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How to Assess Global Management Competencies: An Investigation of Existing Instruments[**]

Managers and employees need global leadership competencies in order to operate effectively in international business. In order to prepare both managers and employees for operating in the global arena an instrument measuring global leadership competencies would be very useful. In this article we design a framework for systematically assessing measurement instruments designed to measure Global Management Competencies (GMC). Based on an elaborate search, we found 23 instruments of varying quality, that measure GMC, with a special focus on measuring ways of coping with cultural diversity. These instruments mostly involve self-reporting survey questions only, often measuring attitudes, without referring to 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.

Key words: **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). These global leaders are confronted with a range of complex and often paradoxical challenges. "Today's managers must successfully adapt to changing demands and situations, manage multiple lateral relationships, set and implement agendas, and cope with stress and uncertainty" (Dragoni et al. 2009). To prepare global leaders for their role it is important to support them by developing appropriate capabilities. Besides, it is increasingly important to understand why some individuals function more effectively than others in culturally diverse situations (Ang /Van Dyne 2008). Selecting and developing individuals who can function effectively in culturally diverse domestic and international settings is a significant challenge facing most organisations (Van Dyne et al. 2009). Insight into the capabilities of a manager to function effectively in culturally diverse domestic and international settings is clearly useful. In our view, not only insight into these capabilities but also understanding how developmental assignments translate into actual behaviour-based "end-state" outcomes such as managerial competences is important (Aviolo 2007). We focus on 'Global Management Competencies' (GMC) and define these as the ability to monitor, integrate and direct the knowledge, skills, and motivations, together forming behavioural repertoires, which are the building blocks of our behaviour in an environment of business- and cultural - complexity.

Several attempts to design an instrument have been made by researchers from a variety of disciplines, including such as Cross-Cultural Communication (Olebe/ Koester 1989): Behavioural Assessment Scale for Intercultural Communication Effectiveness, Organisational Psychology (Ang et al. 2007): the Cultural Intelligence Scale, and International Management (Arora 2004): Kefalas' and Neuland's Global Mindset Questionnaire. To be able to evaluate these instruments it is important to critically analyse their theoretical foundation and empirical effects. It is suggested that further theory building and empirical work should draw on broader theoretical perspectives beyond the current basis in international management and should be conducted in diverse settings (Levy et al. 2007: 250). This article contributes to this suggestion. We will pay specific attention to the role of global management competencies in terms of knowledge, skills, abilities and other personality factors (KSAOs).

We contribute to the literature by exploring the development of instruments for assessing GMC, by critically reviewing existing instruments and selecting (parts of) these instruments with sufficient rigour and predictive value to build on. As all of these existing instruments are built on underlying theoretical models, that show the constituting elements, these constituents need to be included in the review of instruments. So far, many instruments have been developed without clearly indicating the theoretical foundation nor translating the concepts into the existing key terms within cognitive psychology. We contribute to the existing literature by focusing on the fit between the theoretical clarification of the construct and the choice of the appropriate data collection method. The paper contributes to management practice by professionalising the selection and development process of global managers with the develop-

ment of an instrument that meets methodological demands of measurement equivalence, validity and, reliability. Finally, as far as we know this is the first systematic overview of existing instruments in the international management literature, with the exception of a report by the Military Research Academy from the US army which focused on the usefulness in the military sector (Abbe et al. 2007).

In the next paragraph we develop a model of *global management competencies*. Subsequently we discuss how to assess competencies in international management studies and describe the criteria that instruments, for assessing GMC must meet. In addition, we carry out an extensive review of existing instruments. After having critically reviewed the existent instruments, we select the most promising ones. The conceptual model developed by the authors (Bücker/ Poutsma, forthcoming) forms the starting point in the assessment.

The GMC conceptual model

Figure 1 shows a conceptual model that was built up after an intensive literature search into the most critical components of earlier described constructs, such as the global mindset construct (Rhinesmith 1992), the cultural intelligence construct (Early/ Ang 2003), the intercultural effectiveness construct (Van der Zee/ Van Oudenhoven 2000) and the cultural competence construct (Johnson et al. 2006). Here we provide a brief summary of the model. For an extensive overview of the literature see Bücker and Poutsma (forthcoming).

Figure 1: Global Management Competencies model © Bücker & Poutsma
            (adapted from Bücker/Poutsma, forthcoming)
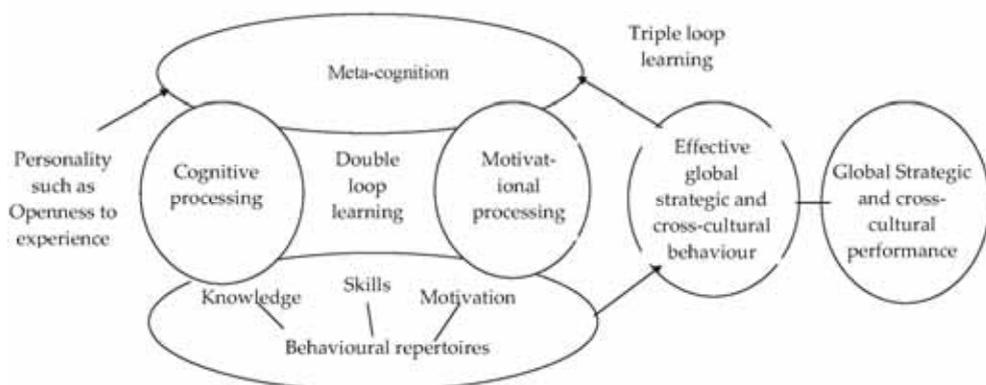
Before describing the components of the GMC construct it is important to first define the construct Global Management Competencies itself. Competencies are often described in terms of behavioural aptitudes or KSAOs (Knowledge, Skills, Abilities and Other personality factors (Caligiuri 2006). In our model we follow this path. The concept of competencies has been in use since McClelland (1973). He used the concept to counter the emphasis on using intelligence and related tests as predictive instruments for assessing employee capability, which he viewed as too far removed from practical outcomes (Garman/Johnson 2006). It gained considerable momentum in the United

States in the early 1990s, partly in response to the accelerated pace of change that many organisations were facing.

The term 'competence' developed as an answer to the need to describe positions in organisations in more general terms, allowing "greater flexibility for their adaptation to changing organisational needs" (Garman & Johnson 2006: 13). Since then a large number of definitions have been suggested by various authors. (See for an overview Schippman et al. 2000). This is partly due to the fact that competencies are relevant in a number of distinct research fields with different disciplinary roots. Van Loo and Semeijn (2004) distinguish three perspectives on the meaning and operationalisation of competencies: the educational perspective, the labour market perspective, and the human resources perspective. In the latter perspective, which is most relevant for this article, the concept of competence is closely related to the context of 'human resources', referring to the "potential (behaviour) of people in their working environment" (Van Loo/Semeijn 2004: 334).

Competence from an HRM perspective relates to individuals and is something that can be developed. (Klarus/Tillema/Veenstra 1999). Garavan and McGuire (2001) distinguish a US and a UK/EU perspective on the conceptualisation of competencies, both referring to characteristics of individuals, but with the US perspective emphasising a cognitive view on learning with objective measurements and the UK or European perspective emphasising a constructivist approach to learning with subjective and motivational dimensions of learning (Garavan/McGuire 2001). We agree with the latter position and therefore emphasise the need to include learning in the model and also the interaction between the individual and the situation (see Hollenbeck/ McCall/Silzer 2006).

In order to make the step from competence to 'global management competence', the current definition of competence needs to be transferred to a global management context. According to McCall and Hollenbeck (2002), global work combines two dimensions of complexity: business complexity and cultural complexity. They claim that business complexity refers to an increase in the scope and scale of doing business. According to Bartlett and Ghoshal (1989), global business involves optimising the criteria of efficiency, local adaptation and global learning at the same time, which are described as 'global strategic dilemmas'. Although these global strategic dilemmas contribute to greater complexity, "the crossing of cultural borders makes demands on executives that are fundamentally different from crossing business borders. Crossing a cultural border requires emotional or self-learning rather than simply intellectual and cognitive learning" (McCall/Hollenbeck 2002: 31). Our focus on GMC is influenced by the work of McCall et al. (1988). These authors claim the importance of experiences, gained by executives. Although they do not negate the importance of personal factors, such as personality and attitudes, they stress the role of experience for developing global executives. In our definition on competencies this is expressed in the component which we call 'behavioural repertoires'.

This brings us to the definition of global management competencies as the ability to monitor, integrate and direct the knowledge, skills, and motivations, together forming behavioural repertoires, which are the building blocks of our behaviour in an envi-

ronment of business- and cultural - complexity. Having defined the term GMC, we now turn to the components of the conceptual model (see Figure 1).

To begin, we position the conceptual model in a context of behaviour where behaviour is defined as the function of knowledge, skills, motivation together forming behavioural repertoires. Cultural and global strategic behaviour are the outcome of the model. It is defined as global strategic and cross-cultural behaviour, which is relevant for working in a strategically and culturally complex environment. Finally, this behaviour is evaluated in terms of its effective performance (see also Campbell 1993).

The model in figure 1 consists of an upper circle, containing the metacognition variable, and a lower circle containing the variable(s) behavioural repertoires, knowledge, skills, and motivation.

Knowledge, skills, and motivation can be perceived as learning outcomes. Based on Gagne (1984), Kraiger, Ford, and Salas (1993) define cognitive outcomes, skill-based outcomes and affective outcomes as learning outcomes. Cognitive outcomes include the acquisition of (declarative) knowledge, knowledge organisation (mental models) and knowledge strategies (metacognition and self-insight). Knowledge development is closely related to skill development. Based on the insights of Andersen (1982), and Neves/ Anderson (1981), skill development can be defined as a transition from declarative knowledge to procedural knowledge, followed by skill compilation and subsequently skill automaticity. Skills are goal oriented automated pieces of behaviour, freeing resources for other actions.

We describe motivation (attitudes and preferences) as an internal state of mind that influences choices in terms of personal action (Gagne 1984). Motivation is described, in terms of attitudes, as an internal state that affects behaviour (Kraiger 1993: 318), as a willingness to put effort into behaviour supporting certain goals.

'Metacognition' in the upper circle, is a component reintroduced in the cultural intelligence literature but going back to earlier authors, such as Flavell (1979). Mindfulness, another term introduced in the cultural intelligence debate (Thomas 2006), is characterised by making active distinctions and differentiation. A person who demonstrates mindfulness engages in the process of creating new categories by making finer and finer distinctions (Langer 1983). Mindfulness is a state of alertness and lively awareness that is manifested in active information processing, characterised by the creation and refinement of categories and distinctions and awareness of multiple perspectives (Langer 1983). It is, however, a cognitive concept, focusing mostly on knowledge and awareness, less on skills and motivation. We use the construct metacognition to describe this awareness.

Metacognition is defined as an individual's knowledge of and control over his or her cognition (Flavell 1979) over thinking and learning activities (Swanson 1990). The term metacognition is used to refer to both the knowledge of one's own cognition and its regulation (Brown 1975; Leonesio/Nelson 1990 in Kraiger et al. 1993). Metacognition includes planning, monitoring, and revising goal appropriate behaviour (Brown et al. 1983). Individuals differ in their ability to take advantage of an environment in which they can structure their own learning (Dorner/Scholkopf 1991; Etelapelto 1993). Individuals with greater metacognitive skills are expected to learn more effec-

tively because they monitor their progress, determine when they are having problems, and adjust their learning accordingly (Ford et al. 1998: 220). According to Thomas et al. (2008), there is general consensus that metacognition involves (1) the ability to consciously monitor one's knowledge processes and cognitive and affective, motivational states and (2) regulate these processes and states in relation to an objective (Thomas 2008: 131).

To illustrate the way metacognition works, the case of a young male Dutch manager, operating as an interim manager in the Indian subsidiary of a Dutch IT company, serves as an example. The interim manager decides to formally appoint a senior Indian manager as his spokesperson and displays open but also respectful behaviour towards him. In this case, the Dutch manager is aware of and makes use of cultural knowledge of the Indian management system, where formalisation and respect for seniority play an important role. He is also aware of the context and corporate culture of an IT firm where relations are more open than in other industries (e.g. manufacturing industry). He has the skills and behavioural repertoires to show respect to a senior employee. Furthermore, this manager inhibits the (typical Dutch) motivational drive to put effort into independent decision-making, showing respect for the seniority of the Indian manager.

The influence of metacognition is transmitted via the mechanism of 'cognitive processing' and 'motivational processing'. These two processes are not commonly found in the literature but we think that these are important mechanisms in the development of GMC. Cognitions are "… processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used" (Neisser 1967: 4). Cognitive processing involves adapting general and specific cultural and strategic knowledge and results in the development of new cognitive frameworks or schemata. Cognitive processing in the example given above consists of the awareness and recognition by the Dutch manager of the rather formal Indian culture where respect for seniority is important. The Dutch manager also observes that the younger generation in India makes a different interpretation of the principles of seniority and formality and that especially in the IT sector a more open and informal use of language seems appropriate and adapts his mental model accordingly.

Motivational processing means adapting the amount of effort put into behaviour in relation to the context and the task (Biggs/ Rhin 1984), setting specific and challenging learning goals (Grant/ Dweck 2003), especially after prolonged challenge and setback, in line with one's performance level, while enhancing "the speed of recovery of perceived self-efficacy from difficulties" (Bandura 1989: 1176). Motivational processing involves regulation and control of one's motivational preference, emotion, commitment, and expectancy. Motivational processing can be seen in the Dutch manager's decision to put effort into delegating some of his authority to the senior Indian manager although he feels the pressure from headquarters to prove himself as an independent strong manager in his first overseas job (focus on learning goals at the cost of performance goals by the Dutch manager). Despite the pressure from above, the Dutch manager is persistent in suppressing the need for autonomy, and gives up some of it, thus reducing his independency. This process of observation, interpretation, and

integration, and changing direction through decision-making, is directed by metacognition.

The combination of cognitive processing and motivational processing of the underlying knowledge, skills, and motivation finally leads to developing the behavioural repertoires which are the building blocks of global management behaviour. Global management behaviour consists of new global strategic and cross-cultural knowledge, a further developed organisation, storage and use of knowledge, new global strategic and cultural skills, a context-related focused motivation, and the active use of new behavioural repertoires. In the example given above, this is reflected by the manager, expressing his respect, and delegating part of the attributed power to the Indian senior manager, while communicating this to his subordinates in a rather informal ceremony.

We already defined GMC as a composite model, consisting of a metacognitive part, which is responsible for global cultural and strategic behaviour composed of the elements knowledge, skills, motivation, together forming behavioural repertoires. In the model there is scope for learning: based on feedback on the global strategic and cross-cultural behaviour, metacognitive activities become more effective: learning takes place. We can describe this learning as triple loop learning (Romme/ van Witteloostuijn 1999). Subsequently, cognitive and motivational processing creates space for the further development of knowledge and skills, as well as reflecting on motivation and learning new behavioural repertoires. This way of learning equals double-loop learning (Romme/van Witteloostuijn 1999).

Another component influencing global strategic and cross-cultural behaviour via the global management competencies is personality. Personality influences the intensity with which metacognition directs the GMC (see figure 1) and is for our model an antecedent. Ang, Dyne, and Koh (2006) analysed the relationship of the Big Five personality traits on the components of cultural intelligence. They discovered that the 'openness to experience' trait significantly influenced all components of the Cultural Intelligence construct, including metacognition. Despite less promising results in earlier research with regard to Openness to experience, Ang, Dyne and Koh, (2006) hope that their research findings "trigger additional research on Openness to experience, particularly in dynamic situations where curiosity, broad-mindedness, and imagination are valued at least as highly as, or even more highly than, reliability and dependability"(Ang/ Dyne/ Koh 2006: 118). They expect to find these situations especially in international business (Ang/ Dyne/ Koh 2006). The strong evidence for the influence of this antecedent made us decide to include this antecedent in our assessment.

Having described our model, we now turn to the problem of assessment and measurement and investigate to what extent the literature comes up with instruments that try to explore the components of the GMC model.

Methodological pluralism

To answer the question as to what kind of research methods are needed to measure the GMC construct, we first critically look at the research question and the research field. International business is a multi-disciplinary and multi-faceted area of research that crosses various kinds of boundaries, such as national, cultural, and organisational boundaries, raising complicated research questions. Making use of only one or a lim-

ited number of research methods would not do justice to the richness of reality. McGrath (1982) reasons that research methods in themselves are imperfect and incomplete. In addition, quantitative research methods "frequently do not capture the 'fabric' of global phenomena that include complex interactions of culture, institutions, societal norms and government regulations, among a few concerns" (Kiessling/Harvey 2005: 1). The solution to today's problems in international business "requires a holistic, multidisciplinary and multi-method approach" (Hurmerinta-Peltomáki/ Nummela 2006: 453).

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 any 'other' method. Creswell (2003) defines mixed methods as combining qualitative data collection and/ or analysis with quantitative data collection and/ or analysis in a single study. This combination may be used in various stages of the research process: problem setting, theory building, data collection, analysis and interpretation (Creswell 2003).

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 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). Consequently, for our research on global management competencies, we intend to make use of multiple methods, which we believe will eventually improve the quality of the outcomes.

After having described this plea for methodological pluralism, we go on to describe criteria to which we will assess the instruments found in the literature that tries to explore the components of the model.

Methodological requirements for the instruments, that measure (components of) GMC

The last section contained arguments in favor of the use of mixed methods in international business research. This assumes the existence of variety in the type of measurement instruments, both qualitative and quantitative instruments. In this section we sum up other requirements relating to the evaluation of measurement instruments for measuring GMC.

We start the evaluation, building on our conceptual model, which contains the basic building blocks according to the cognitive psychology literature. We concentrate on the content of the dimensions of the instruments and on the data collection methods used in the instruments.

The first question regarding the assessment of instruments is whether they measure components similar to the ones in the GMC model (Figure 1). If this is the case, the instrument or part(s) of it may be suitable as a basis for future development. Another question is to what extent the instrument was used and tested at different moments in time (for reliability), among different cultural and professional groups (for validity), and in different countries. How did they meet the psychometric require-

ments? If scale development has taken place, are these scales developed according to latest insight and knowledge? (see also Nunnaly 1967; Hinkin 1995). Another concern is the appropriateness of the data-collection method for assessing the components; is there a match? Finally we would like to identify the position of the respondent. Did data collection take place among more actors, e.g. the manager, colleagues, and the spouse?

Measurement of the components

We measure performance as the perceived effectiveness of the actor with regard to adjustment in his or her global strategic and cross-cultural work environment. We should measure this at the level of the actor and at the actor's manager level.

Kraiger et al. (1993) developed a classification scheme that describes the development of knowledge, skills, and motivation as learning outcomes with a focus on measurement (how are data collected) and potential training evaluation methods. Knowledge can be measured by recognition and recall tests to test the amount of knowledge, the accuracy of recall, and the accessibility of knowledge. A survey can be used to measure this knowledge acquisition. Knowledge organisation can be measured by structural assessment of knowledge strategies involving probed protocol analysis. Skills development can be evaluated through targeted behavioural observation and in structured situational interviews. To measure automatic processing of skills secondary task performance can be measured. Motivation can be measured by self reporting and free recall measures (Kraiger et al. 1993: 323). Behavioural repertoires can be measured by critical incident analysis, by interviews or by observation of intercultural interactions. Operationalisation of cultural metacognition comes down to a belief in the ability of individuals to achieve true introspection into their own cognitive processes, which has long been questioned (Nisbett/ Wilson 1977). Although much of the research on metacognition relies on retrospective self-reports, some researchers have investigated metacognition, using process-tracing techniques known as 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 cognitive processing (concurrent) 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).

To the extent that we make use of a survey instrument for measuring GMC components, the usual procedures, like item generation and scale development, need to be met to guarantee sufficient validity and reliability.

Finally, as the instrument is to be used across cultures the instrument and its related model is supposed to have the same meaning across cultures. Measurement equivalence has to be checked. Furthermore the instrument is expected to be of use in daily business to support selection and development processes. As such it should not be too complex or too expensive.

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

Content
- A theoretical model explaining the components of GMC must be provided
- For each component an appropriate measurement instrument must be found
- The instrument should not only measure intentions to act but also goal-related behaviour

Methods
- Components must be measured by appropriate data-collection methods and preferably a mixture of methods.
- Measurement scales must fulfil psychometric requirements, such as demands of reliability and validity
- The instrument should preferably be tested not only by students but also by people in a working environment.
- The instrument should be tested in different cultures, finally concluding on degree of cultural equivalence.
- The instrument should not be too complex and fairly easy to use.

Existing instruments for measuring parts of GMC

We now consider a number of instruments, which were developed to measure GMC and to assess to what extent they meet the above requirements. A precondition for instruments to be part of the overview is the accessibility of the information around the instruments and its tests.

We selected these instruments following thorough research of the international business literature. First we searched via search machines in the library and on internet for any instrument that measures global management competencies. In total, 34 instruments were discovered in various international management and cross-cultural journals and on internet. Some, sometimes promising instruments, are not easily accessible for researchers, as they are commercially exploited. [1]

We then selected twelve journals, including the journals that published the 34 instruments, and browsed through them systematically to search for measurement instruments published in the period 1990-2009. The selected journals are: Journal of Cross-Cultural Psychology, International Journal of Intercultural Relations, Management and Organization Review, Educational and Psychological Measurement, International Journal of Cross-Cultural Management, International Journal of Selection and Assessment, Journal of Research in Personality, Journal of Applied Psychology, Academy of Management Review, Journal of International Business Studies, Journal of International Management, and the European Journal of Personality. We found 23 instruments. These instruments are described in annex 1.

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[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.

Before exploring the instruments more in-depth, we can draw some general conclusions about the published instrument.

- All but one instrument measure competencies to work, live or adjust in a cross-cultural environment; only one instrument (Global Mindset Questionnaire, Kefalas/ Neuland 1997) investigates the competencies to perform in a global strategic environment.

- All instruments are of a quantitative nature, making use of a survey format.

- All instruments, except one, make use of dimensions that are described in terms of behavioural aptitudes or KSAOs (Knowledge, Skills, Abilities and Other personal factors). One instrument, the DIAES is measuring the environment of the person. This instrument measures characteristics of the family and the work situation.

- Some instruments concentrate on the personality or trait background of the respondent, such as the CPAI, the CCAI, the DIAS, and the ICAPS. Examples of items assessed are flexibility, openness, emotional regulation; often items similar to the Big Five personality traits are used.

- Instruments such as ICSI, the MPQ, the OAI, the Prospector, and, the DOLE measure other components besides personality.

- Almost all instruments are self-report instruments, except for the ISAP (where the host family also reports), and the CQS, where managers and subordinates report too.

- Quite a few instruments make only use of student samples. The following instruments make use of samples of respondents with work experience, such as the ATDS, CPAI, ICAPS, ICS, IDI, OAI, Prospector, the SCAS, and the TMAS.

- Four instruments measure metacognition: the IDI measures stages of culture competence development by measuring one's cognition and metacognition with regard to cultural differences; the CQS measures metacognition together with cognition, motivation, and behaviour. Kolb's LSI measures learning styles, stimulating in metacognitive monitoring; MAKKS measures Awareness, which forms part of metacognition.

Some of these 23 instruments appear to be more promising, due to better alignment with our conceptual model, more rigorous testing, more direct access to information, and to a wider, and more recent publication. Table 1 gives an overview of the instruments and relates them to the components of our conceptual model. All instruments are quantitative. The table also shows which instruments make use of samples of only students or of both students and employees. The instruments giving attention to the issue of cultural equivalence are marked with two asterisks (**).

With the help of the criteria described above, the following instruments are more promising: the Multicultural Personality Questionnaire, MPQ, (Van der Zee/ Van Oudenhoven 2000), the Multicultural Intelligence Scale, CQS (Ang et al. 2007), the Intercultural Development Inventory, IDI (Hammer et al. 2003), the Intercultural Sensitivity Inventory, ICSI (Bhawuk/ Brislin: 2000), the Intercultural Adjustment Potential Scale, ICAPS (Matsumoto et al. 2001), the Prospector scale (Spreitzer et al. 1997), the

Global Mindset Questionnaire, GMC (Kefalas/ Neuland 1997), and the Diversity of Life Experiences Scale, DOLE (Douhitt et al. 1999). These scales will form the starting point for our final selection of appropriate measurement instruments. All scales are of a quantitative nature; we will discuss the qualitative gap later.

Table 1:   Instruments listed to nature of measurement and component of GMC

GMC	Knowledge	Skills	Motivational processing	Behavioural repertoires	Metacognition + cognitive processing	Personality	Learning
Quantitative Sample: students and managers	CQS (Ang et al. 2007). GMC (Kefalas/ Neuland 1997).	CQS (Ang et al. 2007).	CQS (Ang et al. 2007).	CQS (Ang et al. 2007).	CQS (Ang et al. 2007). ICAPS, ICAPS** (Matsumoto 2001). IDI (Hammer et al. 2003) .	MPQ (Van der Zee/Van Oudenhoven 2000). ICAPS (Matsumoton 2001). ICSI (Bhawuk/ Brislin 1992), IDI (Hammer et al. 2003:measures development in Openness).	Prospector (Spreitzer et al. 1997).
Quantitative Sample: students				DOLE (Douhitt 1999). (Biodata instrument).	ICSI (Bhawuk/ Brislin 1992).	CCAI (Kelley/ Meijers 1992). ISAS (Crano/ Crano 1993).	

These selected instruments cover most of the components of our conceptual model. Metacognition is measured by the CQS, the ICSI, and ICAPS. The CQS also measures behaviour, knowledge (focus on cultural knowledge), skills, and motivation. Global strategic knowledge and skills is covered by the Global Mindset Questionnaire. Personality is measured by the MPQ, the ICSI, and the ICAPS. Learning is measured by the Prospector scale. The IDI scale does not measure a specific component of the model but measures the degree of Global Management Competence of a respondent. The DOLE instrument, measuring life experiences has predictive value for both metacognition and behavioural repertoires. The instruments will be discussed in the following paragraph.

Selected instruments

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

Ang et al.'s (2007) CQS instrument is most recently developed and measures cultural intelligence as a four-factor model, consisting of knowledge, motivation, behaviour and metacognition. It has been tested among American and Singaporean stu-

dents. In our GMC model it takes a central position, as four out of five components are included in the GMC model.

Hammer and Bennett's (2003) IDI, the Intercultural Development Inventory scale measures the stage of Intercultural Development of a respondent. They distinguish three ethnocentric stages or ways of looking at cultural differences and three intercultural sensitive or ethno-relative stages. This scale can be used to position a respondent and see if it 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 (ICSI). 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. So, furthermore they discovered that individualism and collectivism are important distinguishing factors 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 make people more intercultural sensitive and that eating food from diverse cultures is a signal of cultural sensitivity. These last two questions can be used as 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, the ICAPS. According to Matsumoto (2001), the ICAPS measures the potential to adjust; this potential is covered by a metacognitive part, which regulates emotions, and a personality part where certain traits stimulate adjustment. In our measurement model, the ICAPS can cover the metacognitive component.

The Prospector scale of Spreitzer (1997) consists of 14 reliable factors; eight factors are related to end state competencies, which are also covered by the CQS. Six factors are related to learning. These latter factors may be used as indicators for learning in the GMC model.

Arora (2004), based on Kefalas and Neuland (1997) developed a Global Mindset Questionnaire, consisting of two dimensions, conceptualisation and contextualisation. This questionnaire 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 the Kefalas and Neuland (1997) questionnaire fits the need to assess global strategic thinking.

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'.

The overview reveals only quantitative measures. There are no qualitative measures. One instrument is measuring biodata. In order to make use of the full potential

of assessing the tacit aspects of GMC, usage of complementary instruments is recommended. Kwanjaj and Den Hartog (2008) discussed this omission in the field of cross-cultural competence and cross-cultural intelligence. We came across one qualitative instrument, as a result of our first exploration by internet (finding 34 instruments). This instrument, Ruben's IBAI scale (1976) measures intercultural behaviour by observation along seven dimensions. In our search for an appropriate assessment of GMC, the IBAI scale can be used to observe the behaviour of the respondents and can complement the CQS.

Conclusions

In this paper we explored ways of measuring global management competencies. Drawing on a model of global management competencies, we investigated the available instruments in the international business literature. We assessed these instruments on the basis of a framework of criteria for content - and methodological rigor and concluded that there are a limited number 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 in particular the more tacit aspects of GMC by using qualitative instruments and biodata. Only one example of this type of instruments was found: Douhitt's DOLE scale, which makes use of scenarios (see also Stokes et al. 1984). To add to the triangulation, more instruments may need to be developed.

This paper contributes to the literature by providing a first overview of valuable instruments that measure aspects of global management competencies and brings these together in an overarching model of global management competencies. This model integrates building blocks from several sub disciplines in international management and cross-cultural psychology and is multi-disciplinary in nature and so contributes to development of theory. The complex nature of today's organisations as a result of globalisation processes puts more pressure on the effective selection and development of global leadership talent. In the last two decades a number of instruments has been developed that seem to measure almost similar constructs. It is not always easy to see where these instruments differ. This paper offers an overview of these instruments making critical comparison possible. A solid theoretical foundation, presented in the conceptual model in this paper gives the reader an analytical tool which supports critical evaluation of the instruments. The paper thus contributes to the professionalization of the HR management practices of selection and development of global management talent. This is an important step towards the emergence of an instrument that meets methodological demands of measurement equivalence, validity, and reliability. Next, the components of the model are clearly defined in terms that are central to cognitive psychology, enabling proper measurement. Finally, this article critically investigates the data-collection methods used to measure the components. This is a fruitful starting point for developing an assessment tool for GMC that combines academic rigour with methodological pluralism.

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 test-

ing 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 the manager or employee. Thirdly, we have not yet asked for feedback from the designers of the instruments. This, of course, would validate the research more than we were able to do from 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 is of course to measure 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, and mostly in the Western industrialised world. There is a need to do much more testing in other environments with other groups of management and employees.

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Annex 1

Table:　　Overview of measurement instruments related to 'global management competencies'

Name	Publication source (journal, book, website or others)	Purpose	Composition	Number of items	Samples	Language	Reliability and validity	Cross-cultural equivalence
Attitude Toward Diversity Scale (ATDS)	Montei et al. (1996): Educational and Psychological Measurement, 56, 2, 293-303	The ATDS measures the construct of attitudes toward diversity.	It is developed as three domains of attitudes toward diversity with regard to co-workers who belong to an ethnic minority, supervisors who belong to an ethnic minority, and hiring and promotion decisions with regard to ethnic minority members.	It includes 10 items representing each of three domains, totally 30 items.	Sample of 349 full time workers from different occupations completed the instrument.	English	The internal consistency (alpha = 0.90) and is unaffected by a social desirability response style (r = -.09, n.s.).	Not available.
Attitudinal and Behavioral Openness Scale (ABOS)	Caligiuri, et al. (2000). The Attitudinal and Behavioral Openness Scale: scale development and construct validation.. International Journal of Intercultural Relations, 24, 27-46. Caligiuri, P.M. (1996): Validity evidence for the behavioral openness scale as a measure to predict expatriate adjustment. Paper presented at the Fifth Annual International Conference on Work Values and Behavior, Montreal, Canada.	ABOS measures the personality construct of Openness with the help of behavioral and attitudinal indicators.	ABOS measures four dimensions: participation in cultural activities, participation in foreign experiences, attitudes with regard to openness, and comfort with differences. The instrument measures attitudes and behaviour.	Originally 30 items and finally 22 items, with 5-point scales. Instrument is self-report survey.	Sample 1 consists of 257 students from a large, rural, mid-Atlantic university in the U.S. Sample 2 of 116 students of large Midwestern university in the U.S.	English	An alpha coefficient of internal consistency reliability is 0.81. CFA shows $\chi^2_{(203)}$ = 442:96, P < 0.001, GFI = 0.865.	Not available.
Chinese Personality Assessment Inventory (CPAI,	Cheung et al. (1996): Development of the Chinese Personality Assessment Inventory. Journal of Cross-Cultural Psycholo-	The CPAI was developed to provide a reliable and valid assessment instrument within the Chinese culture. This means that	In the original CPAI, there are 22 personality scales, 12 clinical scales, and three validity scales. In CPAI-2, there are 28 perso-	CPAI consists of 524 items. The CPAI-2 is available in three forms: Form A consists of all the scales (541 items); Form B consists	CPAI was tested among two samples. In the first sample (to finalize item selection) 580 respondents in Hong Kong and 1167 respon-	Chinese, English, Korean, Japanese	Kwong and Cheung (2003) do report such statistics for the original CPAI, noting that correlations range from alpha= 0.54 to alpha=.	Used in multiple cultures. Instrument was specifically developed to fit in the Chinese environment. But the instrument is not

CPAI-2)	gy,1996, 27, 181-199. Cheung, F. M., Leung, K., Song, W. Z., Zhang, J.X. (2001). The Cross-Cultural (Chinese) Personality Assessment Inventory-2 (CPAI-2). (Available from F. M. Cheung, Department of Psychology, The Chinese University of Hong Kong, Hong Kong (SAR).	next to cultural universals, also culture-specific personality domains in addition to culture comparable (et-ic) personality domains must be included.	nality scales, 12 clinical scales, and three validity scales (Cheung et al., 2004, Acta Psychologica Sina-ca). The instrument measures personality traits.	of the personality scales and the validity scales (341 items); Form C consists of the clinical and the validity scales (268 items). It is a self-report survey instrument.	dents in China (PRC). For the second sample 441 respondents for Hong Kong and 1884 respondents for China (PRC). The CPAI-2 was re-standardized in a representative sample of 1911 respondents (1575 from China and 336 from Hong Kong SAR) between the age of 18 to 70. The education level of the respondents was at least primary 6 (Grade 6).		094 with a mean of alpha= 0.70. In CPAI-2 ranging from alpha= 0.49 to alpha=.080 with a median alpha of 0.62.	tested for fit in another country.
Cross-Cultural Adaptability Inventory (CCAI)	Davis and Finney (2006). A factor analytic study of the cross-cultural adaptability inventory. Educational and Psychological Measurement, 66, 318-330. Kelley and Meyers(1992). Cross-cultural adaptability inventory (CCAI). Yarmouth, Me.: Intercultural Press.	CCAI is a self-assessment tool that is designed to address a person's ability to adapt to any culture.	Four research-based cultural dimensions: Emotional Resilience scale; Flexibility/ Openness scale; Perceptual Acuity scale; Personal Autonomy scale. The instrument measures personality traits.	The instrument consists of 50 items and is a self-report survey instrument.	Normative sample of 653 individuals with a variety of different occupations, levels of education, national cultural background, and age groups.	English	The reliabilities reported as ranging from 0.68 to 0.90, indicating moderate to high internal consistency.	Not available
Cross-cultural World-Mindedness (CCWM)	Der-Karabetian, A. (1992). World-mindedness and nuclear threat. A multi-national study. Journal of Social Behaviour and Personality, 7, 293.	The instrument is used for assessing the concept of "cross-cultural world-mindedness"	The initial items represented conceptual categories in areas of race, religion, immigration, patriotism, economics, war, world government, global education, economic growth, technological development, world economic justice, and international relations. The instrument measures attitude towards the World; also Openness (personality).	26 items with a six-point Likert scale ranging from strongly agree to strongly disagree. It is a self-report survey instrument.	Sample group tested college students from ten different countries.	English	Cronbach's alpha: Australia 0.86 England 0.90 Greece 0.88 India 0.69 Mexico 0.75 Nigeria 0.77 South Africa 0.76 Sweden 0.87 Taiwan 0.71 US 0.86	Available in multiple-countries. Not explicitly tested on cultural equivalence.

Cultural Intelligence Scale (CQS)	Ang et al., (2007) Cultural Intelligence: its measurement and effects on cultural judgement and decision making, cultural adaptation and task performance. Management and Organization Review, 3, 3, 335-371. First described by Christopher Early and Soon Ang in Cultural Intelligence: Individual Interactions Across Cultures.(2003) In Singapore, Soon Ang has created the Center for Leadership and Cultural Intelligence.	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, metacognitive CQ, behavioural CQ, and motivational CQ. The instrument measures metacognition, knowledge, skills, motivation, and behaviour.	53 items were reduced to 20 items. It is a self-report survey instrument.	Samples: students (Study 1) and international managers in school (Study 2) and international managers Self-assessment (study, instructor rating, peer rating (study 2), and supervisor assessment in study 3. Three cross-validation studies across samples, time and cultures.	English, Chinese	Cronbach's alpha > 0.7 for each dimension with different sample groups	Tested among different cultural groups.
Determinants of Intercultural Adjustment among Expatriate Spouses (DIAES)	Ali et al. (2003). Determinants of intercultural adjustment among expatriate spouses. International Journal of Intercultural Relations, 27, 5, 563-580.	The DIAES measures the adjustment of expatriate spouses by measuring psychological adjustment, sociocultural adjustment and cultural interaction.	The instrument has four dimensions: personality, family characteristics, the expatriate work satisfaction, the support from the company as determinants of the intercultural adjustment of expatriate spouses. It measures personality traits and specific characteristics of the environment, being family and work.	The instrument uses existing scales for every variable to measure; for personality the MPQ is used. Furthermore there is a scale for demographic variables, personality (91 items), family inventories (26 items), support from the company, expatriate work satisfaction "(10 items), and intercultural adjustment (psychological, sociocultural, and cultural interaction).).	A sample of 1000 expatriate spouses from across the world were sent a questionnaire. There were 275 responses from 29 countries with a dominant English- speaking group.	English	Alpha's range from 0.67-0.92. The scale measuring support from the company had alpha of 0.67, all other scales higher than 0.70.	Data on measurement equivalence between cultures were not available.
Global Mindset Questionnaire (GMQ)	Kefalas, A.G./ Neuland, E.W. (1997): Global Mindsets: An exploratory study. Proceedings of Annual Conference on the Academy of International Business, Mon-	This instrument measures Global Mindset						

	terrey, Mexico. Arora, A./ Jaju, A./Kefalas, A.G. & Perenich, T. (2004): An exploratory analysis of global managerial mindsets: a case of U.S. textile and apparel industry. Journal of International Management, 10: 393-411.							
Intercultural Adjustment Potential Scale (ICAPS)	Matsumoto et al. (2001). Development and validation of a measure of intercultural adjustment potential in Japanese sojourners: The Intercultural Adjustment Potential Scale (ICAPS). International Journal of Intercultural Relations, 25, 483-510.	The ICAPS measures or predicts intercultural adjustment potential in Japanese sojourners and immigrants in the U.S.	The ICAPS produces five scores: a total score and four scores corresponding to the four psychological skills necessary for adjustment. These are emotion regulation, openness, flexibility, and creativity (or Critical Thinking or Autonomy). The ICAPS measures metacognition (ability to regulate emotions) and personality traits.	Finally a 55 items scale was used. The instrument is a self-report survey instrument.	In eight studies samples were used, from Japanese and American respondents, a large part of whom were students.	Chinese, English, German, Japanese, Korean, and Spanish	Good reliability and validity scores in eight studies.	Cultural equivalence was taken into account by reviewing all words in the items ensuring that they were understandable to native Japanese. Items that depended for their utility on a cultural value in which Japanese and US cultures differ were deleted.
Intercultural Conflict Style Inventory (ICS)	Hammer (2005). The Intercultural Conflict Style Inventory: A conceptual framework and measure of intercultural conflict resolution approaches. International Journal of Intercultural Relations, 29, 675-695.	The questionnaire focuses specifically on how you communicate with people different from you under conflict conditions as well as how to resolve conflicts.	The instrument is based on two dimensions: direct versus indirect approaches to dealing with disagreements and emotionally expressive versus emotionally restrained patterns for dealing with the affective dimension of conflict interaction. The instrument measures communication behaviour patterns.	The ICS consists of 18-items for the Direct/Indirect scale (DI scale) and 18 items for the Emotional Expressiveness/Emotional Restraint (ER scale). The instrument is a self-report survey, making use of a 6-point scale.	Initially 106 items were tested among a sample of 510 culturally diverse respondents from a large city in the Eastern part of the U.S. The 18 items format was tested among a sample of 487 respondents from different cultures.	English	Alpha: sub-scale (DI): 0.71 sub-scale: (ER): 0.86	Respondents from Canada, Europe, Asia, South America, Australia & New Zealand have tested the ICS. No data available on cultural measurement equivalence.
Intercultural Development Inventory (IDI)	Hammer, M., Bennett, M., & Wiseman.R. (2003). Measuring intercultural sensitivity: The intercultural Development	The IDI measures steps in development of Intercultural sensitivity. Initially 6, later 5 phases in development were	IDI is a psychometric instrument based on the Development Model of Intercultural Sensitivity (DMIS).	In the first phase 60 items were used; in the second phase 50 items were used. , making use of a 5 point Likert	It is a self-assessment tool. A first sample of 226 respondents of mixed ages and activity of 29 coun-	Bahasa Indonesia/Malay, Chinese, English, French, German, Italian, Japanese, Korean, Norwegian, Russian,	The reported Cronbach's alphas are 0.80-0.85.	Not available

	Inventory. International Journal of Intercultural Relations, 27, 4, 421-443. Paige et al. (2003): Assessing intercultural sensitivity: An empirical analysis of the Hammer and Bennett Intercultural Development Inventory. International Journal of Intercultural Relations, 27, 467-486. The IDI is available on line. BOOK: Hammer, M.R. (1998). A measure of intercultural sensitivity: The Intercultural Development Inventory. In S. Fowler & M. Fowler (Eds.), The intercultural sourcebook: Volume 2. Yarmouth, ME: Intercultural Press.	distinguished.	The instrument consists of five factors: Denial/ Defense, Reversal, Minimization, Acceptance/ Adaptation, and Encapsulated Marginality. The instrument measures in which phase of Intercultural development a person is, from a more ethnocentric to a more ethnorelative phase. It is not clear which of the KSAOs is measured. Questionnaire measures attitude and personality.	scale. It is a self-report survey instrument.	tries. A second sample of 591 respondents of a wide range of age and activity, from 38 countries. In study of Paige et al., the sample consists of 353 language students of an American university.	Portuguese, and Spanish.		
Intercultural Sensitivity Inventory (ICSI)	Bhawuk, and Brislin (1992). The measurement of intercultural sensitivity using the concepts of individualism and collectivism. International Journal of Intercultural Relations, 16, 4, 413-436.	The ICSI 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 are measured. The instrument measures the capability to judge which behaviour is appropriate in which culture. This is part of the metacognition. Furthermore, the instrument measures personality traits.	The instrument consists of 46 items on a 7-point Likert-type scale. It is a self-report survey instrument.	The two samples consisted of 93 graduate students and 46 MBA students at the University of Hawaii. Most students are mature professionals from countries in the Asian and Pacific region.	English	Alpha is 0.84.	Not available.

Inventory of Student Adjustment Strain (ISAS)	Crano and Crano (1993). A Measure of Adjustment Strain in International Students. Journal of Cross-Cultural Psychology, 24, 267-283.	The instrument measures the adjustment strains for international students. It measures the perception on strains; an affective judgement of experiences with acculturation in the host country; it measures coping with problems, hardship, also endurance, close to attitude.	The ISAS consists of six subscales: problems related to Education, to the Host country, to the Language (English), to more Global problems (e.g. food), to Personal issues, and to Social issues.	The instrument consists of 38 items. Students and students' host families reported.	The sample consisted of 250 students (of high school age), from five South American countries. They were assessed twice during their yearlong sojourn in the United States.	English	It has been tested across time : $r_{tt} = 0.63$, p = 0.001	Not available.
Learning Style Preference Instrument (LSI)	Brew, (2002). Kolb's Learning Style Instrument: Sensitive to Gender, Educational and Psychological Measurement, 62, 2, 373-390. Kolb, D. A. (1999). Learning Style Inventory Version 3" TRG Hay/McBer, Training Resources Group, 116 Huntington Avenue, Boston, MA 02116. The latest version was revised in 2005.	The LSI is designed to help individuals identify and reflect on the ways you prefer to learn in specific settings and explores their implications for problem solving, teamwork and conflict resolution.	The four primary styles of learning measured by the LSI are abstract conceptualization (AC) concrete experience (CE), reflective observation (RO), and active experimentation (AE). Two combination scores that measure an individual's preference for abstractness over concreteness (AC-CE) and action over reflection (AE-RO). The instrument measures learning styles. These are directly influencing metacognition and cognitive and motivational processing (both forms of learning).	There are 48 items, 12 for each sub-scale. It is a self-report survey instrument.	Sample of Australian university students.	English, Arabic, Chinese, French, Japanese, Italian, Portuguese, Spanish, Swedish.	Alpha is 0.80	The LSI is used across the world in many different languages. Information upon cultural equivalence is not available.
Multicultural Awareness-Knowledge-Skills Survey (MAKSS)	D'Andrea, M., Daniels, J., & Heck, R. (1991). Evaluating the impact of Multicultural Counseling Training. Journal of Counseling and Development, 70, 143-150. D'Andrea, M.,	The instrument measures participants' perceptions of their level of multicultural counseling awareness, knowledge and skills.	The instrument measures metacognition (awareness), knowledge, and skills.	The MAKKS consists of 60 items, that are equally divided into three subscales of 20 items, a 4-points answer each for the awareness, knowledge and skills domains. The instrument is a self-report	The sample consists of 96 graduate students, participating in multicultural counseling courses in two American universities. The students sample were white American and Asian students.	English	Alpha of 0.75, 0.90 and 0.96 for the multicultural awareness, knowledge and skills subscales.	Not available

	Daniels,J. & Heck, R. (1990). The Multicultural Awareness-Knowledge-Skills Survey". Honolulu: university of Hawaii-Manoa.			survey instrument.				
Multicultural Personality Questionnaire (MPQ)	Van der Zee & Van Oudenhoven (2000). The Multicultural personality Questionnaire: A multidimensional instrument of multicultural effectiveness. European Journal of Personality, 14, 4, 291-309. Van der Zee & Van Oudenhoven (2001). The Multicultural Personality Questionnaire: Reliability and Validity of Self- and Other Ratings of Multicultural Effectiveness. Journal of Research in Personality 35, 278–288. Van der Zee, K.I./ Brinkmann, U. (2004): Construct validity evidence for the intercultural readiness checklist against the Multicultural Personality Questionnaire. In: International Journal of Selection and Assessment, 12, 3: 285-290.	The MPQ was developed as a multidimensional instrument and explicitly aimed at measuring multicultural effectiveness.	The MPQ consists of dimensions and makes use of five personality scales: a Cultural Empathy scale, an Open-mindedness scale, an Emotional Stability scale, a Social Initiative scale, and a Flexibility scale.	The instrument is a self-report survey, consisting of 78 items, measured on a 5-pointLikert-scale.	Two sample groups, in total 210 students from five countries (majority Dutch students). In another study of Leong (2007), Asian student samples were used.	English and Dutch	Reliability of the sub-scales: Alpha = .086-0.91.	Not yet available. Recently used for a Chinese sample group.
Munroe Multicultural Attitude Scale Questionnaire (MASQUE)	Munroe & Pearson (2006). The Munroe Multicultural Attitude Scale Questionnaire: A New Instrument for Multicultural Studies. Educational and Psychological	The instrument measures multicultural attitudes.	The instrument consists of three subscales and measures knowledge, motivation and behaviour.	The final version of the instrument yielded 18 items, in which 7 items for the Knowledge domain, 6 items for the Care domain, and 5 items for the	The sample consists of 422 undergraduate American students enrolled in university.	English	Cronbach's alpha for total 18 items: 0.80. Reliability for the Knowledge subscale alpha was 0.70, for the Care subscale alpha was 0.70, and for the Act subs-	Not available.

	Measurement, 66, 819-834.			Act domain, respectively. The instrument is a self-report survey with a 6-point Likert type scale.			cale alpha was 0.58. Exploratory factor analysis was applied to retain three factors.	
The NEO Personality Inventory-Revised (NEO PI-R)	McCrae, R. R., Costa, P. T. Jr., del Pilar, G. H., Rolland, J. P., & Parker, W. D. (1998). Cross-cultural assessment of the five-factor model: The revised NEO Personality Inventory. Journal of Cross-Cultural Psychology, 29, 171-188.	The NEO PI-R was designed to provide a general description of normal personality relevant to clinical, counseling and educational situations	Five factors are included: Neuroticism, Extraversion. Openness to experience, Agreeableness and Conscientiousness. It measures personality.	The instrument consists of 240 personality items and 3 validity items. It is available in two forms: Form-S and Form-R

The short version is 60 items (NEO-FFI) self-report survey instrument. | It was first tested among a sample group of full job performance sample (n= 1,539) | English | Internal consistency coefficients range from 0.86 to 0.95 for domain scales, and from 0.56 to 0.90 for facet scales. Stability coefficients ranging from .51 to .83 have been found in three-year, six-year, and seven-year longitudinal studies of the original NEO-PI factors. The NEO PI-R has been validated against other personality inventories and projective techniques. | It has been validated in 51 sample groups from different cultures. |
| **Overseas Assignment Inventory (OAI) and International Candidate Evaluation (ICE)** | Tucker et al. (2004). The definition, measurement and prediction of intercultural adjustment and job performance among corporate expatriates. International Journal of Intercultural Relations, 28, 221-251.

Tucker, M. F. (1999). Self-awareness and development using overseas assignment inventory. In S. M. Fowler and M. G Mumford. eds., Intercultural sourcebook: Cross-cultural training methods, 2, 45-52. Yarmouth, Me.: Intercultural Press.

See also: www. Tuckerintl.com | The instrument helps managers and candidates to understand how certain traits, motivations, behaviour, and attitudes can affect the quality of intercultural adjustment. | There are 14 predictor scales and 6 criterion scales of intercultural adjustment. It measures 9 attributes and 6 context factors. It is a total of 15 dimensions: Expectations; Open-mindedness; Respect for other beliefs; Trusting people; Tolerance; Locus of control; Adaptability; Patience; Social; Initiative; Risk taking; Sense of humour; Interpersonal interest; Spouse or partner communications; Social desirability. The instrument measures personality traits. | The instrument consists of 14 predictor scales, containing 77 items. It is a self-report survey instrument making use of a five-point Likert scale. Intercultural adjustment, the dependent variable is measured by 6 scales, using 40 items. | Sample for predictor scales is 2131 employees and spouses considering an international assignment. | English, French, and German. | Making use of of 14 existing scales (with reliabilities of 0.57- 0.79. | The OAI has been used by many corporations for over 20 years to assess cultural adaptability for their employees, expatriates, and their spouses. |

Pro-spector	Spreitzer et al. (1997). Early Identification of International Executive Potential. Journal of Applied Psychology, 82, 1, 6-29	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.	Prospector consists of 14 dimensions: 8 end-state competency dimensions and 6 learning-oriented 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.	Prospector is a survey, consisting of 116 items on a 7 point Likert scale. Questionnaires were sent to bosses of the target managers.	Sample of 1100 managers; response from 838 lower, middle-, and senior-level managers from 21 countries and 6 international firms.	English	The scale reliabilities (alpha) of this instrument range from 0.70 to 0.92.	The scale has been tested for American, European and Australian managers. Scale has not been tested for Asian managers yet.
Receptiveness to dissimilar others or Diversity of Life Experiences (DOLE)	Douhitt et al. (1999). Diversity of life experiences: The development and validation of a biographical measure of receptiveness to dissimilar others. International Journal of Selection and Assessment, 7,2, 112-125.	The DOLE is developed to measure the ability to effectively work with dissimilar others and the receptiveness to differences in others. It can be used in employee selection and development contexts.	DOLE is measuring individual differences in attitudes and behaviour in five domains: 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/friends.	The DOLE consists of 28 items and 2 small culturally based scenarios with each four behavioural repertoires as answer options. It is a self-report instrument.	Sample: 209 undergraduate students at A large South-Eastern university in the U.S.	English	Coefficient alpha for the original DOLE was 0.73-0.74	Not available.
Sociocultural Adaptation Scale (SCAS)	Ward & Kennedy. (1999). The measurement of sociocultural adaptation. International Journal of Intercultural Relations, 23, 4, 659-677.\n\nSearle & Ward (1990). The prediction of psychological and sociocultural adjustment during cross-	SCAS is to measure the sociocultural adaptation, which is related to the ability to "fit in", to acquire culturally appropriate skills and to negotiate interactive aspects of the host environment.	The instrument measures sociocultural adaptation, defined in terms of behavioral competence. It focuses on the influence of knowledge, skills and behaviour.	The first version of the SCAS (Searle & Ward, 1990) contained 16 items. Later versions contain 20-29 items and use a five-point scale. It is a self-report survey instrument	Sixteen samples are used and sample sizes range from 84 to 191 sojourners (Median=119).	English	Alpha ranges from 0.75 to 0.91 (M=0.85). Construct validity is indicated by significant correlations (range=0.20-0.62, M=0.38) between sociocultural and psychological adjustment as measured by the Zung Self-rating Depression Scale.	Samples in multiple countries: Singapore, Malaysia, and New Zealand.\n\nCross-cultural equivalence is not explicitly measured.

	cultural transitions. International Journal of Intercultural Relations, 14, 449-464.						
Teacher Multi-cultural Attitude Survey (TMAS)	Ponterotto et al. (1998). Development and Initial Score Validation of the Teacher Multicultural Attitude Survey. Educational and Psychological Measurement, 58, 6, 1002-1016.	The TMAS is developed to measure teachers' multicultural awareness, which refers to teachers' awareness of, comfort with, and sensitivity to issues of cultural pluralism in the classroom.	Uni-dimensional. Instrument measures attitudes toward economic status, culture, race, exceptionality, and gender.	20 items with 5-point Likert-type scale. It is a self-reporting survey instrument.	Teachers and teaching students in the U.S.	English	The coefficient alpha is 0.86, the teta coefficient is 0.89	Not available.