the above described criteria, the following instruments meet most of them: the MPQ (Van der Zee and Van Oudenhoven, 2000), the Multicultural Intelligence Scale (Ang et al., 2007), the Intercultural Development Inventory (Hammer et al., 2003), the Intercultural Sensitivity Inventory (Bhawuk & Brislin, 2000), the Intercultural Adjustment Potential Scale (Matsumoto et al., 2001), the Prospector scale (Spreitzer et al., 1997), Kefalas and Neuland's Global mindset scale (1997), Ruben's IBAI scale (1976), and Douhitt et al. (1999) DOLE scale. These scales will form the starting point for our final selection of appropriate measurement instruments. We also indicate which part of the GMC construct is covered by each scale. An overview of the scales and the related parts of the GMC construct can be found in figure 2, page 19.

The MPQ is a well-tested instrument measuring 5 factors, which together contribute to intercultural effectiveness. The factors, e.g. emotional stability, openness, social initiative, flexibility, and cultural empathy have a trait-like character and seem to be related to the Big Five personality factors. The MPQ was successfully tested among Dutch, Chinese and Singaporean students. In the GMC model, the MPQ is relevant to measure the personality factors.

Ang et al. (2007) 's cultural intelligence scale is most recent and measures cultural intelligence as a four factor model, consisting of knowledge, motivation, behaviour and meta-cognition. It has been tested among American and Singaporean students. In the GMC model it takes a central position as all four elements are included in the GMC model.

Hammer and Bennett's IDI (2003) (Intercultural Development Inventory) measurement scale measures in which stage of Intercultural Development a respondent is located. They distinguish three ethnocentric stages or ways of looking at cultural differences and three intercultural sensitive worldviews or ethnorelative stages. This scale can be used to position a

respondent and see if this correlates with the GMC measurement. The IDI scale was confirmed in later research by Paige et al. (2003).

Bhawuk and Brislin (2000) developed the Intercultural Sensitivity Inventory. In their research, they found out that flexibility and open-mindedness are important factors predicting intercultural sensitivity. These factors are in our research covered by the MPQ. Furthermore they discovered that individualism and collectivism are an important distinguishing factor between cultures. They claim that a good approach to measuring intercultural sensitivity is to determine people's knowledge about and willingness to change behaviours related to the individualistic or collectivistic background of others (Bhawuk & Brislin, 1992, 418). They also found that three years of intercultural experience makes people more intercultural sensitive and that eating food from diverse cultures is a signal of cultural sensitivity. The last two questions can be used as an example of bio-data in the research. People's knowledge about and willingness to change behaviours related to the individualistic or collectivistic background of others can be used as part of the 'knowledge' component and the 'motivation' component in the GMC model.

The Intercultural Adjustment Potential Scale (ICAPS). According to Matsumoto (2001), the ICAPS is the psychological engine that drives adjustment, whereas knowledge, language and other cognitive variables serve as the content resources accessed by that engine. In the GMC model, the ICAPS can cover the meta-cognitive component.

The Prospector scale of Spreitzer (1997) consists of 14 reliable factors; eight factors are related to end state competencies, which are covered by the CQS. Six factors are related to learning. These factors are used as part of the GMC measuring learning.

Kefalas and Neuland (1997) developed a global mindset scale, consisting of two dimensions, conceptualisation and contextualisation. This scale can be used to assess if respondents are able to cope with strategic dilemmas by scoring high on both dimensions. In the case of scoring high on one of the dimensions, the respondent either focuses on the local side or on the global side of the dilemma but is not well able to reconcile the dilemma. In the GMC model, we will use the Kefaland and Neuland (1997) scale to measure global strategic thinking.

Ruben's IBAI scale (1976) measures intercultural behaviour. It makes use of observation of intercultural behaviour along seven dimensions. In the GMC model this method will be used to observe the behaviour of the respondents.

Finally, Douhitt et al. (1999) made the Diversity of Life Experiences (DOLE) instrument, which is a bio-data based instrument to measure the construct of receptiveness to dissimilar others.

Figure 2 summarises the measurement methods according to the different components of our ‘Global Management Competencies’ conceptual model.

Figure 2. Instruments listed to nature of measure and component of GMC

< Figure 2 about here >

The overview suggests a fruitful coverage with quantitative measures and less for qualitative measures and bio data. Of course, it remains a question if coverage is needed for every building block of Global Management Competencies, but we need to discover the full potential of assessing the tacit aspects of GMCs. In this end we suggest to investigate for example the use of written scenarios and portfolios of critical incidents for other building blocks of the GMC model but also the use of observation techniques for certain behavioural elements or document text analysis with the help of specific keywords

Conclusions

In this paper we explored the measurement of GMCs. Drawing on a model of global management competencies we investigated the available measurement instruments in the international business literature. We assessed these instruments on the basis of a framework of criteria for quality and concluded that there exists a limited set of instruments that may help to assess global management competencies. However the full potential of triangulation is not covered since most of the instruments are quantitative. There is a need to assess especially the more tacit aspects of GMC by using more qualitative measures and bio data.

This paper contributes to the literature by providing a first overview of valuable instruments, measuring aspects of global management competencies. This is a fruitful starting point for the development of an assessment tool for GMCs with academic rigour.

This paper has some limitations. Firstly, we were limited in the investigation by the availability of information about the instruments. Not all instruments show a full account of the background, the elements assessed, and the validity and reliability testing that should go with it. Secondly, we could not fully explore the relationship of the instruments with their outcomes, the claims of successful strategic and cultural adjustment of global managers.

Thirdly, we did not ask for feedback yet from the designers of the instruments.² This, of course, would scrutinize the research more than we were able to do on written sources only.

One of the challenges is to investigate the interrelationships of these instruments and the predictive value for the outcomes, i.e. successful performance in intercultural global settings. Another challenge of course is the instrument's measurement equivalence across cultures. Can we measure across cultures? Do we know if the construct is culture-free? If not, how can we guarantee measurement equivalence across cultures? This paper discovered that none of the instruments are fully tested for cultural equivalence. Most of the instruments are tested in a mono cultural environment, mostly in the Western industrialized world. There is a need to do much more testing in other environments with other groups of managers.

² We hope that the cited authors of the instruments will help us with their comments on this draft paper.

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The diagram illustrates the Learning Process as a system of interconnected components. At the top, a large oval labeled **Metacognition** oversees the process. Below it, two ovals represent **Cognitive Processing** and **Motivational Processing**, each with a downward arrow from Metacognition and an upward arrow back to it. To the right, a large oval represents **Cultural and Strategic Successes and Failures**, which has a curved arrow pointing back to Metacognition. At the bottom, a large oval contains four categories: **Personality Traits**, **Strategic Knowledge/Cultural Knowledge**, **Skills & Abilities**, and **Behavioural Repertoires**. A curved arrow points from this bottom oval up to the **Cultural and Strategic Successes and Failures** oval.

Figure 2. Instruments listed to nature of measure and component of GMC

GMC	Knowledge	Skills	Motivational processing	Behavioural repertoires	Metacognition + cognitive processing	Personality	Learning
Quantitative scales	Ang et al. (2008), CQS Bhawuk & Brislin (1992) ISI Kefalas & Neuland (1997)	Ang et al. (2007), CQS.	Ang et al. (2007), CQS. Bhawuk & Brislin (1992) ISI	Ang et al. (2007), CQS.	Ang et al. (2007), CQS. Matsumoto (2001), ICAPS.ICAPS	Van der Zee and Van Oudenhoven (2000), the MPQ;	Spreitzer et al., 1997, Prospector
Bio data			Douhitt (1999), DOLE measuring bio-data				
Qualitative				Ruben (1976), observation of behaviour.			
Cultural equivalence Test?	?	?	?	?	?	?	?

Annex Overview of measurement instruments related to ‘global management competencies.

Name of the instrument	Authors	Purpose of the instrument	Composition of the instrument
Cultural intelligence scale (CQS)	Ang et al. (2007)	It is a theory within management and organisational psychology, positing that understanding the impact of an individual's cultural background on their behaviour is essential for effective business, and measuring an individual's ability to engage successfully in any environment or social setting.	Four dimensions: cognitive CQ, meta-cognitive CQ, behavioural CQ, motivational CQ Relationship between Cultural Intelligence and Intercultural Effectiveness is examined; relationship with cognitive (cultural judgement and decision making) affective (cultural adaptation or adjustment and well-being) and behavioural (task performance) aspects
Multicultural Personality Questionnaire (MPQ)	Van der Zee & van Oudenhoven (2000).. Van der Zee, & van Oudenhoven (2000) Leong (2007).	The MPQ was developed as a multidimensional instrument and explicitly aimed at Skills, traits or characteristics that enhance successful adaptation to a foreign culture.	Five personality factors: Cultural Empathy, Open-mindedness, Social Initiative, Emotional Stability and Flexibility
Cross-Cultural Adaptability Inventory (CCAI)	Kelly & Meyers, (1995).	CCAI is a self-assessment tool that is designed to address a person's ability to adapt to any culture. It is designed to respond to several needs or practical concerns that are expressed both by culturally diverse and cross-culturally oriented populations and by the trainers and professionals who work with them.	Four research-based cultural dimensions: (1)Emotional Resilience scale, (2)Flexibility/ Openness scale,(3) Perceptual Acuity scale, (4) Personal Autonomy scale
Intercultural Sensitivity Inventory (ICSI)	Bhawuk, D.P.S & Brislin R (1992).	The ICSI is instrument that measures the cultural constructs of individualism, collectivism, flexibility, and open-mindedness. It is useful for exploring cultural identity, through the examination of one's cultural value orientations and flexibility in adapting to new cultures and persons.	Four cultural constructs of individualism, collectivism, flexibility, and open-mindedness.
Intercultural Readiness Checklist, (IRC)	Van der Zee. & Brinkmann (2004).	The Intercultural Readiness Check (IRC) is a valid and reliable questionnaire measuring four vital intercultural competences.	The instrument contains six dimensions assumed to be relevant for multicultural success: intercultural sensitivity, intercultural communication, Inter-cultural relationship building, conflict management, leadership and tolerance of ambiguity.

Prospector	Spreitzer et al. (1997).	It is designed for rating the potential of aspiring international executives in terms of both end-state competencies and the ability to learn from experience.	14 dimensions used: Sensitive to cultural differences, business knowledge, courage, brings out the best in people, integrity, insightful, committed, takes risks, seeks feedback, uses feedback, is culturally adventurous, seeks learning opportunities, open to criticism, flexibility.
Intercultural Adjustment Potential Scale (ICAPS)	Matsumoto et al. (2001).	Matsumoto developed and validated ICAPS assessing the intercultural adjustment potential in Japanese sojourners and immigrants to the United States. It concerns to those who are adjusting to new and different cultures and play with people from different cultures.	The ICAPS produces five scores: a total score , and one score each for emotion regulation, openness, Flexibility, and Creativity/ Critical Thinking/ Autonomy
Intercultural Development Inventory (IDI)	Hammer & Bennett(1998). The IDI is based on Dr. Bennett's Developmental Model of Intercultural Sensitivity (DMIS). Hammer et al. (2003).	The IDI is proving to be a multipurpose instrument useful for personal development and self-awareness, audience analysis, examining topics salient to the training program, organizational assessment and development, and data-based intercultural training.	IDI is a psychometric instrument based on the Development Model of Intercultural Sensitivity (DMIS). It used with individuals, teams, and organizations
Multicultural Awareness-Knowledge- Skills Survey (MAKSS)	D'Andrea et al. (1990).	A mental health related measurement instrument. This survey is designed to help you think about your current level of multicultural competence. The items were developed to help you evaluate yourself on a broad range of cultural competencies.	It is comprised of two sections. The first is demographic section. The second section include a list of statements and/or questions that are related to a variety of multicultural issues

Overseas Assignment Inventory (OAI).	Tucker et al. (2004).	Many consulting firms commonly use the OAI in corporate international training. The accompanying assessment tool, ICE, is available for supervisory levels.	It is an online assessment measures nine attributes and six context factors for adaptation to another culture. It has been developed to 15 dimensions. (1) Expectations. (2)Open-mindedness.(3)Respect for other beliefs. (4) Trusting people.(5) Tolerance.(6)Locus of control. (7) Adaptability. (8) Patience. (9) Social. (10) Initiative. (11) Risk taking. (12) Sense of humour. (13) Interpersonal interest. (14)Spouse or partner communications. (15)Social desirability.
Receptiveness to Dissimilar Others (DOLE)	Douhitt et al. (1999).	To measure the Receptiveness to Dissimilar Others by bio-data.	Five domains were distinguished: Experiencing different cultures through travel; Diversity of interests, likes, and attitudes; Diversity of Geographic locations one has resided in; Relationships with parents and family environment; General relations with others.
Intercultural Conflict Style Inventory (ICS)	Hammer, M.R. (2005).	The Intercultural Conflict Style Inventory (ICS) measures how people respond to conflict in terms of two core aspects of conflict style.	Two core aspects of conflict style: directness versus in-directness and emotional expressiveness versus emotional restraint.
International Mobility Assessment (IMA)	Tucker International	It is intended to be used early in the process of international assignment decisions so candidates can decide for themselves if they are ready to take on the challenges of living and working in another country.	Not available
Intercultural Behavioral Assessment Indices (IBAI)	Ruben (1976a) Ruben, B.A. (1976b).	The instrument was developed to measure person's behavior.	This instrument measures seven elements of intercultural communication competencies, namely, display of respect, interaction management, and tolerance of ambiguity.
Behavioral Assessment Scale for Intercultural Communication (BASIC)	Koester & Olebe (1988). Olebe, & Koester (1989).	Based on IBAI. Exploring the cross-cultural equivalence of the Behavioral Assessment Scale for Intercultural Communication.	
Global Mindset	Kefalas & Neuland (1997).	To measure the global mindset in a strategic	Two dimensions: conceptualization and

		perspective	contextualization
Global Awareness Profile (GAP)	Corbitt (1998).	GAP is designed to measure awareness and knowledge of global geography and issues.	It assesses knowledge in different geographic regions, in the area of environment, politics, geography, religion, socio-economic, and culture, along with twelve questions about broad issues.
Self- Assessment for global Endeavors (SAGE)	Caligiuri (1996).	The SAGE is a decision-making tool for employees who are contemplating whether or not to pursue a global assignment. It is best used, in confidentiality, by potential candidates for international assignment before an assignment has been proffered. s	The first part is a private self-assessment and the second part is a meeting with a counselor. The SAGE will encourage possible candidates to critically evaluate three important areas (self, career, and family)
Cultural Orientations Framework (COF)	Rosinski, R. (2003).	n.a.	n.a.
Attitude Toward Diversity Scale (ATDS)	Montei et al. (1996).	It measure the construct of attitudes toward diversity.	It consist of 10 items representing each of three domains of attitudes toward diversity with regard to (1)cowokers, (2)supervisors, and (3) hiring and promotion decision.
The Global Competencies Inventory (GCI)	Kozai Group: a group of academically trained consultants since 2001 united in the Kozai group. Mendenhall et al. (2008).	It measures the likelihood to work effectively in an environment where there are cultural norms different from one's own.	Three aspects: perception- management, relationship-management and self-management.
Intercultural effectiveness scale (IES)	Kozai Group	IES provides an assessment to educational administrators of the degree to which their students possess competencies that are critical to interacting effectively with people from other cultural backgrounds	Three dimensions: Continuous Learning; Interpersonal Engagement; Hardiness