

**A Validation Study of the Defense Language Office Framework for
Cultural Competence and an Evaluation of Available Assessment Instruments**

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Executive Summary

Purpose

The present project was undertaken at the request of the J-9 Research Directorate of the Defense Equal Opportunity Management Institute (DEOMI) to evaluate the Framework for Cross-Cultural Competence, “Framework” hereafter. The Framework was developed by a culture resource group organized by the Defense Language Office of the U.S. Department of Defense. The goals of the project were to (1) assess the content of the Framework, (2) determine if its competency set is supported by empirical literature, (3) make recommendations for changes to the Framework if warranted, and (4) suggest future directions for research on cross-cultural competency (3C) in the U.S. military. The Framework was viewed in this project as a competency model and the extant issues involving competency modeling were discussed with respect to the Framework.

Procedure

The Framework was evaluated in three ways. First, its content, comprised of a hierarchically organized set of competencies and a set of antecedent variables or “enablers,” was compared to four theoretical and empirical statements of competencies thought to be important for effective performance in novel cultural contexts. The Framework competencies and enablers were decomposed into single-meaning, narrowly defined “elements” for this purpose. Second, existing research support for the Framework competencies and enablers was assessed. The elements were mapped to constructs that have been studied in the expatriate adjustment and sojourner literature, and instruments that purport to measure these constructs were identified in a literature search.

A wide-scale search for existing instruments was conducted with which to evaluate the Framework. 33 instruments were located. The validity of each of the instruments was evaluated for suitability in the Framework evaluation by determining its ability to predict adjustment or performance variables. Nine of the most commonly used instruments in 3C research were critiqued in depth for their usefulness in 3C research and applications.

Instruments that were deemed valid and for which evidence of predictive or concurrent validity based on performance or adjustment criteria were available were used to evaluate the research support for each element. Third, the relative value of retaining the competency model style of the Framework versus creating a causal model of military cross-cultural performance was discussed.

Findings

The content of the Framework was found to be generally good with respect to the four military models chosen for comparison as well as to several civilian models. Two competencies were found to be less well supported:

- Communication: Employs human and material resources
- Cultural adaptability: Adjust, or integrate cultural differences according to operational demands).

Seven enablers were either moderately or poorly supported in this analysis. Moderately supported enablers included:

- Tolerance of ambiguity
- Inclusiveness
- Learning through Observation – Sensemaking motivation

Poorly supported enablers included:

- Stress Resilience – Avoid stress-induced perspectives that oversimplify culture
- Stress Resilience – Acts as a calming influence
- Self Identity - Demonstrates ability to maintain personal values independent of situational factors
- Optimism

Most of the enablers in this set are supported in the civilian literature, but not in the military sources that we employed. Dependencies among several sets of competency and enabler elements were identified, indicating that they could best be understood in causal models that included enabler antecedents, enabler elements, and competency elements. Two competencies were suggested by the military sources that do not appear in the Framework, language skills and “big picture mentality.” Potential problems involving including language skills in the Framework are discussed. An additional enabler, family adjustment, was proposed based on findings in the civilian literature.

Mapping of Framework elements to constructs revealed a non-isomorphic set of relationships such that one-to-many, many-to-one, and null correspondences were discovered. These mapping complexities are consistent with the recognized differences between a competency model and the traditional variable-centered empirical literature in this field. Using instruments deemed to be valid as indirect evidence for empirical support for Framework elements, mixed support was found for the Framework. The extent of research support for each element was discussed in detail. Several competency and enabler elements could not be supported by empirical findings, but greater support for the Framework would be forthcoming if adequate instrumentation were developed.

In-depth examination of the instruments available for assessing 3C competencies and enablers revealed a serious paucity of good instruments. Instruments commonly put forth as available to 3C researchers proved to be inadequate or of little use; and several of the most highly visible instruments were found to have serious shortcomings.

Recommendations

The following recommendations were made:

(1) the competency and enabler elements of the Framework should be integrated in one or more causal models, and associated explicitly with existing measurable constructs when possible, to facilitate research as well as to inform training;

(2) valid, behaviorally-anchored assessment methods need to be developed to assess the competencies to support research and training outcome studies;

(3) competencies need to be considered within rank, MOS, and mission variables to be useful for training and selection purposes;

(4) theory and research needs to be directed at understanding cross-cultural competency in the military at higher levels of analysis, for example, at the level of units.

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I. Introduction

Scope of Project

This document reports the first of two examinations of the Defense Language Office (DLO) Framework for Cross-Cultural Competence, referred to as “Framework” hereafter. In this first report, the validity of the Framework is examined; in the second report, measures that can be used to assess Framework constructs are evaluated. These technical reports were prepared as components of a more comprehensive set of research and evaluation efforts contracted with the Defense Equal Opportunity Management Institute (DEOMI) on cross-cultural competency (3C).

Relationship to Published Literature in the Area

Our analysis of the Framework builds upon considerable previous work on 3C. Two literatures have developed in this area, a civilian literature broadly focused on sojourner adjustment and performance and a newer, smaller military literature focused on 3C in military training and operations. The civilian literature dates to the 1960s (Thomas & Fitzsimmons, 2008) with the advent of the Peace Corps and was primarily concerned with overseas student adjustment through the 1980s (Church, 1982). Beginning in the 1980s, a body of theory and research emerged from I/O Psychology and Business schools on the adjustment and performance of overseas workers or “expatriates” (Black, Mendenhall, & Oddou, 1991). This expatriate literature has been most influential in the nascent military 3C literature, which began in earnest in the 2000s. The paucity of empirical 3C research in military populations, discussed in a later section, has led to a dependence on civilian research.

The present report builds on the work of the DLO culture resource group but sets out to provide an outside, independent perspective. Such an outsider analysis is crucial given that most of the work in this area is communicated through formal technical reports and informal contact within a community of social scientists working on military projects. Little of the research has been published in peer reviewed journals, so it has not had the opportunity for feedback from the large number of behavioral scientists who are working in this field.

II. Defining the Framework

Origins and Evolution of the Framework

The Framework was developed in several stages beginning in 2008 using a Delphi-like strategy. In a Delphi strategy, a decision is made by drawing on the collective expertise of a body of experts in a structured group exercise. In 2008, the Department of Defense (DoD) recognized the need to improve cross-cultural competence for military personnel and civilians. Therefore, the Defense Regional and Cultural Capabilities Assessment

Working Group (RACCA WG) was formed, charged with establishing a common terminology for “identifying, developing, measuring, and managing regional and cultural capabilities” (McDonald, McGuire, Johnston, Selmeski, & Abbe, 2008, p. 2). Three RACCA subgroups were formed to produce standardized definitions and terms of reference, a cross-cultural developmental and assessment model, and a professional development and assessment model for regional and cultural specialists throughout DoD. The RACCA findings and recommendations produced a set of 40 general cross-cultural learning statements consisting of knowledge, skills, and personal characteristics (also called “core competencies”). Definitions and descriptions of these statements were also included, as well as a preliminary list of potential assessment tools.

The subject matter experts (SMEs) who took part in this exercise were, for the most part, psychologists who were able to interact with military personnel who had seen front line combat in the 2000s-era war zones, mainly in the Middle East. Some systematic research based on the experiences of deployed personnel had been conducted and published by the time of the RACCA Delphi exercise, and this research was utilized at that stage and in the development of the preliminary Framework.

In the second stage, a group of culture experts reduced the RACCA competencies to a smaller number and drew a distinction between antecedent variables, which were termed “enablers,” and competencies (Johnston, Paris, McCoy, Severe, & Hughes, 2010). Johnston et al. (2010) describe in detail the process by which the competencies were identified. The distinction between enablers and competencies is discussed in a later section. The Johnston et al. (2010) conceptualization of 3C in the military is the first version of the Framework toward which our work is directed. Johnston et al. attempted to utilize a learning developmental framework (Anderson et al., 2001) to indicate specific competencies at six levels of proficiency.

The third stage, which is ongoing, involves refining these lists and expressing them as learning goals within developmental models. The Johnston et al. (2010) document was revised in 2011 and the Framework was subsequently revised again in a series of communications among the DLO culture group in March, 2011.

The Framework as a Competency Modeling Approach

The Framework can be viewed as a competency modeling exercise (Shippmann et al., 2000) in which *core competencies* are identified in a hierarchical categorization system.¹ In this system, general competencies such as “cultural perspective taking” are used to form categories encompassing more specific competencies that are defined behaviorally, for example, “understands how one’s own group is viewed by members of another group.” *Competency potential* dimensions (Bartram, 2005) are also identified, termed *enablers* in the Framework. Competency potential dimensions, however, are organized similarly to competencies, i.e., in a two level hierarchical category system and, at the lower level, as behaviors. For example,

¹ Although the Framework appears to follow a competency modeling strategy, we have no direct evidence that it was created explicitly with this strategy in mind.

Cognitive Bias Resilience –

Tolerance of ambiguity –

Manages uncertainty in new and complex situations where there is not necessarily a ‘right’ way to interpret things

Competency potentials are not mapped to competencies, although some implicit relationships can be observed, for example,

Enabler: Social Interaction –

Social flexibility –

Is able to modify ideas and behaviors, ... to be receptive to new ways of doing things

maps to

Competency: Cultural Adaptability –

Minimize/maximize, adjust, or integrate cultural differences according to operational demands.

The Framework utilizes a competency modeling style in both its competency and enabler sections. However, competency potentials (enablers) refer to personality traits, such as the Big Five, and to cognitive abilities, including general intelligence. Performance in and adaptation to novel cultural contexts have been studied at great length in relation to personality and cognitive style and to a lesser extent in relation to cognitive ability. Some Framework enablers correspond to dispositional qualities that have been studied in this prior literature (e.g., tolerance of ambiguity), but at the behavioral competency level, this mapping of enablers to previously researched variables is sometimes more difficult to perform confidently. Problems with this mapping are discussed in more detail in a later section. Some enablers might be thought of as predictive or causal of other enablers, and some are consequent to broader personality traits or cognitive styles. We present some structural models of these relationships below.

The RACCA and Framework efforts also involved developing learning objectives that map onto higher or lower level competencies. Competency modeling, perhaps to a greater extent than job analysis, is used for developmental purposes since it is usually more distal from specific structural aspects of jobs. Along these lines, Shippman et al. (2000) concluded that “job analysis may be thought of as primarily looking at ‘what’ is accomplished, and competency modeling focuses more on ‘how’ objectives are met or how work is accomplished” (p. 713).

The Framework as a competency model may be subject to some of the unresolved problems in competency modeling in general, unfortunately. Although competency modeling is highly popular in human resource management, it suffers from a great deal of ambiguity concerning its core construct—competency—as well as how it differs from traditional job analysis (Shippman et al., 2000). Morgeson, Delaney-Klinger, Mayfield, Ferrara, & Campion (2004) state, “perhaps one of the most vexing issues involves actually defining a competency” (p. 676). For example, are competencies composed of KSAOs (knowledge, skill, ability, other), or are KSAOs antecedent to competencies? If the latter,

what is antecedent to KSAOs? In our discussion of the validity of the Framework, problems involving the causal ordering of enablers and competencies appear repeatedly, as well as questions about the distinctions between enablers and competencies, and between enablers and their own antecedent variables. Attempts to resolve some of these problems have been carried out by a well-known SIOP (Society for I/O Psychology) task force chaired by Jeffery Shippman (Shippman et al., 2000) and a comprehensive meta-analysis of competency potential and competencies (Bartram, 2005). As Van de Vijver & Leung note, “It could be argued that intercultural competence is no exception to the rule that there are no widely shared definitions of crucial concepts in psychology” (2009, p. 406).

Specifying the correct number of competencies and their organization poses a problem for competency modeling that is also present in the Framework. For any given job, how many competencies can be identified? How many can be practically used in assessment ratings or in assessment center activities? As the number of identified competencies has increased, researchers and practitioners have turned to the development of competency taxonomies. Bartram (2005), for example, identified eight higher-order competencies for managers (the Great Eight) by distilling a set of 20 competency dimensions that were based on 112 behaviorally-defined competencies. Kolk, Born and van der Flier (2004) proposed 21 competencies organized in three higher order dimensions, Feeling, Power, and Thinking, that correspond to the early affect-behavior-cognition (ABC) conceptualization of the construct “attitude” (e.g., Triandis, 1971). As more generic, summary competency categories have been developed, competency sets for supposedly different occupations have converged. Of interest to us, when Framework competencies and enablers are considered together, the Kolk et al. (2004) set of 21 competencies appears to correspond to the Framework, albeit not in military terms.

Current Framework model

The Framework is a work in progress, but our analysis is a response to the March 2011 revision. Some new empirical research based on the experiences of deployed personnel has appeared (e.g., McCloskey, Grandjean, Behymer, & Ross, 2010) that can guide the ongoing development of the Framework, and a new Delphi-generated conceptualization of 3C in the military (Caliguiri, Noe, Nolan, Ryan, & Drasgow, 2011) has been disseminated that can be used to refine the Framework. These new resources are employed in the present analysis of the Framework.

Nomenclature

For ease of communication, we will use the following nomenclature to refer to the Framework’s parts. First, we distinguish between *enablers* and *competencies*, as the DLO culture group has done. The March 2011 revision includes five competencies and seven enablers. However, subsequent discussions within the DLO culture group have clouded the definition of “competency.” The original competencies (e.g., “Culture-general concepts and knowledge”) were defined by sets of behaviors and skills (e.g., *Acquires and applies...*), but most recently (March 2011 revision), these definitional or illustrative items are themselves considered competencies. However, examination of the competency descriptions reveals that they usually include more than one distinguishable competency. Bartram (2005) proposed that competencies could be considered aggregates of what he termed

“components.” These components “can be thought of as building blocks that can be aggregated together to produce competencies. Sets of competencies, in turn, form competency models” (p. 1187). The Framework competency descriptions, when parsed into relatively single-meaning segments, correspond to components in this usage. In order to analyze the Framework using the existing 3C literature, we worked at the level of components that represent unitary constructs potentially found in the 3C literature. We refer to these lowest-level Framework components as *elements*. Figure 1 shows the hierarchical structure of the Framework thus construed.

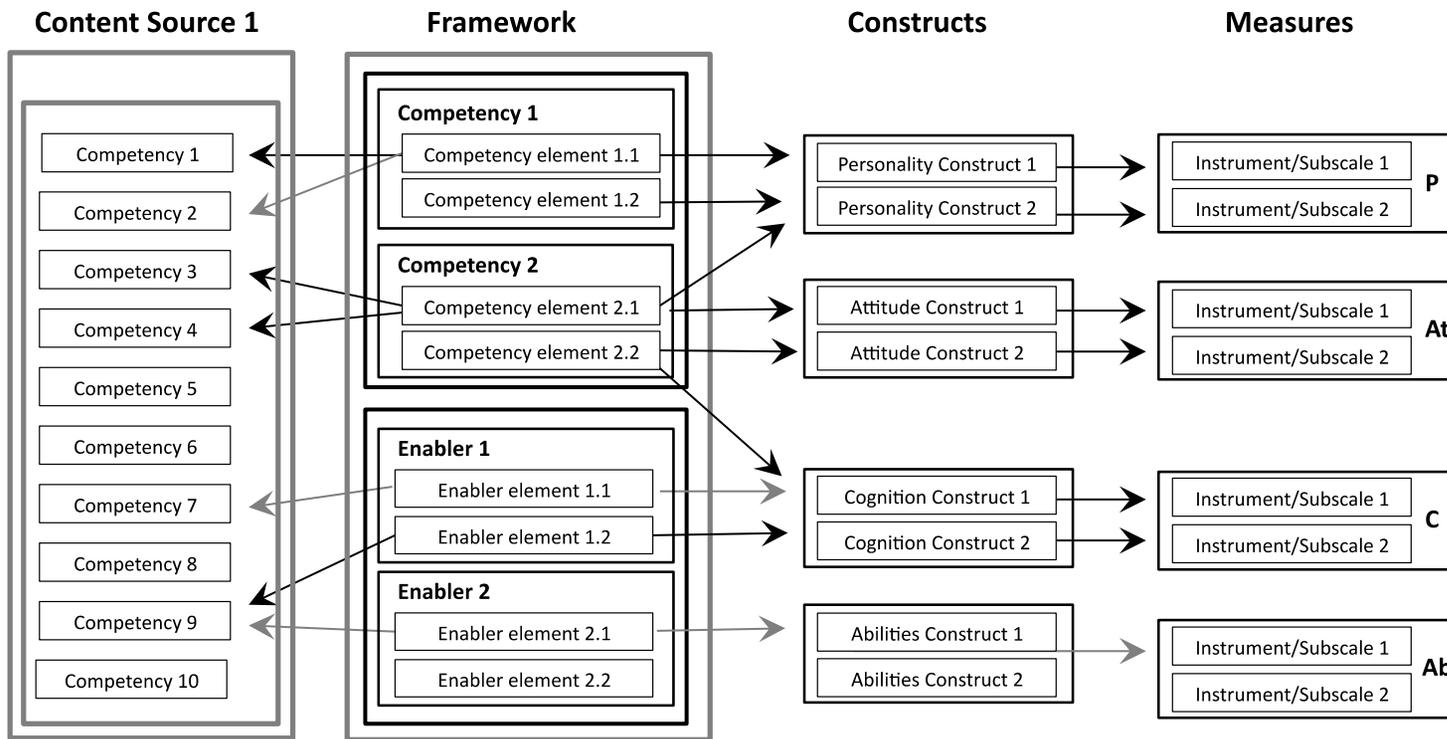


Figure 1. Hierarchical structure of Framework, mapped to constructs, measures, and content sources.

Gray arrows indicate partial mapping (element does not wholly correspond to the construct, or the construct to the measure). One-to-many and many-to-one mappings are illustrated. In this example, Enabler element 1.1 has no corresponding construct, and Abilities Construct 2 has no corresponding measure. Competency element 2.2 is not supported by content source 1 but Competency element 2.1 is supported by two competencies. At far right, P = personality, At = Attitudes, C = Cognition, Ab = Abilities.

Table 1. Framework parsed to level of elements

Competencies		
Row Ref #	Category	Specific Competency
C1.1a	1. Culture-General Concepts and Knowledge	Acquires ... culture-general concepts and knowledge
C1.1b	-	Applies culture general concepts and knowledge
C1.2	-	Comprehends and navigates intercultural dynamics
C3.1	3. Cultural Perspective-Taking	Demonstrates an awareness of one’s own world view (i.e. cultural perceptions, assumptions, values, and biases) and how that influences our behavior and that of others Understands how one’s own group is viewed by members of another group
C3.2	-	Understands and applies perspective-taking skills to detect, analyze, and consider the point of view of others and recognizes how the other will interpret his/her actions
C3.3	-	Takes the cultural context into consideration when interpreting situational cues
C4.1	4. Communication	Acquires and applies knowledge and concepts of intercultural communication skills
C4.2	-	Employs human and material resources to facilitate intercultural communication
C5.1	5. Interpersonal Skills	Develops and maintains rapport Builds relationships in support of mission performance
C5.2	-	Manage and resolve conflict in support of mission objectives
C6.1	6. Cultural Adaptability	Understands the implications of one’s actions and adjusts approach to maintain relationships with other groups, or cultures
C6.2	-	Minimize/maximize, adjust, or integrate cultural differences according to operational demands
Enablers		
1. Cognitive Bias Resilience		
E1.1	Tolerance of ambiguity	Accepts, or does not feel threatened by, ambiguous situations and uncertainty. Manages uncertainty in new and complex situations where there is not necessarily a “right” way to interpret things.

E1.2	Low need for closure	Restrains from settling on immediate answers and solutions, and remains open to any new information that conflicts with those answers.
E1.3	Suspending Judgment	Withholds personal or moral judgment when faced with novel experiences, knowledge and points of view. Perceives information neutrally and withholds or suspends judgment until adequate information becomes available
E1.4	Inclusiveness	Tendency to include and accept things (including people) based on commonalities rather than dividing things into groups or categories; emphasizes commonalities and minimizes differences.

2. Emotional Resilience

E2.1.1	Stress Resilience	Tolerates emotionally shocking, frustrating, or exhausting circumstances; can retain task focus and enthusiasm, even when faced with repeated setbacks, failures and obstacles to success; demonstrates tendency for positive emotional states and to respond calmly and steadfastly to stressful events
E2.1.2	-	Avoids adopting stress-induced perspectives that overly simplify culture
E2.1.3	-	Acts as a calming influence
E2.2	Emotion Regulation	Regulates/controls one's own emotions and emotional expression to support mission performance

3. Self-Identity Resilience

E3.1	Self Confidence	Believes in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet situational demands.
E3.2	Self-Identity	Demonstrates ability to maintain personal values independent of situational factors
E3.3	Optimism	Views problems as solvable challenges and as exciting learning opportunities.

4. Learning Motivation

E4.1.1	Learning through Observation	Gathers and interprets information about people and surroundings to increase awareness about own treatment and how to treat others.
E4.1.2	Sensemaking motivation	Is motivated to make sense of inconsistent information about social rules and norms;
E4.1.3	Knowledge acquisition	Continually learns and updates own knowledge base as new situations are encountered.
E4.2	Inquisitiveness	Is receptive towards, and takes an active pursuit of understanding ideas, values, norms, situations, and behaviors that are new and different. Demonstrates curiosity about different countries and cultures, as well as interest in world and international events.

5. Social Interaction

E5.1.1	Social Flexibility	Presents self to others in a manner that creates favorable impressions, facilitates relationship building, and influences others
E5.1.2	-	Is able to modify ideas and behaviors, ... to be receptive to new ways of doing things.

E5.1.3 - Is able to compromise
E5.2 Willingness to Engage Actively seeks out and explores unfamiliar cross-cultural interactions and regards them positively as a challenge.

III. Framework Validation Strategy

Overview of Validation² Strategy

Our strategy for evaluating the Framework utilizes three approaches. First, we examine the content of the Framework—the set of competencies that make it up. The 3C competencies and enablers are a competency model based in part on previous civilian work and in part on SMEs’ understanding of the multiple cultural contexts and varied behaviors required of military personnel in various situations and assignments (see Johnston et al., 2010). As these competencies may be used for allocation of considerable training and R&D resources, establishing the correct content is crucial. We refer to this quality as the “content validity” of the Framework.

Second, we evaluate the extent to which research supports the importance of the elements to good performance. The question of interest is: Do the Framework competencies and enablers really matter? We refer to this quality as the “criterion validity” of the Framework. To the extent that the elements of the Framework (both enablers and competencies) can be adequately operationalized and measured, published research can be used to assess the criterion validity of the elements that were included in the Framework.

The terms “content validity” and “criterion validity” are normally used in the validation of measurement instruments, but can be used analogously or perhaps metaphorically to describe how we evaluate the Framework: first, evaluate the content or composition of the set of competencies that were selected by SMEs to form the Framework; second, evaluate the extent to which the chosen competencies are related to actual behavioral criteria. Two types of criterion validity are commonly identified: concurrent validity and predictive validity. The U.S. military’s goal is to create a 3C model to guide selection and training that will in turn result in higher future performance, so we can extend the analogy to propose that the Framework is supported most strongly by studies that link competencies and performance in predictive designs. However, as addressed in detail in later sections, the existing research on which we base our criterion validation of the Framework includes both criterion and predictive validity designs.

Third, we look at the Framework from a conceptual, theory-building perspective, treating it as a scientific model that can be used to generate theoretical and applied research which may in turn improve our understanding of 3C in military and perhaps civilian contexts.

Content Validity Definition and Approach

Content validity is conventionally described as “a thorough and explicit definition of the content domain of interest” (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, NCME], 1999). Content validity is traditionally used to evaluate the quality of a

² We use the term “validation” metaphorically in this section and the remainder of the report. See text for more explanation of this usage.

measurement instrument and contributes, along with other types of evidence, to the construct validity of a measure and to the nomological network of the construct itself. In the present usage, the Framework “construct” is multifaceted and could be considered a hierarchically organized set of constructs, each of which might be examined for various kinds of validity.

In our treatment of the Framework, we work at three levels within this hierarchy: the Framework as a whole, the competencies and enablers, and their elements (see Figure 1). Evidence for content validity can be found at the competency/enabler or the element level, depending on how the Framework element maps onto competencies proposed in the existing literature. In the analysis of content validity, *mapping* refers to finding corresponding competencies in other competency models that were published before and after the appearance of the Framework. The Framework components and elements often appear to have one-to-one, one-to-many, and many-to-one relationships with competencies proposed in other models. The left side of Figure 1 illustrates this process.

Two sources of evidence are used to evaluate the content validity of the Framework: Delphi-style theoretical statements of the content of 3C in the military and empirically-derived lists of competencies using military samples. In order to perform the content and criterion validity analyses of the Framework, it was “parsed,” that is, Framework competencies and enablers were decomposed into relatively homogeneous elements. For example, the cultural perspective taking competency was decomposed into three elements, (1) “self-insight” and “knowledge of others’ stereotypes of own culture”; (2) “perspective-taking skills”; and (3) “use of culture in interpreting situational information.” Table 1 presents this parsing exercise.

Johnston et al. (2010) performed a content validity analysis in creating the Framework that is conceptually similar to our approach, but their analysis was performed at a higher level of generality—at the level of competency and enabler categories. The Framework that developed from this approach specifies competencies and in some cases enablers at a lower level of generality. Our content validity analysis attempts to assess the content of the Framework at this level in order to avoid the vagueness that normally accrues at the (higher) category level.

Two outcomes of this analysis of the Framework include determining which elements are supported in the literature and identifying competencies and enablers that are missing from the Framework. These outcomes are used to perform the criterion validity evaluation of the Framework.

Criterion Validity Definition and Approach

Criterion validity is paramount in applied research. Defined as “demonstrating evidence of a relationship - via statistical significance testing or the establishment of confidence intervals- between the results of a selection procedure (e.g., a predictor) and one or more measures of work-relevant behavior or work outcomes (e.g., criteria)” (Society for Industrial and Organizational Psychology [SIOP], 2003, p. 13) it is the “bottom line” in using a construct in the real world. The first and foremost challenge in establishing criterion validity is correct identification of appropriate, measurable criterion variables. The “parsed” elements of the Framework, described above, were mapped onto constructs

for which measures exist and research utilizing these measures was found to determine if the construct, and indirectly the element to which it corresponds, is related to cross-cultural performance or adjustment. Most of this literature had been performed in the civilian sector. The right side of Figure 1 illustrates the construct validity mapping process.

Model Adequacy

The adequacy of the Framework *qua* model or theory was evaluated by situating it in the context of the many models of 3C that have appeared in the literature and critiques of these models. The Framework, interpreted as a competency model, is not meant to be a theory, but it is at least implicitly an exercise in “theorizing” or model-building in the classic scientific sense. Applied research depends on models or theories for guidance in generating hypotheses, designing empirical research, and interpreting data as much as theoretical research, although these models, theories, or metatheories are often implicit or tacit. We argue below that adequate research on the Framework cannot proceed without adequate specification of a model of 3C in the military context.

IV. Content Validity of the Framework

Our analysis of the content validity of the Framework begins with parsing the competency and enabler components into elements. Table 1 shows the results of this parsing. Competencies (C) and Enablers (E) are numbered according to the March 2011 version of the Framework. Note that competencies skip the number C5 in order to maintain consistency with the earlier version of the Framework. Elements are numerated by decimals. Even at what we refer to as the elemental level, competencies include more than one KSA. For example, C1.1a could be viewed as having three sub-elements: motivation to acquire knowledge, performing behaviors for acquisition, and knowledge actually acquired. C1.1b includes motivation to apply the knowledge and its skillful application. In this research field, the last of these five sub-elements would be termed “performance.” Each of the other four, divided into C1.1a and C1.1b, have a host of dispositional and situational antecedents or enablers. Figure 2 illustrates this point.

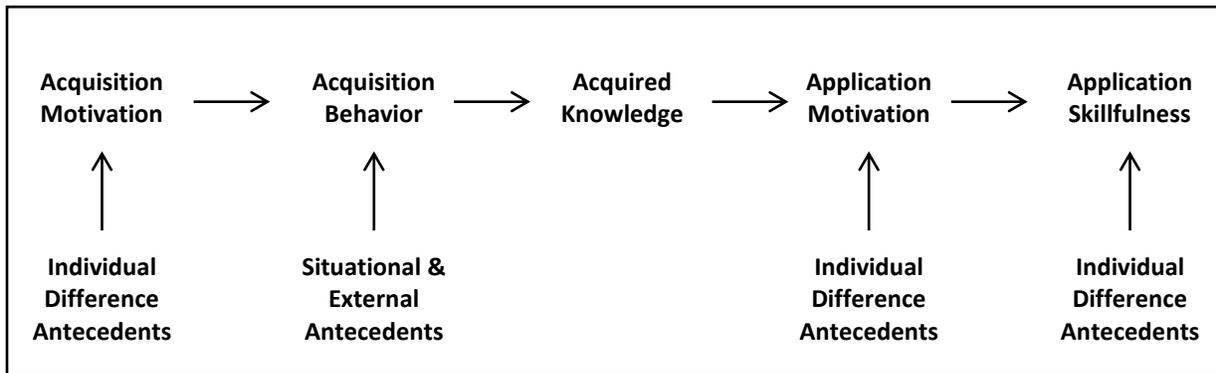


Figure 2. Model illustrating potential relationships among competency elements.

Terminology and Conceptual Specificity Problems

Theory, model-building, and research on 3C and related constructs such as “intercultural relations” and “intercultural communication” suffer from three problems: (1) imprecision in specifying causal order or antecedence among constructs, (2) imprecision in defining constructs, often in the absence of operationalization, and (3) conceptual overlap (Thomas & Lazarova, 2006; Van de Vijver & Leung, 2009). In the Framework and other work described in this section, these problems appear to greater or lesser degrees.

The antecedence problem reflects the more general problem in the training literature in distinguishing among abilities, skills and performance. Defining performance has been a widely debated topic amongst researchers who ultimately referred to it as the “criterion problem” (Murphy & Cleveland, 1995). It was determined, in fact, that understanding what is meant by performance is a key factor in measuring it. Two views of performance have appeared: one looks at performance in terms of results, and the other sees performance as a behavior (Goldsmith & Kraiger, 1997; Murphy & Cleveland, 1995). Yet, defining performance solely in terms of results makes it difficult to determine what is being measured—the person or the situation in which he or she performs—and can lead to ignoring the wide range of behaviors that are critical to the effectiveness of the job but are not uniquely tied to any given product or result (Murphy & Cleveland, 1995).

These three problems are compounded by the use of colloquial language or words with rich connotative meanings (to native English speakers) that gloss over a myriad of specific meanings. For example, the term “orientation,” as in “orientation to treat people fairly,” can refer to the actor’s attitude, motivation, behavior, and perhaps skill.

The great number and therefore great overlap among constructs in the 3C area is convincingly illustrated by Spitzberg and Changnon (2009). They list 326 constructs within the domains of motivation, knowledge, “higher order skills” (similar to competencies in the Framework), “macro-level skills/competencies” (enablers), “skills” (enablers), composure, coordination, expressiveness, “contextual competencies,” outcomes (competencies, performance), and “context” (situational variables).

Competency Models and Job Analyses of 3C in the Military

Although the Framework appears to be a competency model, an alternative approach would begin with a job analysis. Job analysis is the systematic process of breaking down a job into smaller components (Brannick, Levine & Morgeson, 2007). More specifically, it is the study of what a jobholder does, what must be known in order to do the job, what resources are used in doing that job, and the conditions under which the job is done. In the development of the Framework, job analysis was supplanted by the Delphi strategy described above, from which a competency model was created. We are aware of no comprehensive job analysis conducted in the U.S. military.

A study by the RAND Corporation (Hardison, Sims, Ali, Villamizar, Mundell, & Howe, 2009) was conducted to help conceptualize training program content designed to improve cross-cultural performance within the Air Force. To begin, RAND researchers set up focus groups, interviews, and meetings with personnel to determine (1) the demand for types of cross-cultural training and (2) types of cross-cultural training that are currently available within the Air Force. Researchers discovered that while Air Force personnel agreed that cross-cultural training was important, they did not agree on what type of training was needed to improve performance. Based on this discovery, researchers next conducted a needs assessment to determine what and how much of particular behaviors are needed to improve cross-cultural performance. They reviewed cross-cultural training and performance literature and had discussions with Air Force personnel to determine what it meant to be a cross-culturally competent airman. The result was a list of 14 categories of cross-cultural behavior that may be relevant for “on-the-job-cross-cultural performance,” including nine “enabling behaviors” and five “goal-oriented behaviors” (Hardison et al., 2009, p. 4). The importance of these 14 categories was rated in a survey taken by about 21,000 previously deployed airmen, all of which were found to be important by at least some airmen.

We attempted to map the RAND findings against the Framework, as seen in Table 2. The RAND study is very thorough and illustrates a commonly recognized shortcoming of models such as the Framework: the competencies needed by military personnel vary greatly as a function of variables such as rank, military occupational specialty (MOS), type of mission, and details of specific operations. The RAND study incorporated MOS (AFSC-Air Force Specialty Code) and rank, finding considerable variability in the overall importance rating of 3C across specialties. Personnel in special investigations, security, support officer, contracting, and public affairs rated 3C the highest, while pilots and personnel in logistics, weather forecasting, mental health and a variety of technical areas rated 3C as unimportant. They also found that five enabler/competency categories were rated as more important for personnel in low grades or ranks, and eight were rated as *less* important by personnel who had been deployed to Iraq or Afghanistan (compared to other deployments). The RACCA report and other reports recognized this problem and set out to formulate the levels of competence, implying kind and extent of training, required for categories of military and civilian personnel.

Table 2a. Content Validity Mapping to Framework Elements - Competencies

Ref #	Category	Specific Competency	RAND USAF	Special Ops	McCloskey	Caligiuri
C1.1a	1. Culture-General Concepts and Knowledge	Acquires ... culture-general concepts and knowledge		<ul style="list-style-type: none"> • Region-specific knowledge and awareness 		<ul style="list-style-type: none"> • Ability to learn • Agility-facilitators-Knowledge (several) • 3C-1,2,3
C1.1b	-	Applies culture general concepts and knowledge	<ul style="list-style-type: none"> • Applying regional knowledge 		<ul style="list-style-type: none"> • (Planning) 	
C1.2	-	Comprehends and navigates intercultural dynamics	<ul style="list-style-type: none"> • Applying appropriate social etiquette 		<ul style="list-style-type: none"> • Manipulate/persuade 	<ul style="list-style-type: none"> • Cultural adaptation • 3C-8
C3.1	3. Cultural Perspective-Taking	Demonstrates an awareness of one's own world view (i.e. cultural perceptions, assumptions, values, and biases) and how that influences our behavior and that of others Understands how one's own group is viewed by members of another group		<ul style="list-style-type: none"> • Ability to see through other's eyes 	<ul style="list-style-type: none"> • Perspective-taking • Anticipate/Predict • Awareness of cultural differences Self-awareness/self-monitoring 	<ul style="list-style-type: none"> • 3C-1 Agility Facilitator-self-awareness
C3.2	-	Understands and applies perspective-taking skills to detect, analyze, and consider the point of view of others and recognizes how the other will interpret his/her actions			<ul style="list-style-type: none"> • Diagnose nature of resistance • Emotional empathy • (Frame shifting) 	<ul style="list-style-type: none"> • 3C-1 Agility-cultural integration

C3.3	-	Takes the cultural context into consideration when interpreting situational cues			<ul style="list-style-type: none"> • Interpretation • Observation • (Frame shifting) 	<ul style="list-style-type: none"> • 3C-1, 3C-3 Agility-cultural integration
C4.1	4. Communication	Acquires and applies knowledge and concepts of intercultural communication skills	<ul style="list-style-type: none"> • Verbal and nonverbal communication • Applying appropriate social etiquette 	<ul style="list-style-type: none"> • Develop basic communication skills (verbal and non-verbal) 	<ul style="list-style-type: none"> • Communication skills 	<ul style="list-style-type: none"> • Ability to learn Agility-Cultural adaptation
C4.2	-	Employs human and material resources to facilitate intercultural communication				<ul style="list-style-type: none"> • 3C-6
C5.1	5. Interpersonal Skills	Develops and maintains rapport Builds relationships in support of mission performance	<ul style="list-style-type: none"> • Applying appropriate social etiquette • Establishing credibility, trust, and respect 		<ul style="list-style-type: none"> • Relationship-building Rapport building 	<ul style="list-style-type: none"> • Agility-cultural adaptation • 3C-8
C5.2	-	Manage and resolve conflict in support of mission objectives	<ul style="list-style-type: none"> • Resolving conflict Influencing others 		<ul style="list-style-type: none"> • (Planning) 	
C6.1	6. Cultural Adaptability	Understands the implications of one's actions and adjusts approach to maintain relationships with other groups, or cultures	<ul style="list-style-type: none"> • Applying appropriate social etiquette 		<ul style="list-style-type: none"> • (Frame Shifting) 	<ul style="list-style-type: none"> • Agility-cultural adaptation 3C-8

C6.2 -

Minimize/maximize, adjust, or integrate cultural differences according to operational demands

- Agility-cultural minimalism
- 3C-9
3C-4,5,10 (as antecedents)

Note. Items in parentheses indicate indirect or weak relationships.

Table 2b. Content Validity Mapping to Framework Elements – Enablers

Ref #	Category	Specific Competency	RAND	Special Ops	McCloskey	Caligiuri
E1.1	Tolerance of ambiguity	Accepts, or does not feel threatened by, ambiguous situations and uncertainty. Manages uncertainty in new and complex situations where there is not necessarily a “right” way to interpret things.			<ul style="list-style-type: none"> • (Tolerance for ambiguity) 	<ul style="list-style-type: none"> • Learning facilitator - Tolerance for ambiguity and uncertainty • Agility facilitator- Tolerance of ambiguity
E1.2	Low need for closure	Restrains from settling on immediate answers and solutions, and remains open to any new information that conflicts with those answers.			<ul style="list-style-type: none"> • Withhold on closure 	<ul style="list-style-type: none"> • Learning facilitator - Willingness to suspend judgment
E1.3	Suspending Judgment	Withholds personal or moral judgment when faced with novel experiences, knowledge and points of view. Perceives information neutrally and withholds or suspends judgment until adequate information becomes available			<ul style="list-style-type: none"> • Withhold on closure 	<ul style="list-style-type: none"> • Learning facilitator - Willingness to suspend judgment • Agility facilitator- Willingness to suspend judgment
E1.4	Inclusiveness	Tendency to include and accept things (including people) based on commonalities rather than dividing things into groups or categories; emphasizes commonalities and minimizes differences.				<ul style="list-style-type: none"> • Agility facilitator- Willingness to operate without racism, etc.

2. Emotional Resilience

E2.1.1	Stress Resilience	Tolerates emotionally shocking, frustrating, or exhausting circumstances; can retain task focus and enthusiasm, even when faced with repeated setbacks, failures and obstacles to success; demonstrates tendency for positive emotional states and to respond calmly and steadfastly to stressful events	<ul style="list-style-type: none"> Managing stress in an unfamiliar cultural setting 	<ul style="list-style-type: none"> (Emotional endurance) (Resilience) Patience 	<ul style="list-style-type: none"> Agility facilitator-emotional strength and stability
E2.1.2	-	Avoids adopting stress-induced perspectives that overly simplify culture			
E2.1.3	-	Acts as a calming influence			
E2.2	Emotion Regulation	Regulates/controls one's own emotions and emotional expression to support mission performance	<ul style="list-style-type: none"> Managing stress in an unfamiliar cultural setting 	<ul style="list-style-type: none"> Self/emotional regulation Patience 	<ul style="list-style-type: none"> Agility facilitator-emotional strength and stability

3. Self-Identity Resilience

E3.1	Self Confidence	Believes in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet situational demands.		<ul style="list-style-type: none"> (Self-efficacy) 	<ul style="list-style-type: none"> Agility-Cultural adaptation-intercultural self-efficacy
E3.2	Self-Identity	Demonstrates ability to maintain personal values independent of situational factors		<ul style="list-style-type: none"> (Leveraging own personality attributes) 	
E3.3	Optimism	Views problems as solvable challenges and as exciting learning opportunities.			

4. Learning Motivation

E4.1.1	Learning through Observation	Gathers and interprets information about people and surroundings to increase awareness about own treatment and how to treat others.	<ul style="list-style-type: none"> • Gathering and interpreting observed information • Self-initiated learning 	<ul style="list-style-type: none"> • Observation • (Planning) 	<ul style="list-style-type: none"> • Ability to learn (generic) • Agility facilitator-willingness & motivation to gain skills to be effective in intercultural situations
E4.1.2	Sensemaking motivation	Is motivated to make sense of inconsistent information about social rules and norms;			<ul style="list-style-type: none"> • Agility facilitator-intellectual curiosity
E4.1.3	Knowledge acquisition	Continually learns and updates own knowledge base as new situations are encountered.	<ul style="list-style-type: none"> • Gathering and interpreting observed information • Self-initiated learning 		<ul style="list-style-type: none"> • Ability to learn (generic)
E4.2	Inquisitiveness	Is receptive towards, and takes an active pursuit of understanding ideas, values, norms, situations, and behaviors that are new and different. Demonstrates curiosity about different countries and cultures, as well as interest in world and international events.	<ul style="list-style-type: none"> • Gathering and interpreting observed information • Self-initiated learning 		<ul style="list-style-type: none"> • Agility facilitator-intellectual curiosity • Ability to learn • Ability to learn facilitator-curiosity

5. Social Interaction

E5.1.1	Social Flexibility	Presents self to others in a manner that creates favorable impressions, facilitates relationship building, and influences others	<ul style="list-style-type: none"> Establishing authority (part) 	<ul style="list-style-type: none"> Self-presentation 	<ul style="list-style-type: none"> 3C-8 Agility-Cultural adaptation Agility facilitator-Skills and abilities (several) Agility-facilitators-sociability & extraversion
E5.1.2	-	Is able to modify ideas and behaviors, ... to be receptive to new ways of doing things.	<ul style="list-style-type: none"> Changing behavior to fit cultural context 	<ul style="list-style-type: none"> Flexibility 	<ul style="list-style-type: none"> Agility-cultural adaptation Agility facilitator-flexibility
E5.1.3	-	Is able to compromise	<ul style="list-style-type: none"> Negotiating with others 		<ul style="list-style-type: none"> Agility-Cultural integration (part)
E5.2	Willingness to Engage	Actively seeks out and explores unfamiliar cross-cultural interactions and regards them positively as a challenge.		<ul style="list-style-type: none"> Cultural openness Open-mindedness Willingness to engage 	<ul style="list-style-type: none"> Agility-facilitators-willingness to interact cross-culturally

Note. Items in parentheses indicate indirect or weak relationships.

Key to Caligiuri et al. (2011) Competencies and Facilitators

Ability to Learn: "...ability, in the field, to quickly gain an understanding of the socio-cultural context for operations."

Ability to Learn facilitators: three trait-like or attitudinal qualities

Cultural Agility: "...ability to quickly, comfortably, accurately, and successfully operate across countries with people from different cultures -- in other words, to use your cross-cultural learning effectively."

Cultural Agility has three components:

Cultural adaptation: "...an orientation people may have to be sensitive to and strive to adapt to the nuances of cultural differences, often leveraged in situations requiring Soldiers to behave in the most culturally appropriate ways to be successful."

Cultural minimalism: "Cultural minimalism is an orientation people have to reduce the perceived influence of cultural differences either in one's own behavior or in the behavior of others."

Cultural integration: "Cultural integration is an orientation to understand cultural differences of each person in a multicultural or cross-cultural context, but also to strive to create new norms or interactions that reflect a combination of many cultural perspectives."

Ability to Learn facilitators: 21 traits, knowledge, cognitive styles, attitudes, and values divided into: (1) Knowledge and cognition; (2) Skills and abilities; (3) Affect and motivation; (4) Personality and dispositional traits

Soldier competencies: Ten competencies that express some components of the Learning/Agility model to a military context. Indicated by a code, "3C-n," because they are difficult to map isomorphically to other parts of the model or to other 3C models.

3C-1 They understand themselves and those around them in cultural terms, giving them a perspective advantage.

3C-2 They understand the 'basics' of culture across societies, and why these differ.

3C-3 They understand why and how culture operates in daily life, how it frames and shapes choices and perceptions.

3C-4 They understand how and why culture is critical to the success of their missions.

3C-5 They understand how and why culture is critical for their safety and the safety of others.

3C-6 They have a basic tool kit of discovery techniques for learning cultural specifics in their location of assignment.

3C-7 They have both the capability and the motivation to share their learning with others in their unit to strengthen their overall ability to understand and work with culture.

3C-8 They are able to operate effectively in more subtle, interpersonal tasks in the given cultural context (e.g., build trust, gain credibility).

3C-9 They are able to select from a range of cultural responses the one that is best for a given context (e.g., when to minimize, when to adapt, and when to compromise).

3C-10 They consider the cultural context in planning and analysis and understand the implications of operations for the sociocultural context.

A kind of blended competency modeling/job analysis was performed by Spencer (2010) on special operations forces (SOF) personnel. Special operations have become increasingly important in the Middle East theatres, so this analysis is helpful despite applying to a relative small portion of personnel involved in field operations. Spencer focused on describing and defining SOFs, identifying the capabilities needed for such a force, and investigating the factors required for its successful performance. Based on this information, Spencer tried to match the characteristics and requirements of such a “job” to the need for cultural competence. The approach used by Spencer can be seen as mixed; she not only analyzed the job in question but also theoretically linked SOF’s need for cultural competence. No empirical data were provided, however, to support such a claim. Instead, only a description and discussion of how cultural competence could enhance SOF’s performance in the field were provided. Thus, the Spencer (2010) study is not a true job analysis nor does it appear to be a competency model. However, it provides a helpful description of 3C for a highly specific military activity. Table 2 shows our mapping of Framework elements to Spencer’s list.

The most recent and useful investigation of 3C in the military to date was carried out by McCloskey and colleagues (2010) using respondents who had returned from various overseas postings. This group employed a “developmental approach” which looked at the cognitive, affective, and behavioral skills that encompass cross-cultural competence in the context of Army missions. The cross-cultural competence developmental framework presented by McCloskey et al. (2010) proposed that individuals proceed through four levels of mastering cross-cultural competence skills. The first stage is referred to as the pre-competent stage, followed by the foundation and task-oriented stages, and finally, the mission-centric stage. Each of the aforementioned levels of competence can be described in terms of the levels of cognitive, affective, and behavioral components that the individual has acquired across time. We used their content analysis of returned military personnel’s reports of culture competencies that are useful in the field. Our mapping of their most highly endorsed competencies against the parsed Framework is shown in Table 2. An earlier interview study designed to identify 3C components was not used in the present analysis due to an insufficient sample size (Ross, 2008).

Theoretical Models of 3C in the Military

A second source of content information for establishing the content validity of the Framework is to compare it to other models, most of which were formulated for understanding civilian expatriate or sojourner adjustment and performance. A great many such models have been proposed (see Spitzberg & Changnon, 2009). However, we limit this analysis to a military source. The Army Research Institute contracted a comprehensive analysis of 3C in the military, including content, assessment, and measurement, from a group of organizational psychologists led by the well-known expatriate researcher Paula Caligiuri (Caligiuri et al., 2011). The Caligiuri analysis was perhaps only a partial use of the Delphi technique in that the central organizing structure of their resulting model was heavily influenced by earlier theorizing on civilian 3C by Caligiuri (Caligiuri & Tarique, 2009). Caligiuri and colleagues posit a distinction between the ability to learn 3C-relevant knowledge and skills and “cultural agility,” a compound construct that is most easily

described as cross-cultural competence with some aspects of performance. The Caligiuri et al. (2011) analysis includes facilitators (enablers) and three kinds of agility (similar to competency components) plus field-level descriptions of competencies that are similar to the Framework's competency elements. Their work suffers from the conceptual imprecision described above but nonetheless provides a useful additional Delphi-generated opinion about the content of 3C in the military.

We are aware of two Delphi-style attempts to develop a model of 3C outside the military. Deardorff (2006) conducted a Delphi study with 23 "internationally known intercultural scholars" to identify intercultural competence among university students gained through internationalization programs. She organized the characteristics that she identified in a pyramidal structure with "requisite attitudes" at the base; knowledge, intellectual, relational skills and communication skills in the middle; and "informed frame of reference/filter shift" at the top. (An additional level above, not normally assessable in a university context, was "behaving and communicating effectively and appropriately.") All of the elements in her model are represented in the Framework, and no elements in her model are missing from the Framework.

Hunter, White and Godbey (2006) recruited 18 prominent multinational corporation human resource managers and international education experts to perform a Delphi exercise to establish a definition of "global competence." The exercise produced this definition: "Global competence is having an open mind while actively seeking to understand cultural norms and expectations of others, and leveraging this gained knowledge to interact, communicate, and work effectively outside one's environment." This definition was used in a second phase of the project to identify the KSAs and experiences that engender a globally competent person. A larger sample similar in composition to the Delphi sample rated the extent to which 28 KSAs and experiences are "critical to becoming globally competent." A "global competency check list" was constructed from these data that includes 5 knowledge, 6 skill/experience, and 7 attitude items. Note that their questionnaire was nominally worded to identify KSAs that *lead to* global competency but do not in themselves *comprise* competency, but it is not clear if respondents recognized and employed this distinction. The two subsamples, business managers and academics, did not differ on the KSAs that comprised the final list, providing some support for the generalizability of consensus definitions of 3C over industries.

The KSAs identified by Hunter et al. (2006) correspond fairly well to the Framework competencies and enablers. In the knowledge domain, Hunter's list includes "knowledge of current world events" and "knowledge of world history" elements that are indirectly inferred by C1.1a: *Culture-General Knowledge/Acquires ... culture-general concepts and knowledge*. In the attitudes domain, Hunter includes two competencies that are not included in the Framework, "Willingness to step outside of one's own culture and experience life as 'the other'" and "celebrating diversity," the former of which would appear irrelevant to military personnel but could be important to civilian State Department personnel. The latter is represented by enabler E5.2: *Interpersonal Skills/Manage and resolve conflict in support of mission objectives* to some extent, and elsewhere in the Framework indirectly. This item was one of the few that showed a difference between

businesspersons and academics; academics endorsed celebrating diversity more strongly than businesspersons, reflecting the goals of academic international education.

The RAND Corporation conducted a Delphi-like study of the competencies needed for successful career professionals in an international organization (Bikson, Treverton, Moini, & Lindstrom, 2003) based on 135 human resource and line management individuals in 75 public, for-profit, and non-profit organizations. They generated a list of 19 highly-rated competencies, about half of which were deemed important to international organizations. The competency list was broader than the culture-focused lists provided by other research and theory efforts described above: for example, general cognitive ability (ranked 1#), English language skills (#8), and competitiveness (#15). All of the culture-related competencies in their list are found in the Framework enablers. A single summary item, “Cross-cultural competence (ability to work well in different cultures and with people of different origins)” was ranked fifth. The single competency not found in the Framework was foreign language ability (#19); this competency is discussed in a later section.

Summary of Content Validity Findings

Competencies

Table 3 summarizes the information in Table 2. Of the 12 competency elements, 9 were evaluated as “high” validity, 1 as “medium” and 1 as “low.”

One competency element was judged low in content validity:

C4.1: Communication—Employs human and material resources

One competency element was judged medium in content validity:

C6.2: Cultural adaptability--Minimize/maximize

Content validity findings for each element are discussed following the description of the criterion validity analysis.

Enablers

We parsed the enablers into 19 elements. Parsing the enablers is conceptually different than parsing the competencies. The behavioral descriptions attached to the enablers help define them in the context of the Framework while at the same time providing competency-like components or elements that might serve as competencies in their own right. In this sense, the enablers combine antecedent or precursor variables found in many models of 3C or overseas adjustment with competency model-like elements. Enablers were found to include fewer distinguishable elements than competencies. As a result of this varying level of generality, the enablers can be evaluated at a molar level conducive to a traditional sojourner model, but must also be evaluated at a more granular (element) level, similarly to the competencies discussed in the previous section. In some cases the distinction between a competency and an enabler is subtle, for example between C1:*Culture-general concepts and knowledge* and E4:*Learning through observation*. E4 may enable C1, but knowledge acquisition relies on additional personal qualities outside of observation.

Of the 19 enabler elements, 12 were judged as having high validity, 3 medium validity, and 4 low validity. The medium-validity enablers included:

- E1.1: Tolerance of ambiguity
- E1.4: Inclusiveness
- E4.1.2: Learning through Observation – Sensemaking motivation

The low-validity enablers included:

- E2.1.2: Stress Resilience – Avoid stress-induced perspectives that oversimplify culture
- E2.1.3: Stress Resilience – Acts as a calming influence
- E3.2: Self Identity - Demonstrates ability to maintain personal values independent of situational factors
- E3.3: Optimism

Potential additions to the Framework

We used the content analysis of the Framework to look for additional competencies and enablers that could be added to the Framework, few of which were found. One competency and one enabler were discovered: language skills and “big picture mentality.”

Language skills. Three of our sources suggested language skills. Language ability appeared in the early RACCA report, but was not retained in the Framework. Caligiuri et al. (2011) present a cogent discussion of the value of language skills for military personnel:

In teaching and maintaining language skills, there is a high cost embedded and it is unknown whether this will yield generalizable benefits when the specific language learned by an officer is not put to use in operations. Developing cross-cultural competence may be less expensive and may yield better results (p. 29).

The RAND Air Force study (Hardison et al., 2009) found both low valuation of language skills and low language capabilities: 4% claimed a working knowledge of the language of the place to which they had been deployed, and 10% claimed a working knowledge of any foreign language. The authors suggest that low proficiency may have led to low valuation, suggesting that self-reported valuation of competencies may not provide a good measure of their actual importance.

Big picture mentality. Big picture mentality was identified in McCloskey et al.’s (2010) empirically-driven competencies list, which they placed in their cognitive competencies set: “Ability to maintain awareness of the high-level drivers within an operational environment” (p. 14). This competency is represented to some extent in C6.2:*Cultural Adaptability/Minimize/maximize, adjust, or integrate cultural differences according to operational demands* but suggests a broader perspective. This enabler may be most relevant to military personnel in higher ranks or certain MOSs. Big picture mentality has some relationship to the situation awareness concept, usually defined as “the perception of elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future” (Endsley, 1995, p. 36), potentially achieved through sensemaking. Situational awareness

can be measured through manager, peer and self-ratings, or through assessment center style real-time observation of decision making by experts.

Family adjustment. An additional enabler might arguably be added to the Framework based on both content and criterion validity grounds: family and relationship factors. Although not an individual difference variable, family and spouse satisfaction is the strongest predictor of expatriate adjustment in some studies (e.g., Arthur & Bennett, 1995; Bhaskar-Shrinivas, Harrison, Shaffer, & Luk, 2005). Military personnel stationed outside the U.S. may be accompanied by families (e.g., in Europe), but even when not accompanied by families, most deployed personnel have left families and often spouses behind in the U.S. While the satisfaction or adjustment of the family and spouse may not bear directly on 3C or be sufficiently implicated in 3C to be included as an enabler, it might be considered an antecedent or precursor to particular enablers, for example, E2:*Stress Resilience*. When this antecedent is unfavorable or negative, it may be a source of cognitive or emotional load that degrades most competencies and enablers.

In a later section, we attempt to complement the content validity analysis of the Framework with an empirically-driven criterion validity analysis. This analysis draws on a large, mainly independent, pool of empirical reports that attempts to address the question, Does empirical evidence exist to support the importance of each competency and enabler element in the Framework?

V. Evaluation of 3C Instrumentation

Assessment of 3C is central to the goal of increasing cultural capability in the U.S. military. Assessment strategies were introduced in an exploratory manner in the original RACCA work, that is, the working group suggested a list of existing instruments that might be used to assess the set of competencies that they identified. Subsequent work, described below, has looked more deeply at measurement issues and some reviews have appeared that examine some of the instruments (Chang & Chuang, unpublished manuscript, n.d; Sinicrope, Norris, & Watanabe, 2008). We are aware of no comprehensive, evaluative reviews that critique the quality of extant instruments. The present project was undertaken to evaluate the adequacy of the available instrumentation for measuring 3C, specifically as defined in the DLO Framework.

Identifying Measures of Competency and Enabler Elements

We performed a comprehensive search of the sojourner adjustment/performance literature to identify measures that could be used in this evaluation. Our search capitalized on others' attempts to create comprehensive lists of instruments, for example Fantini (2009), Thornson and Ross (2008), and the website of the Institute for Intercultural Training (www.intercultural.org). Several consulting companies also maintain lists of measures on their websites.

Our literature search suggested that two styles of measurement can be identified: "compound instruments" and single-construct measures. By compound instruments, we mean instruments that include more than one subscale and in which instrument validation and instrument use usually focus on the subscales, similarly to the MMPI and 16PF instruments in clinical psychology or Five Factor Model instruments in personality assessment. Single-construct instruments measure one construct or include subscales that are rarely used alone; instead, total scores are used as predictors in adjustment/performance studies. The trend in this literature seems to be from single-construct to compound instruments.

For both compound and single-construct instruments, we observed three "business models" in the field. *Open-access instruments* are published in the scientific literature and are free to use by researchers. We found that most of the older instruments are open access and most open access instruments are single-construct. *Controlled access instruments* are usually copyrighted by individuals who are working in academia and/or their small companies or consultancies, but are easily obtained for research use by other academics, free of charge or for a nominal fee. Controlled access instruments are usually validated using generally acceptable methods in studies published in peer reviewed journals. Most controlled access instruments are compound instruments. *Proprietary instruments* are developed and owned by consulting companies and sold to clients on a per-use basis or packaged in more comprehensive organizational development or training arrangements. Some gray area exists between controlled access and proprietary instruments when the consulting company is owned by and/or closely associated with academics, for example, the KozaiGroup (see kozaigroup.com).

We present a list of identified instruments in Table 3. Undoubtedly a few more instruments exist, and some commonly used personality instruments that have been used in the large sojourner adjustment literature are not listed, such as the NEO, coping style scales, and measures of social interaction individual differences (e.g., the Self-Monitoring Scale, measures of social skills).

Table 3. Description of Instruments

Instrument Name	Acro- nym	Prim -acy	Subscales	Reference
Acculturative Stress Scale for International Students	ASSIS	S	<ul style="list-style-type: none"> • Acculturative stress 	Sandhu & Asrabadi (1994)
Adjustment Difficulties Subscale	ADS	S	(This is a subscale of the Utrecht Homesickness Scale)	Stroebe, van Vliet, Hewstone, & Willis (2002)
Behavioral Assessment Scale for Intercultural Communication Effectiveness	BASIC	S	<ul style="list-style-type: none"> • Display of respect • Interaction posture • Orientation to knowledge • Empathy • Task role behaviors • Relational role behaviors • Interaction behavior and management • Tolerance of ambiguity 	Koester & Olebe (1988)
Beliefs, Events, and Values Inventory	BEVI	S	<ul style="list-style-type: none"> • Basic openness • Negative life events • Naïve determinism • Sociocultural closure • Authoritarian introjects • Religious traditionalism • Need for control • Emotional attunement • Self access • Separation individuation • Gender stereotypes 	Shealy (2004)
Cross-Cultural Adaptability Inventory	CCAI	P	<ul style="list-style-type: none"> • Flexibility/Openness (FO) • Emotional Resilience (ER) • Perceptual Acuity (PAC) • Personal Autonomy (PA) 	Kelley & Meyers (1995)

Cross-Cultural Social Intelligence	CCSI	S	<ul style="list-style-type: none"> • Cross-cultural dimension • Social intelligence dimension 	Ascalon (2005)
Cultural Intelligence Scale	CQS	P	<ul style="list-style-type: none"> • Cognition • Metacognition • Motivation • Behavior 	Van Dyne, Ang, & Koh (2008)
European Multidimensional Models of Intercultural Competence	EMMIC	S	<ul style="list-style-type: none"> • Attitude • Knowledge of one's self and others • Skills of interpreting and relating • Skills of discovery and interaction • Critical cultural awareness 	Sinicrope, Norris, & Watanabe (2008)
Global Awareness Profile	GAP	S	<ul style="list-style-type: none"> • Environment • Politics • Geography • Religion • Socioeconomics • Culture 	http://www.globalawarenessprofile.com/
Global Competencies Inventory	GCI	P	<ul style="list-style-type: none"> • Perception management • Relationship management • Self-management 	Bird, Stevens, Mendenhall, & Oddou (2007) http://kozaigroup.com/inventories/the-global-competencies-inventory-gci/ http://www.intercultural.org/kozaai.php
Intercultural Adjustment Potential Scale	ICAPS	P	<ul style="list-style-type: none"> • Emotion Regulation • Openness • Flexibility • Creativity 	Matsumoto, LeRoux, Ratzlaff, Tatani, Uchida, Kim, et al. (2001)
Intercultural Communication Competence	ICC (b)	S	(none)	Arasaratnam (2009)

Intercultural Communicative Competence	ICC (a)	S	<ul style="list-style-type: none"> • Awareness • Attitudes • Skills • Knowledge • Proficiency 	Fantini, Alvino, Tirmizi, & Aqeel (2006)
Intercultural Competence Assessment	INCA	S	<ul style="list-style-type: none"> • Tolerance of ambiguity • Behavioral flexibility • Communicative awareness • Knowledge discovery • Respect for otherness • Empathy 	http://www.incaproject.org Precht & Lund (2009)
Intercultural Development Inventory	IDI	P	<ul style="list-style-type: none"> • Denial/Defense (DD) • Reversal (R) • Minimization (M) • Acceptance/ Adaptation (AA) • Encapsulated/ Marginality (EM) 	Hammer (2011)
Intercultural Effectiveness Scale	IES	S	<ul style="list-style-type: none"> • Continuous Learning • Interpersonal Engagement • Hardiness 	http://kozaigroup.com/inventories/the-intercultural-effectiveness-scale
Intercultural Readiness Checklist	IRC	S	(none)	http://www.ibinet.nl
Intercultural Sensitivity Inventory	ICSI	S	<ul style="list-style-type: none"> • Openness • Flexibility • Endorsing Individualism/ Collectivism 	Bhawuk & Brislin (1992)

Intercultural Sensitivity Scale	ISS	P	<ul style="list-style-type: none"> • Interaction Engagement • Intercultural awareness • Respect of Cultural Differences • Interaction Confidence • Interaction Enjoyment • Interaction Attentiveness 	Chen & Starosta (1996)
Interpersonal Reactivity Index	IRI	S	<ul style="list-style-type: none"> • Perspective Taking • Empathic Concern • Personal Distress • Fantasy 	Davis (1980)
Multicultural Awareness, Knowledge and Skills Survey	MAKSS-CE-R	S	<ul style="list-style-type: none"> • Knowledge • Skills • Awareness 	D'Andrea, Daniels, & Heck (1991)
Multicultural Competence Inventory	MCI	S	<ul style="list-style-type: none"> • Knowledge • Skills • Awareness • Relationship 	Sadowsky, Taffe, Gutkin, & Wise, (1994)
Multicultural Counseling Knowledge and Awareness Scale	MCKAS	S	<ul style="list-style-type: none"> • Knowledge • Awareness 	Ponterotto, Gretchen, Utsey, Rieger, & Austin (2002)
Multicultural Personality Questionnaire	MPQ	P	<ul style="list-style-type: none"> • Cultural Empathy (CE) • Emotional Stability (ES) • Social initiative (SI) • Open-mindedness (OM) • Flexibility (F) 	Van Oudenhoven, J.P. and Van der Zee, K.I. (2002)
Munroe Multicultural Attitude Scale Questionnaire	MASQUE	S	<ul style="list-style-type: none"> • Knowledge (know) • Empathy (care) • Active Experience (act) 	Munroe & Pearson (2006)

Peterson Cultural Awareness Test	PCAT	S	<ul style="list-style-type: none"> • Power distance • Uncertainty avoidance • Individualism • Masculinity 	Peterson (1997)
Peterson Cultural Style Indicator	PCSI	S	(based on PCAT)	http://acrosscultures.com/pcsidecription.html
Scale of Ethnocultural Empathy	SEE	P	<ul style="list-style-type: none"> • Empathic feeling and expression (EFE) • Empathic perspective taking (EP) • Acceptance of cultural differences • Empathic Awareness (EA) 	Wang, Davidson, Yakushko, Savoy, Tan, & Bleier (2001)
Social Connectedness Scale	SCS	S	<ul style="list-style-type: none"> • Connectedness • Affiliation • Companionship 	Lee & Robbins (1995)
Sociocultural Adaptation Scale	SCAS	P	<ul style="list-style-type: none"> • Cultural Empathy and Relatedness • Impersonal Endeavors and Perils 	Ward & Kennedy (1999)
The Culture in the Workplace Questionnaire	CWQ	S	<ul style="list-style-type: none"> • Individualism • Power distance • Certainty • Achievement • Time orientation 	Developed by Dr. Geert Hofstede http://www.itapintl.com/ITAPCWQuestionnaire.htm
The Inventory of Student Adjustment Strain	ISAS	S	<ul style="list-style-type: none"> • Education • English • Problem • Personal • Social 	Crano & Crano (1993)

Workplace Diversity Survey	WDS	S	<ul style="list-style-type: none">• Emotional reactions• Judgments• Behavioral reactions• Personal consequences• Organizational outcomes	De Meuse & Hostager (2001)
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Validity of the Instruments

Based on an examination of previous research and the mapping exercise described above, we divided the identified instruments into two categories. We selected nine *primary instruments* for close scrutiny. These instruments shared one or more of these characteristics: they included subscales that would be especially useful in assessing the Framework; they had been used frequently in previous research; the quality of development or validation by the instrument authors appeared to be very good; and they are currently popular in the field. *Secondary instruments* include some rarely used instruments, instruments that have little relevance to the Framework, and proprietary instruments for which little information can be obtained. Many of these instruments are of reasonable quality and are not designated “secondary” with respect to their functionality for other assessment goals. Table 3 indicates the assignment of instruments to these two categories.

We conducted literature searches for each instrument, beginning with the instruments’ initial validation studies. We looked for correlational studies that reported relationships between the instrument and adjustment or performance measures, experimental studies in which the instrument was a dependent variable (e.g., training studies), and “differential” studies in which the instrument was related to demographic or biodata variables in a correlational design. The third type of study provides known-groups validation evidence. Propriety instruments were difficult to validate: validation studies have been published in peer reviewed journals for only a few such instruments, although in some cases validation reports are published on consulting companies’ websites, usually without sufficient statistical detail. Proprietary instrument validation studies were rarely convincing. Several consulting companies were contacted in an effort to obtain true validation reports, but none were forthcoming. We found that descriptions and evaluations of 3C related instruments in previously published compendiums were occasionally incorrect, indicating the need for a thorough evaluation study of the available instrumentation.

We evaluated the primary instruments on three qualities: (1) face validity, (2) construct validity, and (3) criterion validity. By construct validity we mean convergent and divergent validity and the internal structure of the instrument if it was designed to include more than one subscale. By criterion validity we mean the predictive or concurrent validity of the instrument with respect to three criterion measures, performance, psychological adjustment, and sociocultural adjustment. We also accepted two additional sources of criterion validity: successful use of the instrument as a dependent variable in training experiments and “differential” studies that demonstrated known-groups validity when the instrument differed between samples as predicted by theory (e.g., groups of individuals who did or did not live overseas). We evaluated the quality of secondary instruments only on the basis of criterion validity, as our goal for these instruments was to evaluate the quality of the Framework (see Criterion Validity Evaluation of the Framework section). For some secondary instruments, existing literature that could be used to evaluate construct validity was also located. For primary instruments, we located most or all of the relevant research reports that provided information concerning construct and criterion validity. Because we did not perform a formal meta-analysis of the primary instruments, we did not

attempt to resolve the file-drawer problem by seeking out unpublished manuscripts from the academic community. For some of the newer instruments, we may have located every published study that used the instrument (e.g., the Multicultural Personality Questionnaire), and for older instruments that have been used extensively over a long period of time, often in studies published outside of psychology or business, our search was less comprehensive (e.g., the Cross-Cultural Adaptability Inventory).

Criterion Measures for Evaluating the Validity of Instruments

Criterion validation of instruments in the expat/sojourner domain is hampered by the difficulty of assessing performance criteria—indeed, culture competency of any kind (Gabrenya et al., 2011). Behavioral measures are particularly lacking in this area (Thomas et al., 2008). So while the adjustment literature abounds with instruments of varying quality, the criterion measures used in studies of interest to the present analysis are fewer and often unsatisfactory.

Adjustment measures are most frequently used in this research field. At the highest levels of generality, adjustment measures fall into two sets: psychological and sociocultural adjustment (Ward, Okura, Kennedy, & Kojima, 1998). Psychological adjustment refers to intrapersonal emotional and somatic problems, often operationalized as depression, but also including anxiety, fearfulness, homesickness, and at the extreme, symptoms of the “culture shock syndrome” identified by Oberg (1960)—some of which are exotic (obsessive hand washing, fear of physical contact, paranoia). The most commonly used measure of psychological adjustment is the Zung Depression Scale (Zung, 1965) although several other scales have been used, such as CES-D variants (e.g., Bracke, Levecque, & van de Velde, 2008). Sociocultural adjustment refers to self-reported success and quality of interaction with the social environment and institutions in the host country. The most commonly used measure of sociocultural adjustment is the aptly named Sociocultural Adjustment Scale (SCAS; Ward & Kennedy, 1999). In the expatriate worker literature, the Black adjustment instrument is often used (Black & Stephens, 1989), which includes general, work, and interactional adjustment subscales. Black’s instrument is discussed in more detail below.

Performance measures include job performance (manager ratings, peer ratings, self-ratings; see Mol, Born, Willemson, & van der Molen, 2005) and several informal ratings of overseas “success” or “effectiveness” in non-job situations. Terminology in definitions of performance is inconsistent (Mol et al., 2005) and some overlap in usage can be seen in the use of “performance,” “competency,” and “adjustment.” Some types of performance measures are absent in the literature:

While some studies ... have measured performance with other than self-report ratings, the issue of the appropriate constituent elements remains. While measures tapping both goal accomplishment and relationship development may be defensible, they predominantly account for the firm's view on performance. From an employee perspective the development of a skill set that can transfer to other aspects of their career may be important ...and the transference of knowledge and skills to the employer is a desirable outcome of expatriation (Thomas & Lazarova, 2006, p. 259).

In addition to performance ratings, expatriate “performance” is also assessed indirectly through self-reports of intent to remain on the job, job attitudes, and occupational citizenship behaviors (Mol et al., 2005; Thomas & Lazarova, 2006).

Black’s Work Adjustment Measure

Black’s (1988) introduction of work adjustment has clouded interpretation because it is measured (in the later 3-dimension version of his scale) through three items that ask for self-assessment of degree of adjustment in “specific job responsibilities, “performance standards and expectations,” and “supervisory responsibilities.” Thomas and Lazarova (2006) criticize the validity of the Black scale and its underlying three-part construct. The Black scale is widely used in this literature and requires some additional scrutiny in the present report. The instrument is reproduced in Table 4. A comprehensive analysis of the instrument is beyond the scope of this report, but based on the face content of its items and those in the SCAS, it appears that the General and Interactional Adjustment subscales measure sociocultural adjustment. The overall content validity of the scale appears to be poor. The three work adjustment items provide a brief measure of self-rated job performance, but the subscale may be contaminated with job attitudes and job commitment. Additional research is needed to determine what the Black scale measures in order to better interpret the research that has used it as a dependent variable. Gabrenya et al. (2011) have shown that popular measures of cultural competence that serve successfully as dependent measures in a variety of studies do not necessarily measure what they purport to measure (i.e., the Cultural Intelligence Scale).

Table 4. Black Expatriate Adjustment Scale, organized by subscale

General Adjustment

1. Living conditions in general
2. Housing conditions
3. Food
4. Shopping
5. Cost of living
6. Entertainment/recreation facilities and opportunities
7. Health care facilities

Interactional Adjustment

8. Socializing with host nationals
9. Interacting with host nationals on a day to day basis
10. Interacting with host nationals outside of work
11. Speaking with host nationals

Work Adjustment

12. Specific job responsibilities
 13. Performance standards and expectations
 14. Supervisory responsibilities
-

Note. Question format: Respondents are asked to indicate on a 7-point scale the extent to which they feel adjusted in each of the 14 domains.

Thomas and Lazarova (2006) argue that the relationship between performance and adjustment is unclear, ranging from negligible to moderate in studies and meta-analyses. Therefore, substituting adjustment measures (such as two of the Black instrument subscales) for a performance criterion is probably not justified.

The Mol Meta-analysis

Researchers are advised to be cautious in interpreting reviews or meta-analyses involving 3C and performance. Mol et al.'s (2005) meta-analysis of predictors of performance in overseas civilian assignments stands at the time of this writing as the best source for identifying stable predictors of performance criteria that does not rely on self-reported work adjustment (i.e., the Black instrument). We examined the literature base of this meta-analysis in detail to ascertain the quality of criterion performance measures it employed. Mol et al. based their findings on 28 research reports (30 studies), 22 of which we were able to obtain. Table 5 presents the frequencies of three types of performance measures employed in the studies they reviewed. It can be seen that a substantial proportion of studies used in the meta-analysis used only self-report performance measures.

Table 5. Performance measures used in the Mol et al. (2005) metaanalysis

Self-report of own performance*	8
Peer evaluations	6
Supervisor evaluations	8
Supervisor and peer evaluations	2

* Excludes studies in which peer or supervisor evaluations were also used

Summary of Performance Measures

Table 6 presents a list of the criteria that we identified in both primary and secondary instruments. While some studies employed performance criteria such as manager or peer performance ratings, most did not. Table 6 shows that a variety of work (or academic) related attitude or commitment measures, usually self-report, were used instead of performance evaluations. We included situational judgments tests as performance measures for the current analysis. When no criterion validity studies were available, we looked at the relationship of the instrument to other instruments that were found to be valid. We found that a criterion measure in one study might appear as a predictor measure in another. For example, in one of the few empirical studies using instruments shown in Table 3 that employs a military sample, Abbe, Geller, and Everett (2010) attempted to perform a criterion validation study of the Multicultural Personality Questionnaire (MPQ) and the Intercultural Development Inventory (IDI) using the Cultural Intelligence Questionnaire (CQS) as the criterion variable.

Table 6. Criterion Measures identified in the literature

<i>Work and Academic Performance; Judgment</i>	<i>Work- and Academic-related Attitudes</i>
<ul style="list-style-type: none">• Academic performance• Academic difficulties• Behavioral competence (assessment center; job applicants)• Classroom project grades• Tips received (hospitality)• Peer-ratings of interpersonal skills• Exchange students: host family evaluation of student academic success• Peer and self-ratings of performance in a dyad (Ang)• Manager performance evaluation• Peer performance evaluation• Manager rating of OCBs	<ul style="list-style-type: none">• Job satisfaction• Classroom team commitment• Classroom identification with team• Emotional labor• Black – self-rated work adjustment• Interest in working with people from other cultures• Identification with a group in a videotape• Emotional reactions to workplace diversity (self-report)• Attitudes/opinions concerning effects of workplace diversity on self• Attitudes/opinions concerning effects of workplace diversity on organization• Expected behavioral reactions to workplace diversity
<i>Psychological Adjustment</i>	<i>Sociocultural Adjustment</i>
<ul style="list-style-type: none">• SWB: Subjective Well Being• Mental health• Physical health• Satisfaction with life• Zung depression scale• Homesickness• Self-reported stress• Self-reported behavior in private• Hopelessness• Contentment• Culture shock• Happiness• Beck Depression Inventory• Beck Hopelessness Scale• Situational judgment test – closed ended; open-ended• Self-esteem• Acculturative stress	<ul style="list-style-type: none">• Peer support• Absence of negative social experiences• SCAS• Self-reported behavior in public• Self-ratings of Intercultural interaction, adjustment• Peer ratings of interaction adjustment• Social connectedness• Black interaction adjustment• Black general adjustment• Acculturation to host nation (food, etc.)• Number of ethnic foods eaten• Social interaction satisfaction• Self-reported communication effectiveness

Other Measures

- Cultural Intelligence Scale (CQS)
- Affect and identification with a person in scenario
- International orientation and international career expectations and goals
- Big-5: neuroticism
- Big 5: others
- MCMI clinical scales
- Critical thinking
- Culture knowledge

Experimental manipulations, quasi-experimental variables

- Study abroad program (pre/post)
- Sensitivity training (treatment/control)
- Language training pedagogical method
- Volunteer abroad program (pre/post)

Demographic variables

- Self-rated cross-cultural experience
 - Foreign language fluency
 - Years worked abroad
 - Years studying abroad
 - Number of family members of different ethnic/racial backgrounds
 - Number of friends of different ethnic/racial backgrounds
 - Number of multicultural courses taken
-

Evaluation of Primary Instruments

For each of the primary measures, we present a summary of the instrument's characteristics and three kinds of validity information: face, construct and criterion. As each instrument is unique and the instruments differ in their role in 3C measurement, we approach these nine validation efforts in different ways.

Multicultural Personality Questionnaire (MPQ)

The Multicultural Personality Questionnaire (MPQ) is a multidimensional instrument that was created to measure multicultural effectiveness (Van der Zee & van Oudenhoven, 2000). Multicultural effectiveness refers to successfully operating within a new cultural environment, as well as having a feeling of well-being within the environment. The instrument includes 91 items to which respondents indicate the extent to which the statements are applicable to themselves on 5 point Likert-style scales anchored by *totally not applicable* to (5) *completely applicable*.

The structure of the MPQ was derived from a review of the literature on antecedents to 3C (Van der Zee & Van Oudenhoven, 2000), similarly to other compound instruments such as the GCI. Seven constructs were identified in the literature (text from pp. 293-295):

- *Cultural empathy*: ability to empathize with the feelings, thoughts, and behaviours of members from different cultural groups
- *Openmindedness*: open and unprejudiced attitude towards outgroup members and towards different cultural norms and values
- *Emotional stability*: the tendency to remain calm in stressful situations
- *Orientation to action*: the tendency to initiate action versus a tendency to wait and see
- *Adventurousness/curiosity*: a tendency to actively search and explore new situations and to regard them as a challenge
- *Flexibility*: ability to learn from experience; able to switch easily from one strategy to another; adjustment of behaviour whenever it is required
- *Extraversion*: a tendency to stand out in a different culture

12 to 14 items were written to operationalize each of these constructs, resulting in an initial 91-item instrument. Initial item analyses suggested combining several of the subscales to form a four subscale instrument (Openness, Emotional Stability, Social Initiative (combining Adventurousness and Extraversion), and Flexibility). A new item analysis, not reported in the literature, produced a 78-item instrument with five subscales: the four subscales in the 2000 version plus Cultural Empathy. One study (Van der Zee, Van Oudenhoven, & de Grijjs, 2004) employed an 83-item version. A final 91-item version of the MPQ was developed by adding 13 new items to the 78-item version (Van Oudenhoven, personal communication, March 19, 2012). Because published studies have used various versions of the MPQ, validity information may be inconsistent from study to study.

All of the subscales except Cultural Empathy are related conceptually to the Big Five, although both Openness and Flexibility would be expected to be related to Openness to Experience. This close resemblance of the MPQ to the Big Five suggests that the MPQ could be viewed as a Big Five measure contextualized to intercultural interaction.

Two studies have examined the factor structure of the five subscale MPQ. Van der Zee, Zaal, and Piekstra (2003) performed a confirmatory factor analysis with target rotation in a sample of job applicants. All subscales except Flexibility were supported in this analysis. Leone, Van der Zee, van Oudenhoven, Perugini, and Ercolani (2005) performed a multigroup confirmatory factor analysis to test for factorial invariance across Netherlands and Italy in samples of university students in which the MPQ was administered in English and Italian, respectively. Items were combined within subscales to form three parcels per subscale. Leone et al. (2005) found the five-factor structure of the MPQ was supported in each of the samples and structural equivalence was satisfactory across samples. Van der Zee, Van Oudenhoven and de Grijs (2004) report the outcome of an unpublished factor analysis that identified three higher order factors, Adaptation (items from Emotional Stability and Flexibility), Openness (items from Cultural Empathy and Open-mindedness), and Social Initiative (items from Social Initiative). These higher order factors are only partly consistent with our examination of the MPQ's structure (see below). This analysis appears to have been performed on items rather than factor scores.

Face validity. All MPQ subscales appear to have good face validity. Examples of items include (see Van der Zee & van Oudenhoven, 2001):

- *Cultural Empathy:* Understands other people's feelings
- *Open-mindedness:* Gets involved in other cultures
- *Emotional Stability:* Can put setbacks in perspective
- *Social Initiative:* Is inclined to speak out
- *Flexibility:* Works mostly according to a strict scheme (reverse-coded)

Construct validity. Relationships among the MPQ subscales were reported in at least 11 samples (Leone, et al., 2005; 2 samples; Martin, 2010; Van Oudenhoven, Mol, & Van der Zee, 2001; Van der Zee & Brinkmann, 2004; Van Oudenhoven & Van der Zee, 2002; Van der Zee & Van Oudenhoven, 2001; Van der Zee, Van Oudenhoven, & de Grijs, 2004; Van der Zee, Zaal, & Piekstra, 2003) that included 2,632 respondents altogether. Unweighted means of these correlations using Fisher's $r-z-r$ transformations are shown in Table 7. We performed this analysis for studies that used both the 91-item and the 78-item versions of the instrument. Results were similar between these two versions, so Table 7 presents combined results. It can be seen that some of the subscales show strong interrelationships, such as Cultural Empathy and Open-mindedness; Open-mindedness and Social Initiative, and Emotional Stability and Social Initiative. Van der Zee, Van Oudenhoven and de Grijs (2004) found evidence for combining items from Cultural Empathy and Open-mindedness, but their combination of items from Emotional Stability and Flexibility are less consistent with these correlations. Social Initiative and Open-mindedness are also difficult to distinguish psychometrically.

Table 7. Criterion Measures identified in the literature

MPQ Subscale	OP	ES	SI	F
Cultural Empathy (CE)	.58 (.16)	.13 (.11)	.42 (.14)	.14 (.11)
Open-mindedness (OP)		.31 (.09)	.51 (.17)	.39 (.09)
Emotional Stability (ES)			.46 (.10)	.39 (.08)
Social Initiative (SI)				.39 (.07)
Flexibility (F)				

Note. Standard deviations of z-scores (converted to correlations) are shown in parentheses. N=2,632

To help resolve this issue, we performed a principal components analysis on the correlations presented in Table 7 using oblique rotation. A large first factor accounting for 50% of the variance included Cultural Empathy and Open-mindedness. A weaker second factor accounting for 21% of the variance included Emotional Stability and Flexibility. Social Initiative loaded on both factors. Thus, the item-level higher order factor analysis reported by Van der Zee, Van Oudenhoven and de Grijis (2004) was replicated in this larger, pooled sample. However, Social Initiative presents a problem for the MPQ's construct validity in its relationships to other subscales, suggesting either a more stringent item analysis that would remove items from this subscale that might belong on other subscales, or dropping the subscale and moving some of its items to other subscales.

Several studies have examined the convergent/discriminant construct validity of the MPQ using varying types of samples and instruments. Two of the MPQ subscales, Open-mindedness and Emotional Stability, were originally identified from the Big Five model. Using the early version of the MPQ, Van der Zee and Van Oudenhoven (2000) found good convergent validity for both subscales but weaker discriminant validity for Open-mindedness in that this subscale was also related to extraversion, $r=.50$. Using the NEO as a baseline, it appears that Social Initiative assesses extraversion and Flexibility assesses extraversion and openness.

Leone et al. (2005) replicated the MPQ-Big Five findings of Van der Zee and van Oudenhoven's (2000). Open-mindedness, Social Initiative, and Emotional Stability were strongly related to the Big Five factors of Openness to Experience, Extraversion, and Neuroticism, respectively. Additionally, Cultural Empathy was strongly related to Openness to Experience, and Flexibility was strongly (negatively) related to Conscientiousness. Discriminant validity was found for Open-mindedness and Flexibility.

The relationship between the MPQ and the Big Five was examined by Van der Zee, Zaal, & Piekstra (2003) using composite scores based on several other measures (Edwards Personal Preference Schedule, etc.) rather than a traditional Big Five instrument such as the NEO. Positive relationships were found between Social Initiative and Extraversion and

between Emotional Stability and the Emotional Stability. Open-mindedness was related to Openness to Experience.

Convergent validity was also found between the Flexibility and measures of sensation seeking and intellectual rigidity (Van der Zee & van Oudenhoven, 2000). Van der Zee, Zaal, & Piekstra (2003) found that Social Initiative and Emotional Stability were strongly negatively related to Social Anxiety and Inadequacy on the Nederlandse Persoonlijkheids Vragenlijst (NPV), a multidimensional personality instrument. However, the relationship between Agreeableness and Cultural Empathy was weaker than expected. Flexibility was strongly related to NPV-Rigidity, but was more strongly related to Openness to Experience.

Leone et al. (2005) found Open-mindedness was significantly (positively) related to Need for Cognition while Flexibility was significantly (negatively) related to Cognitive Need for Closure, and Open-mindedness was significantly (positively) related to Learning Orientation while Flexibility was significantly (negatively) related to Performance Orientation.

Discriminant validity was poorer than expected. It was assumed that the MPQ would be unrelated to cognitive ability since there is a weak association between personality and cognitive ability, but Van der Zee, Zaal, & Piekstra (2003) found that Cultural Empathy, Open-mindedness, and Flexibility were significantly correlated with verbal ability.

Criterion validity. The criterion validity of the MPQ has been examined using a broad range of criterion variables. Leong (2007) examined the relationship between the MPQ and the Sociocultural Adaptation Scale (SCAS), hypothesizing that increased intercultural competence would lead to reduced behavioral difficulties as measured by the SCAS. As expected, the MPQ-Social Initiative scale was found to be negatively related to behavioral difficulties for exchange students. He also found that Social Initiative was positively related to psychological adjustment (depression) on the Zung's Depression Scale. However, the expected relationship between Flexibility and depression was not found. The MPQ was related to adjustment of students living overseas (van Oudenhoven & Van der Zee, 2002) and pre-departure scores on Social Initiative were found to best predict adjustment once students were two to three months into an exchange program (Leong, 2007).

Van der Zee & van Oudenhoven (2000) found that Social Initiative predicted multicultural effectiveness while Flexibility predicted "inspiration for an international career" and "international orientation," over and above the Big Five. The MPQ full scale score also predicted variability in international orientation and interest in an international career over and above the Big Five (Van der Zee & van Oudenhoven, 2000; Leone, et al., 2005), demonstrating incremental validity. These findings are consistent with the idea that the MPQ is in part a contextualized Big Five measure. Incremental validity was also shown in the MPQ's ability to predict adjustment over and above what was predicted by self-efficacy (van Oudenhoven & Van der Zee, 2002; Abbe, Gulick, & Herman, 2008), with Emotional Stability the best predictor of (physical and psychological) personal adjustment and social adjustment, and Flexibility the best predictor of job satisfaction and perceived social support (van Oudenhoven et al., 2003).

Conclusion. The MPQ is highly derivative of earlier antecedent constructs and measures, in particular Big Five instruments, but appears to offer some incremental value over these instruments through its contextualization. Face, construct and criterion validity are generally satisfactory with the exception of excessive subscale overlap. The MPQ is most probably a 3-dimension instrument. Some psychometric information has not been published, unfortunately.

Sociocultural Adaptation Scale (SCAS)

The SCAS was developed in response to a call for a better integration of conceptual research in the area of cultural adaptation (Ward & Kennedy, 1999). It is viewed by the authors as an assessment of intercultural competence with an emphasis on behavioral domains (Ward & Kennedy, 1999). Ward and colleagues proposed the now-accepted conception of a two-dimensional approach to viewing cross-cultural adaptation: a psychological domain (e.g., emotional/affective, psychological well-being, satisfaction) and a sociocultural domain (e.g., behavioral, ability to fit in, acquire culturally appropriate skills). The SCAS is a measure of sociocultural adaptation.

The SCAS was inspired by Furnham and Bochner's (1982) 40-item Social Situations Questionnaire (SSQ) and an unclear number of items were taken directly from the SSQ in early versions of the SCAS. The remainder of SCAS items were written to tap the social situations faced by sojourners, such as food, climate, institutions, and dealing with day-to-day events. Face validity of the SCAS appears to be good, but we are not aware of a study that attempts to systematically determine, in an actuarial manner, the social situations that sojourners experience in daily life. A highly fine-tuned sociocultural adjustment instrument would require situation sampling over a variety of types of sojourn and is probably impractical. The first use of a version of the SCAS was reported by Searle and Ward (1990), but this paper does not present psychometric information besides the coefficient alpha of a 16-item version ($\alpha=.81$). Ward and Kennedy (1999) review 21 studies (samples) that used various versions of the SCAS.

The current version of the SCAS includes 29 items rated on the extent to which respondents perceive difficulty in several aspects of overseas living on a Likert scale (1= "no difficulty" and 5= "extreme difficulty"). The authors suggest that the SCAS includes two subscales, Cultural Empathy and Relatedness and Impersonal Endeavors and Perils (Ward & Kennedy, 1999). The Cultural Empathy and Relatedness dimension measures cognition (e.g., understanding local perspectives, values, and world views) and communication skills (e.g., intercultural communication, making friends, making oneself understood). Impersonal Endeavors and Perils examines the management of impersonal interactions (e.g., bureaucracy, authority) and/or awkward situations (e.g., unsatisfactory services, unpleasant interactions with people). High scores on the overall scale indicate high levels of sociocultural adaptation.

A revised version of the SCAS was recently developed (Wilson & Ward, 2010). See <http://cacr.victoria.ac.nz/projects/research-projects/jessie-project>.

Face validity. Assessing sociocultural adjustment is essentially a situation sampling problem. The interactions of sojourners with people, institutions, and characteristics of the social and physical environment can produce positive and negative reactions, so a static

assessment method (i.e., an established survey instrument used in the same form across samples) needs to sample these situations sufficiently broadly to be appropriate for a variety of types of sojourners, overseas activities, and types of locations. The SCAS appears to accomplish this broad sampling. Table 8 summarizes the items in the 29-item version of the instrument. Ward & Kennedy (1999) report a small-sample factor analysis revealing two factors that correspond to the Social Interaction and Knowledge sets and to the Obtaining Resources, Interaction With Institutions and Social Environment sets presented in Table 8. However we have been unable to replicate this structure (Gabrenya, unpublished data).

Table 8. Content of 29-item Sociocultural Adaptation Scale

<i>Social Interaction (10)</i>	<i>Knowledge, Metacognition (7)</i>	<i>Obtaining Resources (6)</i>
<ul style="list-style-type: none"> • Making friends • Making yourself understood • Unpleasant people • Understanding humor • Social gatherings • People staring at you • Communication with different ethnic group • Opposite sex • Talking about self with others • Family relationships 	<ul style="list-style-type: none"> • Taking a [nation of sojourn] perspective on culture • Understanding [nation of sojourn] value system • political system • world view • Seeing things from a [nation of sojourn] point of view • Understanding ethnic, cultural differences • Seeing two sides of intercultural issue 	<ul style="list-style-type: none"> • Getting food • Local transportation • Shopping • Accommodations • Worshipping • Finding your way around
<i>Interaction With Institutions (4)</i>	<i>Physical Environment (1)</i>	<i>Social Environment (1)</i>
<ul style="list-style-type: none"> • Following rules • Dealing with people in authority • Bureaucracy • Unsatisfactory service 	<ul style="list-style-type: none"> • Climate 	<ul style="list-style-type: none"> • Pace of life

Construct Validity. The majority of the SCAS validation research was conducted using samples from New Zealand and Singapore where the authors have been located. However, it has been used successfully in many cultural regions. Wilson (2009) performed a meta-analysis of the SCAS involving 67 studies in 10 countries with a total sample size of N=10,286. SCAS total scores were related to several overseas experience variables that would be expected to lead to greater sociocultural adaptation, including language anxiety, $r=-.44$, language ability, $r=.38$, contact with host nationals, $r=.29$, perceived discrimination,

$r=-.43$, cultural knowledge, $r=.35$, cultural experiences, $r=.23$, and length of residence in overseas experiences, $r=.26$. Sociocultural adaptation is related to individual difference characteristics that would be expected to impair or enhance adjustment, including Big Five neuroticism, $r=-.36$, the remaining Big Five factors, $r=.20$ to $.36$, and cultural empathy, $r=.56$.

The primary discriminant validity issue for the SCAS is the conceptual and empirical relationship between sociocultural and psychological adjustment, or between the SCAS and commonly used psychological adjustment instruments such as the Zung Depression Scale. Ward, Okura, Kennedy and Kojima (1998) discussed this relationship, reporting correlations in the $.23$ to $.72$ range. They noted that the two constructs should be most highly related when the sojourner is embedded in the host culture, making sociocultural adjustment crucial to well-being. This pattern suggests that sociocultural adjustment has a causal relationship to psychological adjustment, although the reverse causal relationship is also usually assumed. Brisset, Safdar, Lewis, and Sabatier (2010) published path analyses showing psychological distress as antecedent to sociocultural adaptation in an overseas student sample.

Cross-sectional studies report consistent good reliability ranging from $.75$ to $.91$ ($M=.85$) (Ward & Kennedy, 1999). Evidence of construct validity is provided within such cross-sectional studies through the consistent positive correlation between SCAS and sociocultural and psychological adjustment dimensions of the Zung Self-rating Depression Scale (range $r= .20$ to $.62$; Ward & Kennedy, 1999).

Criterion Validity. In this report, we treat sociocultural and psychological adjustment as criterion variables, alongside performance, to examine the criterion validity of other instruments. However, adjustment is commonly thought of as antecedent to performance, so performance measures may be used to evaluate the criterion validity of the SCAS. Specifically, Ward (2010) proposes that sociocultural adjustment enhances job performance, while psychological adjustment leads to job satisfaction. However, Thomas and Lazarova (2006) state “the adjustment-performance relationship typically ranges from non-existent to what can only be considered as moderate” (p. 257) and “the position of adjustment in the causal chain from antecedents to performance is unclear” (p. 259). They note that adjustment measures have been used as substitutes for overseas performance, which necessarily obscures the relationship between the constructs. Masgoret (2006), using a different measure of sociocultural adjustment, failed to find a relationship between adjustment and performance (supervisor ratings). Therefore, performance may not be a suitable variable against which to evaluate the criterion validity of the SCAS. We were unable to find any studies in which the SCAS was used in studies that included job performance measures. However, Gabrenya et al. (2011) found a low, significant correlation between the SCAS and performance on a situational judgment test derived from Cushner and Brislin (1996), $r=.20$, in a sample of international students.

Longitudinal studies using the SCAS have reported that sociocultural adaptation varies with the different transition stages; adaptation problems are greatest at the earliest stages and then decrease with time (Ward & Kennedy, 1999). For example, Ward et al. (1998) found an inverted-U function over a one-year period for overseas students. This type of outcome, in addition to the convergent validity results for experiential variables, are analogous to known-groups validation in supporting the instrument.

Conclusion. The SCAS appears to be a valid measure of sociocultural adjustment suitable to a wide variety of sojourners and sojourns. Sociocultural adjustment may be a less complex construct than psychological adjustment and therefore more easily measured. We would like to see an event sampling or diary study that estimates the full domain of social adjustment problems, providing an empirical basis for the domain of situations that are mirrored in an instrument such as the SCAS. Because so many situations produce outcomes that are far from affectively neutral, an exploration of the relationship between sociocultural adjustment in the sojourner literature and affective events theory (Weiss & Cropanzano, 1996) would be illuminating. The reliance in this field on self-report measures, discussed in a later section, could hinder this research direction.

Given the considerable diversity of sojourner-sojourn experiences, a one-size-fits-all situation sampling may not be possible. An alternate approach to situation sampling would be to use broader subjective impression questions, as in the Black scales. For example, “Overall, are you satisfied with the quality and quantity of your social interactions in [nation of sojourn]?” Another, more difficult approach would be to fine-tune the situation sampling for each assessment setting beginning with qualitative methods and concluding with an item analysis. This approach may have practical value but would not allow comparisons to other studies that used different sociocultural adjustment measures. The situations encountered by military personnel deployed to other cultural regions are partly represented in the SCAS item set, but a more focused instrument is necessary.

New technologies that improve on diary methods, for example using respondents’ own mobile devices, could facilitate advances in this research area. For military personnel, this and other techniques could be used to perform a situational analysis that, analogous to a job analysis, would provide the basis for a set of sociocultural adjustment measures focused on various MOSs and missions.

Cross-Cultural Adaptability Inventory (CCAI)

The CCAI was developed in response to a call for an instrument that could measure cross-cultural adaptability and an individual’s ability to interact with diverse cultures (Kelley & Meyers, 1995). Cross-cultural adaptability refers to one’s ability to adapt to living in another culture and willingness to interact with member of that other culture (Davis & Finney, 2006). The CCAI is a proprietary instrument for which the instrument developers have not published customary instrument development or psychometric information. However, such information is said to be available in the purchasable user’s manual.

The CCAI consists of 50 items rated on a six-point Likert type scale (1= “definitely true” and 6= “definitely not true”). It has four subscales:

- Flexibility/Openness (FO)
- Emotional Resilience (ER)
- Perceptual Acuity (PAC)
- Personal Autonomy (PA)

The FO subscale measures the tendency to be open-minded through 15 items. The ER subscale consists of 18 items and measures one’s ability to remain positive when

confronted with the unfamiliar. PAC is measured by 10 items and refers to one's level of effectiveness and comfort when interacting with those from another culture. The last seven items measure PA—one's ability to maintain a positive personal identity even when faced with negative circumstances. High scores on the overall scale indicate high levels of cross-cultural adaptability. In its initial development, the CCAI consisted of 5 subscales; *Positive regard for others* was included in addition to the 4 subscales listed above. A principal components analysis of the items indicated the four current subscales of the instrument.

Face validity. The development of the CCAI stemmed from a review of the literature and as well as the use of a panel of subject-matter experts. Sample items include:

- *Flexibility/Openness* FO: I believe that I could live a fulfilling life in another culture
- *Emotional Resilience* ER: I have ways to deal with the stresses of new situations
- *Perceptual Acuity* PAC: I have a realistic perception of how others see me
- *Personal Autonomy* PA: I feel free to maintain my personal values, even among those who do not share them

The items are self-assessments of KSAs and therefore are subject to the recognized problems in this assessment strategy, as discussed in the Cultural Intelligence Scale section. The items are generally high in face validity, in many cases similar to those found in instruments that assess the same constructs, such as the NEO. However, the PA subscale appears to assess self-efficacy. Unfortunately, only 9 of the items are reverse scored, leading the common method variance issues discussed below.

Construct Validity. The structure of the CCAI was evaluated by Davis and Finney (2006) using a sample of university sophomores. Confirmatory factor analysis revealed poor model fit using most CFA fit indices except the standardized root mean square (SRMS), which indicated adequate fit. Significant overlap between factors was noted in this analysis. The CCAI publisher, Vangent, Inc., has pointed out that Davis and Finney's sample included only undergraduate students with little intercultural experience or motivation, calling into question the usefulness of their results (Vangent, personal communication, March 19, 2012).

Nguyen, Biderman, and McNary (2011) reexamined the structure of the CCAI in a sample of undergraduate and MBA students. They observed that the CCAI, like many instruments in this area, suffers from common method variance that inflates the relationships among subscales and reduces their ability to uniquely predict criterion measures. They found that the four subscales were correlated with each other in the range $r=.76$ to $.94$, but after removing common method variance, the correlations ranged from $r=.54$ to $.91$. They concluded that the CCAI subscales have poor discriminant validity. They did not test a CFA model controlling for common method variance that could evaluate the structure of the scale.

Convergent validity findings for the CCAI are mixed. Nguyen et al. (2011) found that 18 of 20 correlations between CCAI subscales and Big Five factors were statistically significant and 17 of them were above $.30$, indicating a complete lack of discriminant

validity. When common method variance was removed, only 6 correlations were significant. ER was related to Emotional Stability, $r=.35$, FO was related to Openness to Experience, $r=.21$, as expected. However, ER and PA were also related to Openness to Experience, $rs=.26$ and $.39$. That the CCAI items are self assessments of abilities may explain its relationships to other instruments that use this item style, such as the Cultural Intelligence Scale (Ang, Van Dyne, Koh, Ng, Templer, Tay, & Chandrasekar, 2007), impression management as measured in the Self-Monitoring Scale, and the Balanced Inventory of Desirable Responding (Montagiani & Giacalone, 1998).

Criterion Validity. Three types of evidence are available to evaluate the criterion validity of the CCAI: (1) correlational studies using adjustment and performance criteria; (2) experimental studies in which the CCAI was used to assess the effects of training or overseas experience, and (3) correlational studies that included known-groups type variables.

Ward, Berno, and Main (2002) found that international students high in ER and FO had fewer individual psychological and sociocultural adaptation problems than students lower on these subscales. In a sample of Singaporean college students, Ang et al. (2007) found low correlations between the CCAI and cross-cultural experience, $r=.05$ to $.14$. Sizoo, Plank, Iskat, & Serrie (2005) found that CCAI scores of hotel employees were related to interpersonal skills, tips received, job satisfaction, social interaction satisfaction, foreign language fluency, and years worked abroad, $r=.17$ to $.28$. Some of these correlations may reflect the relationship between personal skills (e.g., language fluency) and self-efficacy as tapped by the CCAI, for others (e.g., tips received), it is difficult to rule out a third variable that leads to higher self-efficacy and better performance.

The CCAI appears to respond to study abroad experience. Black and Duhon (2006) found increased CCAI scores on all subscales among American undergraduate students following participation in a one month study abroad program in the U.K. Zielinski (2007) found higher CCAI scores on all subscales for students who had studied abroad, and found length of time abroad was positively related to scores in a post-only design. Kitsantas (2004) found increases in all CCAI subscales except PAC after a 3-6 week study abroad experience in Europe.

In training studies, Cordon (2009) found increases in ER, FO, and PAC among college freshmen who attended a multicultural awareness retreat. Similarly, Majumdar, Keystone, and Cuttress (1999) compared CCAI scores of foreign-born physicians before and after a culture sensitivity training course in a pre-post control group design. Training increased ER, FO and PAC.

Overall, evaluation of the scale's criterion validity showed that the scale seems to predict or respond to treatments as expected in some studies but not all, and not across all subscales. There is little consistency across studies in the relative strengths of relationships between subscales and criterion variables. The relationship of the CCAI to impression management measures suggests that self-enhancement or demand characteristics effects cannot be ruled out in studies that find an effect of training or experience on CCAI scores.

Conclusion. Similarly to other antecedent variable measures, the CCAI is derivative of earlier instruments, contextualizing personality constructs for intercultural situations.

Therefore, the CCAI may be viewed as an antecedent instrument, even though it is commonly used to assess psychological change in response to short-term manipulations such as workshops that would not normally be expected to produce change in antecedent characteristics. We speculate that the CCAI assesses self-confidence in the several domains addressed by its subscales, so trainings or experiences that build self-confidence in these domains lead to changed self-concepts. Hence, as a measure of the effect of study abroad or expatriate assignment experiences, it may show that the sojourner has had a positive experience that increased self-assessed KSAs, even though objective measures might not find real change in KSAs. It is also conceivable that respondents are reducing dissonance or enhancing consistency by reporting and/or accepting higher culture-competence KSAs following experiences that most people expect would improve such KSAs.

Although the subscales of the source constructs from which the CCAI was derived, such as the Big Five, show discriminant validity, the CCAI subscales do not show discriminant validity, even when common method variance is removed to accommodate the problem of most items being written in a positive (favorable to respondent) direction. As a proprietary instrument, it shares the problem of insufficient, or insufficiently publically available, psychometric information. In a review of scales measuring cross-cultural competence, Abbe, Gulick, and Herman (2007) concluded that the CCAI is not a valid scale and should not be relied on. Likewise, Sinicrope, Norris, & Watanabe's (2008) critique of the shortcomings of the CCAI reflects ours, although we find better criterion validity evidence than they do.

Intercultural Adjustment Potential Scale (ICAPS)

The ICAPS was developed by David Matsumoto and his collaborators at San Francisco State University to assess individual differences that predict overseas adjustment (Matsumoto, LeRoux, Ratzlaff, Tatani, Uchida, Kim, & Araki, 2001). In line with Matsumoto's other research programs, the instrument focuses on emotion. Beginning with the reasonable assumption that many cross-cultural encounters engender negative emotions, the ICAPS development strategy was to identify personality characteristics that predict emotional responses to novel cultural contexts. To do so, an initial item pool was generated from a set of established clinical and personality instruments that assess regulation of emotion, characteristics that have been found in some studies to predict overseas adjustment, measures of psychological well-being such as the Beck Depression Inventory, clinical instruments such as the Minnesota Multiphasic Personality Inventory (MMPI), and Big Five measures, in addition to new items written for the item pool. Early research focused on the adjustment of Japanese in the U.S. but subsequent studies employed a wider set of samples.

The ICAPS consists of 55 seven-point Likert type items on which respondents indicate the extent to which the items describe themselves accurately. Total ICAPS scores are used in much of the research but four subscales that in some cases share items were identified in a principal components analysis: Emotional Regulation (9 items), Openness (7 items), Flexibility (6 items), and Creativity, later termed Critical Thinking (7 items). The criterion used for inclusion of an item in a subscale was a factor loading greater than .196 (varimax rotation of the 4-factor solution). The four factors included 25 items and

accounted for 18.6% of the total variance in the PCA, so most items in the total score are not included in the subscales, nor do the subscales account for a large portion of the total scale variability. This unusual structure implies that full scale scores may evidence relationships to other instruments and criterion variables at variance with subscale scores (see below).

The Emotional Regulation subscale is said to assess the extent to which people “engage in clear thinking about intercultural incidents without retreating into psychological defenses” (Matsumoto et al., 2001, p. 485), e.g., “I rarely feel anxious or fearful.” Openness and flexibility are assessed by items such as “I like to wonder about the origins of the universe” and “I think women should have as much sexual freedom as men.” Creativity is one’s “desire for self-direction and freedom from arbitrary constraint” (Matsumoto et al., 2001, p. 505), e.g., “Spanking a child is the best way to teach them.” Given the heterogeneity of the items, internal consistency reliability values in the English version ranged from $\alpha=.47$ to $.93$ over several studies cited in this section, with most falling in the $.70$ to $.80$ range. Alpha coefficients for the subscales range from $.43$ to $.64$. ICAPS studies that report total scores and subscale scores normally calculate all scores such that higher values indicate greater potential for intercultural adjustment.

Face validity. Face validity of the ICAPS is problematic, with subsequent implications for evaluating its construct and criterion validity. Although the subscale assignments and scoring weights of items included in the current, commercial version of the ICAPS are proprietary, the subscales identified in Matsumoto et al.’s (2001, Study 7) factor analysis suggest that the Emotion Regulation, Flexibility, and Creativity subscales items assess unintended constructs. The Openness subscale appears to have good face validity.

Emotion Regulation. The Emotion Regulation items appear to assess trait anxiety, depression or subjective well-being, e.g., “I feel happy most of the time” and “I often worry about things that might go wrong.” Unlike items in the commonly-used Emotion Regulation Scale (Gross & John, 2003), e.g., “When I want to feel more *positive* emotion (such as joy or amusement) I *change what I am thinking about*” (italics in original), they appear to assess some of the outcomes of successful emotional regulation. As such, the ER subscale would best be considered a measure of psychological adjustment.

Flexibility. Matsumoto does not define flexibility, but implicitly aligns it with the Flexibility/Openness subscale of the CCAI, so we assume he defines it similarly, i.e., an individual’s tendency to be broad-minded and open toward others. The term flexibility is widely and variously used in psychology, however, including concepts such as “cognitive flexibility” (measured with cognitive tasks), “leader flexibility” (a behavior), “attitude flexibility” (changeability), and “self-concept flexibility” (inconsistency), etc. For example, Masuda and Tully (2012) found a relationship between a construct they termed flexibility and psychological adjustment, but they operationalized flexibility using a coping scale. The ICAPS Flexibility scale’s three strongest items (factor loadings greater $.50$) are similar to items in the sex equality component and the sex and male-female relationships domain of the modernity scale in Yang’s (2003) Traditionality-Modernity instrument, e.g., “I think women should have as much sexual freedom as men.” One of the three weaker items (loadings less than $.30$, reverse scored) appears to assess traditionality. The remaining two

weak items are similar to the sociability and activation components of extraversion, e.g., “I don’t get much pleasure from talking with people.” Flexibility may be considered one of several components of modernity, but modernity and gender equality would not be considered major components of flexibility.

Critical Thinking. The Creativity (hereafter, Critical Thinking) subscale appears to assess authoritarianism and traditionality, including items similar to Altemeyer’s Right Wing Authoritarianism instrument (e.g., Altemeyer & Hunsberger, 2004), “The trouble with children nowadays is their parents don’t punish them enough,” and the submission to authority component and child-training domain of the traditionality scale in Yang’s (2003) Traditionality-Modernity instrument, “The average citizen can influence governmental decisions” and more directly, “I am a traditional person.” Authoritarianism has been found to predict overseas adjustment inconsistently (Hannigan, 1990) and is a component of a widely-researched antecedent, ambiguity tolerance, which shows some predictive validity (see discussion of ambiguity tolerance elsewhere in this report). We know of no research on the relationship between modernity or traditionality and overseas adjustment.

Construct Validity. Two kinds of convergent and divergent validity studies are reported here: those using the full-scale ICAPS score and those focusing at the subscale level.

Full scale scores. Understanding the ICAPS full-scale score requires an examination of the 30 items that are not included in the four named subscales. David Matsumoto generously provided us with the items for this analysis. Most of the items are related to authoritarianism (including items that involve authoritarianism, conservatism, rigidity, fatalism, traditionality; 11 items) or openness (8 items). Neuroticism seemed to be represented by 4 items, self-efficacy by 3, and agreeableness by 2. (Some items are included in two of these sets.)

The ICAPS full-scale score is related to the CCAI full scale score (see previous section), $r = -.45$, but most strongly to its Emotion Resilience and Flexibility/Openness subscales (Matsumoto et al., 2001). The ICAPS shows discriminant validity in that it is not correlated with measures of ability, vocabulary (e.g., Concept Mastery Test), a test of verbal creativity (e.g., Remote Associates Test) and a measure of spatial skill (e.g., Minnesota Paper Form Board Test) (Matsumoto et al., 2001).

Emotion regulation. Given its face validity problems, the construct validity of the ER subscale cannot be fully examined. A variety of relationships with adjustment criterion variables supports our face validity observations. The ICAPS ER subscale is related strongly to the BDI, Big Five-Neuroticism, the Millon Clinical Multiaxial Inventory Dysthymia, Avoidant, Debasement, and Borderline scales. It is related to several measures of well-being and social adaptation, such as the California Personality Inventory Social Ascendancy, Achievement, and Well-Being scales and success in an in-basket exercise. Yoo, Matsumoto, & LeRoux (2006) found that the ER subscale predicts depression, anxiety and “culture shock” (psychological adaptation) among international students in the U.S. Hierarchical regression analyses performed by Matsumoto, LeRoux, Robles, & Campos, G. (2007) found that the Openness, Critical Thinking, and Flexibility subscales contributed additional explained variability to several measures of depression, anxiety, and wellbeing, but the

Emotion Regulation subscale did not. These findings are consistent with our interpretation of the ER subscale as a measure of anxiety and depression, i.e., psychological adaptation, rather than an antecedent to adaptation, 3C or performance.

Openness. The ICAPS Openness subscale has been found to be related to the Big Five Openness scale ($r_s=.57$ and $.34$ in two studies) but weakly to the remaining Big Five scales, therefore demonstrating good construct validity. However, inconsistent with the construct, it is also related to the use of venting as a coping mechanism in one study (Savicki, Downing-Burnette, Heller, Binder, & Suntinger, 2004).

Flexibility. The Flexibility subscale, as noted previously, is primarily a modernity measure although it does include items that are related to flexibility in a broad sense. The ICAPS Flexibility subscale was found to be related to the California Psychological Inventory (CPI) Flexibility subscale, $r=.36$, as well as the CPI Socialization scale (i.e., conscientiousness), $r=.36$, and CPI-Norm Favoring scale (i.e., acceptance of traditional rules and social conduct), $r=.42$, (Matsumoto, LeRoux, Bernhard, & Gray, 2004). Matsumoto et al. (2004) report a regression analysis in which the CPI subscales were regressed on the ICAPS subscales. The regression weight for the CPI Flexibility scale was $b=.18$. The best unique predictors of ICAPS Flexibility in this analysis were Social Presence, Socialization, Intellectual Efficiency and Communality (bs from $.29$ to $.36$), i.e., extraversion, conscientiousness, intellectual self-efficacy, and the lie scale.

Critical Thinking. The Critical Thinking subscale has been found to be related to the CPI-Tolerance, $r=.35$, CPI-Responsibility, $r=.37$, and altruism, $r=.36$, consistent with our interpretation of the subscale as a measure of authoritarianism (scored in the reverse direction).

Overall, these construct validity results show that the ICAPS is tapping into a multitude of individual differences, not all of which correspond to its intended constructs. Convergent validity findings are consistent with our reinterpretation of three of the four subscales.

Criterion Validity. The concurrent and predictive validity of the ICAPS was examined in a series of studies that employed a wide set of criterion variables that focused mainly on individuals' internal psychological states as they adjusted to other cultures (Matsumoto et al., 2001; Matsumoto, LeRoux, Iwamoto, Choi, Rogers, Tatani, & Uchida, 2003; Matsumoto et al., 2004).

Full scale scores. Full scale ICAPS scores were found to be significantly correlated with all adjustment measures included in these studies (Matsumoto et al., 2001), such as depression, anxiety, "culture shock," life satisfaction, and well-being. It has also been found to be related to self, peer, and other ratings of adjustment in sojourners ($r = .66$ to $.70$) and to measures of psychological adjustment and subjective well-being among sojourners ($r = .20$ to $.45$; Matsumoto et al. 2001, 2003). The robustness of these results was evaluated by controlling for individual differences variables (e.g., gender, language, etc.). The predictive validity of the ICAPS was examined using a time series design (Savicki et al., 2004). Results showed that indices of intercultural adjustment potential measured at the early stages of students' sojourn were predictive of higher adjustment and satisfaction at the end of the sojourn (ICAPS Total Score $r=.39$, Emotional Regulation $r=.42$).

Unfortunately, the criterion validity findings in these studies are compromised by the presence of the ER subscale, which appears to measure a criterion variable, psychological adjustment, so observed correlations involving the total score may be inflated. Future research that removes criterion-related items from the ICAPS total score is needed to better understand its validity.

Subscales. As discussed above, the subscales do not appear to measure the constructs after which they are labeled, and the ER subscale is apparently a criterion measure. Criterion validity research on the remaining subscales can be meaningful, however. Openness has been found to be related poorly to a variety of clinical and adjustment measures, $|r|s < .30$. It shows some anomalous relationships with anxiety, $r = .56$ and pessimism, $r = .35$.

The ICAPS Flexibility subscale, which we interpreted as modernity, was found to be related to the Beck Anxiety Inventory, $r = -.43$, the Beck Hopelessness Inventory, $r = -.61$, the Beck Depression Inventory, $r = -.38$, psychological adjustment to a new culture, $r = .53$, and the Satisfaction with Life Scale, $r = .42$ (Matsumoto et al., 2007); and the MCMI desirability and compulsive scales (negatively) (Matsumoto et al., 2001). Hence, the ICAPS Flexibility subscale most strongly measures or predicts psychological adjustment. Modernity is difficult to distinguish from liberalism and social position (middle class), both of which are related to cognitive style and coping style in response to stressors (Kohn & Schooler, 1983; Mirowsky & Ross, 2003). Hence, the relationships of ICAPS-Flexibility to clinical measures may be due to its preponderance of sex-equality modernity items.

Critical Thinking (interpreted here as the inverse of authoritarianism and traditionality) evidences few strong relationships with clinical and adjustment measures, $|r|s < .30$. The exception is its relationship to the BDI, $r = -.40$ and overall contentment, $r = .40$, among international students in Matsumoto et al., (2007; signs reversed from published table).

Other criterion measures. Yoo et al. (2006) used the JACBART, a measure of emotion recognition ability, as a criterion variable. The ER subscale was related weakly to the total JACBART score, $r = .22$, and somewhat more strongly to some JACBART subscales. (Matsumoto et al., 2004 also included the JACBART but they did not report relationships between the ICAPS and the JACBART.) Matsumoto et al. (2004) used an organizational in-basket exercise that was scored by assessors on nine dimensions as a criterion variable. The ICAPS total score was related weakly to the in-basket total score, $r = .23$; the highest correlation among the 40 calculations was between the Openness subscale and the in-basket written communication dimension.

Conclusion. The ICAPS, a compound-style collection of theoretically relevant construct measures, is explicitly derivative in its genesis in the item sets of earlier personality and clinical instruments. The ambitious research program performed around the ICAPS has provided a great deal of useful information about a host of constructs that are interesting to theoretical and applied researchers in the intercultural adjustment domain. The instrument requires a revision if it is to be used in theoretical research. If the ER subscale items were removed, the full scale score would be useful in applied research to

predict psychological adjustment. Unfortunately, the current version of the ICAPS lacks sufficient construct validity for use in theoretical or model-building studies.

Culture Intelligence Scale (CQS)

Background and Instrument Overview. Cultural intelligence (CQ) is defined as “an individual’s capability to function and manage effectively in culturally diverse settings” (Ang, et al., 2007, p. 336) or “a system of interacting knowledge and skills, linked by cultural metacognition, that allows people to adapt to, select, and shape the cultural aspects of their environment” (Thomas et al., 2008, p. 127). CQ is multidimensional in that it is usually interpreted to include four dimensions: metacognition, cognition, motivation, and behavior, each of which should be considered in culturally diverse environments. Metacognitive CQ refers to individuals’ control over their cultural thought processes while acquiring and understanding cultural knowledge. Cognitive CQ refers to individuals’ knowledge of the different norms, practices, and conventions within different cultures that have been attained via personal experiences and education. Motivational CQ refers to individuals’ willingness to direct their attention towards learning about cultural differences and functioning within culturally different environments. Finally, behavioral CQ refers to individuals’ ability to apply both verbal and nonverbal actions while interacting with individuals from different cultures (Ang, Van Dyne, & Koh, 2006; Templer, Tay, & Chandrasekar, 2006; Ward, Wilson & Fischer, 2011).

The most commonly used measure of CQ is the Cultural Intelligence Scale (CQS; Van Dyne, Ang & Koh, 2008, 2009). Development of the CQS was based on a comprehensive review of the intelligence and intercultural competency literatures, as well as interviews with SMEs (executives with global work experience). In developing the CQS, 53 items were written to represent the four dimensions (about 13 per dimension; Ang et al., 2007). The authors claim that only positively worded items were used since factor analysis tends to add additional factors for negatively worded items. Raters then narrowed down the number of items until each dimension had 10 items. CFA was used to confirm the four dimensions, using an initial sample of mostly female undergraduate students from Singapore. The CFA resulted in researchers retaining a final set of 20 items. The CQS was then cross-validated with a second mainly female sample of Singaporean undergraduates, wherein the researchers found good fit for the four-factor model. The four dimensions were also found to generalize across countries. They replicated the four-factor structure in a sample of undergraduates from Michigan State University in the United States. The final instrument includes: metacognitive CQ (4 items), cognitive CQ (6 items), motivational CQ (5 items), and behavioral CQ (5 items).

Sample items include:

- *CQS-Metacognition:* I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds
- *CQS-Cognition:* I know the cultural values and religious beliefs of other cultures
- *CQS-Motivation:* I enjoy interacting with people from different cultures
- *CQS-Behavior:* I change my verbal behavior (e.g., accent, tone) when a cross-cultural interaction requires it

Face Validity. We examined the face validity of the CQS at the subscale level. The face validity of *CQS-Cognition* is reasonable, as each item represents a domain of societal or cultural knowledge. The primary problem with the CQS-Cognition subscale is that it relies on self-reports of cognitive abilities, which has been shown to be a poor measure of actual ability (e.g., Paulhus, Lysy & Yik, 1998). Similarly, the *CQS-Metacognition* subscale calls on the respondent to report possession of complex cultural competencies, e.g., “I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me.” Thus, similarly to self-report measure of emotional intelligence, it is unclear if respondents are judging their personal attributes correctly or if the measures are reflect self-efficacy or overconfidence.

The *CQS-Motivation* subscale does not correspond well to the construct it seeks to operationalize. It assesses attitudes, “I enjoy interacting with people from different cultures,” and self-confidence, “I am confident that I can socialize with locals in a culture that is unfamiliar to me.” Three items appear to assess sojourner sociocultural and psychological adjustment, “I am confident that I can socialize with locals in a culture that is unfamiliar to me,” “I am sure I can deal with the stresses of adjusting to a culture that is new to me” and “I am confident that I can get accustomed to the shopping conditions in a different culture.”

CQS-Behavior is operationalized as self-reported intercultural competence exclusively in the domains of verbal and nonverbal behavior. In this sense, the subscale resembles a measure of intercultural communication competence (ICC; Wiseman, Hammer & Nishida, 1989). ICC is self-assessed on complex competencies such as “I use pause and silence differently to suit different cross-cultural situations.” Hence, the face validity as well as the content validity of the CQS-Motivation and CQS-Behavior subscales are suspect.

Construct Validity. Convergent validity was examined by comparing the four CQS factors to four Emotional Intelligence (EI) factors (Ang et al., 2007). As expected, a moderate (positive) relationship was found between the CQS and each of the EI factors (Ang et al., 2007). Discriminant validity was also examined and found between the CQS and the following measures: Big Five, CCAI, general mental ability, the EI total score, the CJDM (Cultural Judgment and Decision Making), interactional adjustment, and wellbeing (Ang et al., 2007). Ang et al. (2006) examined the relationship between the CQS and Personal Characteristics Inventory (PCI), which essentially consists of the Big Five. It was hypothesized that conscientiousness would be related to CQS-Metacognition, agreeableness and emotional stability would be related to CQS-Behavior, extraversion would be related to both CQS-Motivation and CQS-Behavior, and that openness to experience would be related to all CQS subscales. As expected, conscientiousness was positively related to CQS-Metacognition and agreeableness was related to CQS-Behavior. However, unexpectedly, emotional stability was negatively related to CQS-Behavior. The authors suggested that being calm and even-tempered inhibits verbal and non-verbal displays of CQ (Ang et al., 2006). Extraversion was found to relate to CQS-Motivation, CQS-Behavior, and although not hypothesized, CQS-Cognition. Last, as expected, openness to experience positively related to all four CQS subscales.

The CQS’ face validity problems cited previously beg the question, what do the four subscales actually measure? Gabrenya et al. (2011) administered the CQS to domestic U.S.

students and to international students studying in the U.S. and Germany along with measures of cultural knowledge and experience, cultural attitudes, personality, self-efficacy, social competence and adjustment and performance criterion measures. Path models that included direct effects between antecedent variables and criterion variables, and extraneous personality, efficacy and social competence variables, revealed that the CQS subscales failed to mediate between antecedent and criterion variables. For example, a multiple choice measure of culture knowledge predicted a situational judgment test (SJT) criterion but the CQS-Cognition subscale did not mediate actual knowledge and SJT performance. Overall, only 1 of 14 path models that were examined supported the CQS.

Incremental validity. Studies of the incremental value of the CQS over preexisting antecedent variables have reported mixed findings. Van Ayn and colleagues have reported several studies that show incremental validity of the CQS over Big Five and intelligence measures (e.g., Ang et al., 2007), but Ward, Fischer, Lam, and Hall (2009) found no incremental value in predicting four measures of psychological and sociocultural adjustment. Gabrenya et al. (2011) also found no incremental validity in their set of antecedent predictors of sociocultural adjustment, psychological adjustment, and situational judgment.

Criterion Validity. Most criterion validity studies of the CQS have focused on concurrent validity. Templar et al. (2006) examined the relationships between CQS-Motivation and realistic job preview (RJP), realistic living conditions preview (RLCP), Black's work, general, and interactional adjustment, and previous international assignment. CQS-Motivation was significantly related to all three adjustment factors, RLCP, and previous international assignment, as expected, but not to RJP and predicted work adjustment over and above RJP, as expected. Ward et al. (2011) examined the relationships between the CQS and psychological and sociocultural adjustment. CQS-Motivation was related to both types of adjustment and CQS-Metacognition was related to less sociocultural adjustment.

Ang et al. (2007) found that CQS-Motivation and CQS-Behavior were predictive of self- and supervisor ratings on Black's three adjustment scales in both American and Singapore samples, while CQS-Metacognition and CQS-Cognition predicted a cultural SJT. As discussed in a previous section, Black's work adjustment subscale is similar to the CQS in asking for self-perception of performance or ability. In a predictive validity study, Ward et al. (2011) found that CQS-Motivation at the beginning of an academic term predicted fewer psychological symptoms three months later. These and other findings generally show that the behavior and motivation subscales are related to adjustment while the metacognition and cognition subscales are related to cognitive performance. However, as Gabrenya et al. (2011) point out, it is not clear what the CQS subscales actually measure.

Conclusion. The CQ concept has become highly popular in several cultural fields and has spawned a small cottage industry in self-help style books for managers. The *Handbook of Cultural Intelligence* (Ang & van Dyne, 2008) appeared only six years after the publication of Earley and Ang's important 2003 book introducing CQ. These movements within and outside the academy attest to the timeliness of the construct. However, measurement technology has lagged behind conceptual development. Some attempts have

been made to create behavioral measures of CQ, for example Thomas et al. (2011), analogous to attempts to develop a behavioral measures of emotional intelligence (e.g., Mayer, Salovey & Caruso, 2002). Gabrenya et al. (2011) concluded that the CQS measures a combination of competency and related constructs, mainly through the operation of spurious third variables, so although it is often found to be related to criterion measures, it is not suitable as a research instrument. A valid measure of CQ is still needed.

Global Competencies Inventory (GCI)

The Global Competencies Inventory (GCI) is a proprietary, compound instrument created by a consulting company, the Kozai Group (Mendenhall, Stevens, Bird & Oddou, 2010). The instrument was developed deductively from a theoretical conception of the competencies that global leaders and corporate managers need to be effective in interacting and collaborating with individuals from different cultures (Bird, Stevens, Mendenhall, & Oddou, 2007). The Kozai Group advertises that the GCI has been successfully used in 70 nationalities, thereby providing a broad normative sample. The GCI is said to be used in a variety of multicultural consulting contexts, such as executive coaching for personal/professional development, selection and promotion, measures of changes in intercultural competencies, and as a vehicle to increase self-awareness in cross-cultural and diversity courses.

The GCI was developed out of a comprehensive investigation of the core competencies that research has found to be required for global leadership and effective intercultural engagement (Mendenhall, et al., 2010). Six core dimensions of competencies, with numerous competencies nested within each dimension, were identified. The authors labeled these six dimensions: cross-cultural relationship skills, traits and values, cognitive orientation, global business expertise, global organizing expertise, and visioning. Three of the six dimensions identified were found to overlap with competencies that have been found to contribute to overseas adjustment and performance. These three dimensions encompass 16 competencies, as shown in Table 9. *Perception Management* (5 competencies) refers to how an individual mentally approaches cultural differences. *Relationship Management* (5 competencies) refers to an individual's orientation toward developing and maintaining relationships with, and awareness of, culturally different other. *Self-management* (6 competencies) refers to the strength and clarity of an individual's sense of self-identity and ability to effectively manage thoughts, emotions, and responses to stressful situations. Thus, it can be seen that the GCI is highly comprehensive and attempts to cover the complete range of antecedents that have been identified theoretically or empirically in the sojourner adjustment and performance literature.

Table 9. GCI Competencies and Validities

Competency	Constructs	Validity
<i>Perception Management</i>		
Nonjudgmentalness (NJ)	– Ethnocentrism, Openness, Relativism	Mixed
Inquisitiveness (IN)	Openness, Relativism	Poor
Tolerance of Ambiguity (TA)	– Uncertainty avoidance, Ambiguity tolerance	Mixed
Cosmopolitanism (CO)	Interest in foreign cultures	No evidence
Interest Flexibility (IF)	Ability to adjust interests and habits to host culture	Mixed
<i>Relationship Management</i>		
Relationship Interest (RI)	Extraversion, sociability, –social anxiety	Good
Interpersonal Engagement (IE)	Extraversion, sociability, social skills	Good
Emotional Sensitivity (ES)	Agreeableness, self-monitoring, social skills	Good
Self-Awareness (SA)	Self-insight	No evidence
Social Flexibility (SF)	Self-monitoring	Mixed
<i>Self-management</i>		
Optimism (OP)	Optimism, –depression,	Confounded*
Self-confidence (SC)	Self-efficacy, locus of control	Good
Self-identity (SI)	Positive self image (independent self-construal), confidence in own values, integrity	Good
Emotional Resilience (ER)	Hardiness, perseverance	Good
Non-stress Tendency (NT)	Emotional stability, patience, –neuroticism	Good
Stress Management (SM)	Emotional resilience, effective coping strategies	Good

Note. – indicates inverse or opposite relationship with competency. Constructs in parentheses are claimed by the author but disputed by the present researchers. *Predictor is a criterion construct.

Face validity. An initial pool of 311 items was validated on a large sample in which 38% were “hourly/non-supervisory” employees and 32% were students. The final set of items is said to show acceptable reliability and to load on the correct factors. While content validity of the GCI is good, the items were not available to us and we cannot assess their face validity.

Construct validity. KozaiGroup does not make available construct validity information for the GCI and we were not able to obtain additional information from the company. The authors examined the factor structure using a large, diverse sample in which “standard survey construction procedures and techniques were used in evaluating the initial pool of 311 items” (Mendenhall et al., 2010, p. 20). Available tabular results suggest

that an exploratory analysis was conducted in which 16 strong factors emerged, each composed of 6 to 15 items with loadings above .30. Most loadings were in the .50 to .70 range. We cannot evaluate this study except to note that such a strong 16 factor solution is rare (see House, Hanges, Javidan, Dorfman, & Gupta, 2004, for an example of empirically supporting the structure of a 9-factor instrument). A confirmatory factor analysis study was not reported. Many of the constructs listed in Table 9 have been found to be related to each other in other research, suggesting that fewer than 16 identifiable constructs can be operationalized.

Criterion validity. No criterion validity information is available for the GCI. Lacking psychometric information about criterion validity, we evaluated the nomological network of the 16 constructs that the authors chose *a priori* to create the instrument. Using Mendenhall et al.'s (2010) description of the constructs, we attempted to map them against constructs that have been examined in several reliable sources such as meta-analyses and reviews. The criterion validity of each of these constructs against psychological adjustment, sociocultural adjustment, or performance measures was investigated. In doing so, we anticipate the Framework criterion validation reported in a later section. Table 9 shows the results of this analysis. *Good* validity indicates constructs that map well against those that have been studied, and support was found in a meta-analysis or review. *Mixed* indicates either weak support or conflicting findings. *Poor* indicates clearly negative results in a meta-analysis. Overall, this strategy showed that the theoretical content of the instrument is primarily but not completely supported. This evidence can be taken as support for the content validity of the instrument but not its criterion validity, however.

Conclusion. The GCI is an ambitious instrument with apparently high content validity. In contrast to most other instruments in our primary set, it was designed to assess a broad domain of antecedent constructs. Unfortunately, due to its proprietary nature and the unlikely results of the one scale construction study described by the Kozai Group, we have no basis for evaluating the quality or usefulness of the instrument.

Intercultural Development Inventory (IDI)

The IDI is a proprietary instrument distributed by IDI, Inc., a consulting company owned by the instrument's developer, Mitchell Hammer (see www.idiinventory.com and www.hammerconsulting.com). It was developed in 2001 to measure individuals' levels of interpersonal sensitivity and interpersonal competence. It was revised in 2003 and again in 2010 (Hammer, 2011). Intercultural sensitivity refers to the "ability to discriminate and experience relevant cultural differences," while intercultural competence is the "ability to think and act in intercultural appropriate ways" (Hammer, Bennet, & Wiseman, 2003, p. 422). The IDI measures intercultural sensitivity/competence in individuals, groups, and organizations (Hammer, 2011). Individuals are considered to have intercultural competence if they have intercultural sensitivity (Hammer et al., 2003). The IDI was originally created in order to measure intercultural sensitivity/competence as described in the Developmental Model of Intercultural Sensitivity (DMIS; Hammer et al., 2003; Bennett, 1986). The instrument consists of 50 items (paper and pencil or online) that take about 20 minutes to complete.

Completion of the IDI places the respondent on the DMIS intercultural sensitivity/competence development continuum. The continuum consists of *Denial*, a low capability for understanding and adapting to cultural differences; *Defense*, in which the individual uses an “us versus them” perception, where there is an overly critical view of other cultures; *Reversal*, which is the opposite of defense, where the “us versus them” perception is that the non-native cultural group is seen as more superior than the individual’s cultural group; *Minimization*, where the individual recognizes some cultural differences, but focuses on cultural commonalities and universal values that can mask the cultural differences; *Acceptance*, where the individual more fully explores cultural differences and recognizes the need to understand different cultural perspectives; *Adaptation*, where the individual is able to shift their perspectives and adapt their behaviors to match that of another culture; and *Cultural Disengagement*, which is the feeling of being disconnected and not fully part of one’s own cultural group (Hammer, 2009; Hammer 2011).

The development of the IDI began with a qualitative, interview study of an international sample of people who had overseas experience (Hammer, Bennet, & Wiseman, 2003). Respondents were categorized according to their level of development on the DMIS, and then the statements they made in the interviews were used to generate the initial 122-item pool. A panel of experts refined the assignment of items to DMIS categories. A primarily U.S. sample, the majority of whom had lived overseas, was used to perform initial quantitative item analyses. Item analyses of this pool was used to produced “IDI v1,” a 60-item instrument. Additional factor analyses and a series of confirmatory factor analyses of the initial item pool using a large, diverse sample led to “IDI v2,” a 50-item instrument with five subscales:

- DD: Denial/Defense
- R: Reversal
- M: Minimization
- AA: Acceptance/Adaptation
- EM: Encapsulated/Marginality

Hammer et al. (2003) report some limited validation findings in which low correlations were found between some IDI subscales and measures of “worldmindedness” and intercultural anxiety. This version of the IDI was translated to several other languages and used in consulting work and research for several years, out of which came a large multinational sample that was used to revisit the instrument’s psychometrics (Hammer, 2009, 2011). The 50-item “IDI v3” instrument has seven subscales: Denial, Defense, Reversal, Minimization, Acceptance, Adaptation, Cultural Disengagement (formerly EM); and two higher-order subscales, Perceived Orientation (PO) and Developmental Orientation (DO). The PO and DO subscales both place the respondent on the DMIS continuum. The PO does so using items that tap the respondent’s self-assessment whereas the DO subscale does so based on the respondent’s answers to items that do not involve respondent self-assignment to a position on the continuum. The “Individual Profile Report” provided by the consulting company includes additional indices.

The IDI is described by the author as a 3C measure rather than an antecedent or enabler measure.

Face Validity. Sample items for the IDI v2 instrument include:

- *DD scale*: “It is appropriate that people do not care what happens outside their country”
- *R scale*: “People from our culture are less tolerant compared to people from other cultures”
- *M scale*: “Our common humanity deserves more attention than cultural differences”
- *AA scale*: “I have observed many instances of misunderstanding due to cultural differences in gesturing or eye contact”
- *CD scale*: “I do not identify with any culture, but with what I have inside”

We were not able to obtain sample items for the IDI v3 (7-subscale version), nor were we able to obtain a full item set for any version, so we cannot examine the face validity of the instrument adequately.

No construct validation studies (specifically, convergent/divergent validity) of the IDI have been published, to our knowledge. Therefore, the relationship of the IDI to other measures employed in the field is not known.

In terms of the internal structure of the instrument (Hammer, 2011), the IDI v3 differs primarily from the IDI v2 in splitting two of the v2 subscales, Denial/Defense and Acceptance/Adaptation. However, this attempt to reorganize the items at a finer level appears not to have been successful given the strong relationship between Denial and Defense, $r=.83$, and the somewhat weaker relationship between Acceptance and Adaptation, $r=.64$. Paige, Jacobs-Cassuto, Yershova, & DeJaeghere (2003) found good but not perfect support for the correspondence of IDI v2 and the DMIS and good support for a two-factor structure involving factors they labeled “ethnorelative” and “ethnocentric.”

Hammer (2011) provides details of the confirmatory factor analyses of the IDI v3 across at least eight nations. However, no evidence of cross-cultural structural or metric equivalence is offered, so it is not clear if the IDI can be used in culture-comparative research.

Criterion Validity. Predictive validity analyses were conducted to determine if the IDI was capable of discriminating among people (Paige et al., 2003). The authors attempted to compute a total score on the assumption that the developmental sequence proposed in the DMIS would hold true for estimates of respondents’ positions on the continuum generated from IDI subscale scores. In other words, they treated the IDI as a Guttman scale but used a more complex scoring algorithm that could accommodate departures from a strict Guttman scalogram structure. Six demographic variables were examined, age, prior intercultural experience, prior language and culture study, having friends from other cultures, and socializing with people from other cultures, and gender. All demographic variables except gender showed significant differences in IDI in the expected direction except gender (for which no difference was expected).

Hammer (2011) reports a study conducted in conjunction with a consulting company on teams of recruiters for a high-tech multinational corporation. Team-level performance was evaluated by the teams' performance in recruiting new employees in the U.S. that were as diverse as the national norms for the industry. IDI DO scores at the team level were related to performance, $r=.98$, $N=6$. The dataset also allowed for an individual level analysis, $r=.43$, $N=71$. Hammer (2005, in Hammer, 2011) looked at the effect of study abroad on IDI DO scores among high school students from nine countries. (This sample was also used to develop the IDI v3.) The study abroad experience interacted with predeparture IDI DO stage such that, by the end of the experience, students who began at a lower stage caught up to those who began at a higher stage.

Conclusion. The IDI has the advantage of being based on a strong theoretical position involving the development of 3C through stages. It is relatively unique in its goal of placing respondents on a continuum of meaningful stages rather than simply providing a score or a set of subscale scores. The paucity of validity studies (construct, criterion) reported in Hammer's 2011 article, despite the fact that he estimates it has been used in 42 Ph.D. dissertations (Hammer, personal communication, April 15, 2011) so far, is surprising. Lacking a more complete validation, the IDI does not present a viable option for use in assessing the Framework or 3C more generally.

Intercultural Sensitivity Scale (ISS)

Intercultural sensitivity is defined as a person's "ability to develop a positive emotion towards understanding and appreciating cultural differences that promotes appropriate and effective behavior in intercultural communication" (Chen & Starosta, 1997, p. 5). The construct consists of six elements: self-esteem, self-monitoring, open-mindedness, empathy, interaction involvement, and being non-judgmental (Chen, 2000). Individuals with high *self-esteem* have a sense of self-value and self-worth internally, and are also able to deal with feelings of alienation and stressors externally (Chen, 2000). *Self-monitoring* is the ability to regulate one's behaviors and change them if necessary (Chen, 2000; Snyder, 1974). *Open-mindedness* is a willingness to "recognize, accept, and appreciate diverse views and ideas" (Chen, 2000, p.6). *Empathy* is one's ability to "step into one's culturally-different counterparts' mind to develop the same thoughts and emotions in interaction" (Chen, 2000, p. 7). *Interaction involvement* consists of an individual's ability to be responsive, attentive, and perceptive when interacting with an individual from a culturally different environment (Chen, 2000). Finally, *non-judgmental* refers to an individual's ability to sincerely listen to a culturally different individual, without jumping to conclusions before all the information is supplied (Chen, 2000).

To operationalize this construct, the authors wrote 73 items corresponding to its six elements, 44 of which were retained after an initial item analysis using a sample of U.S. undergraduate students (Chen, 2000). Five factors were identified in a subsequent item analysis, producing a final 24-item instrument comprised of: Interaction Engagement (7 items), Respect for Cultural Differences (6 items), Interaction Confidence (5 items), Interaction Enjoyment (3 items), and Interaction Attentiveness (3 items).

Face Validity. The face validity of the ISS and its dimensions is good. Sample items for each of the five dimensions are:

- *Interaction Engagement*: “I enjoy interacting with people from different cultures”
- *Respect for Cultural Differences*: “I think people from other cultures are narrow-minded”
- *Interaction Confidence*: “I am pretty sure of myself in interacting with people from different cultures”
- *Interaction Enjoyment*: “I get upset easily when interacting with people from different cultures”
- *Interaction Attentiveness*: “I am very observant when interacting with people from different cultures”

An examination of the complete item set and the factor analysis presented in Chen (2000) suggests that the Interaction Engagement and Interaction Enjoyment assess the same concept using positive and negative items, respectively. Errors in the relevant table in Chen (2000) make it difficult to interpret the factors, however. (Signs were omitted from the factor loadings.) The Interaction Confidence items are similar to the Cultural Intelligence Scale (CQS) Motivation subscale and the Interaction Attentiveness items are similar to the CQS-Behavior subscale, which we interpreted as a measure of intercultural communication competence in a previous section.

Construct Validity. Chen (2000) examined the relationships between the ISS and several conceptually related instruments in a sample of American undergraduate students. He hypothesized that the ISS would show convergent validity involving the Interaction Attentiveness Scale (IAS; amount of attention paid when interacting with others), the Impression Rewarding Scale (assesses individuals’ attentiveness, sensitivity, and competence in interactions), Rosenberg’s Self-Esteem Scale, the revised Self-Monitoring Scale, and the Perspective Taking Scale (assesses empathy). Results indicated strong relationships with the Impression Rewarding Scale and the Perspective Taking Scale, $r_s=.41$ and $.52$, respectively, and weaker relationships with the remaining instruments. In a sample of undergraduate students, Chen (2000) found that the ISS total score was related to a subset of the Intercultural Effectiveness Scale (Hammer, Gudykunst & Wiseman, 1978), $r=.57$, and to the Intercultural Communication Attitude scale (Chen, 1993), which “was designed to measure individuals’ perception on different aspects of intercultural communication,” $r=.74$.

Graf and Harland (2005) also examined the relationship between the ISS and several measures in a sample of MBA students in a Midwestern U.S. university, including the Behavioral Assessment Scale for Intercultural Communication Effectiveness (BASIC), the Interpersonal Competence Questionnaire (ICQ), the Social Problem-Solving Inventory: Revised Short Version (SPSI-R:S), and the Self Monitoring scale (SMS). Low convergent validity was found between the BASIC and ISS, mean $r=.18$. The average of the correlations between the ISS and ICQ was $.19$, which supports the discriminant validity of the measures. Similarly, the average of the correlations between the ISS and SPSI-R:S was $.23$. The ISS was unrelated to SMS, mean $r=0$.

Fritz, Graf, Hentze, & Möllenberg (2006) added a new sample of MBA students from a German university to the American participants in the Graf and Harland (2005) study.

Confirmatory factor analyses were performed on the joint sample and separately on the American and German samples. Results indicated lack of fit to the proposed five subscale ISS structure in all three analyses.

Criterion Validity. Criterion validity evidence for the ISS is weak. A study by Peng, Rangsihaht and Thaipakdee (2005) on Chinese and Thai university students and multinational corporation (MNC) employees found that the ISS and all of its subscales except Interaction Attentiveness can distinguish between English majors and non-English majors, and between MNC employees and non-English majors. The Graf and Harland (2005) study cited previously included a management decision making task involving a MNC scenario that was scored using assessors. The ISS total scores was related to decision making quality, $r=.18$ along with all subscales except Self-Confidence, $r=.15$ to $.19$. The decision making task appears conceptually similar to SJTs commonly used in 3C research.

Conclusion. The ISS shows moderate face and construct validity despite the failure of the five subscale structure to hold up in a CFA analysis. Criterion validity is weak. Given the usefulness of the construct in assessing a set of 3C antecedents, further development of the ISS may prove useful.

Scale of Ethnocultural Empathy (SEE)

The construct of ethnocultural empathy as measured through the SEE is based on an empirical review of theories related to general and culturally specific empathy, which is often termed “perspective taking” in intercultural research fields (e.g., Ridley & Lingle, 1996). Wang, Davidson, Yakushko, Savoy, Tan, and Bleier (2003) suggest viewing ethnocultural empathy as both a learned ability and a personal trait that develops over time. Following Ridley and Lingle, Wang et al. conceptualize ethnocultural empathy as encompassing four constructs: intellectual empathy, empathic emotions and the ability to communicate each to others. Intellectual empathy is one’s ability to understand a racially/ethnically different person’s thinking and/or feeling as well as being able to perceive and take the perspective of the other person. The empathic emotions dimension refers to one’s attention to the feelings of others from different ethnocultural groups, including the extent to which one is able to feel the others’ emotional conditions from their perspectives as well as respond appropriately to their displays of emotion. Finally, the communicative empathy dimension refers to one’s expression of ethnocultural empathic thoughts (i.e., intellectual empathy) and feelings (i.e., empathic emotions) toward members of different racial/ethnic groups.

An initial pool of 62 items was generated by a culturally diverse group of counseling faculty and students using several previously developed empathy-related and cultural empathy-related instruments to assess intellectual and emotional empathy and communication as a starting point. SEE respondents indicate the extent to which they agree that self-referent items, e.g., “I share the anger of those who face injustice because of their racial and ethnic backgrounds,” apply to themselves. An exploratory principal components analysis with a sample of Midwestern U.S. undergraduate students revealed a 4-factor structure involving 31 of the items. The factors were named Empathic Feeling and Expression (EFE) (15 items), Empathic Perspective Taking (EP) (7 items), Acceptance of Cultural Differences (AC)(5 items), and Empathic Awareness (EA) (4 items). High scores

indicate high levels of ethnocultural empathy. A confirmatory factor analysis performed on a second sample of Midwestern U.S. undergraduates supported the 4-factor model but found that a higher order single factor model was a better fit to the data.

Face validity. The empathy and perspective taking constructs are necessarily related to other social-cultural attitudes and beliefs, so it is difficult to distinguish empathy from attitudes. Items in the EFE subscale would be expected to be strongly related to other measures that tap liberalism and related constructs. All 15 items of the EFE subscale reflect liberal attitudes and beliefs, and most items in the AC subscale represent opposition to diversity and immigration. The instrument authors do not explore the possibly intrinsic relationship between sociopolitical attitudes and cross-cultural empathy and the implications of this relationship for cross-cultural competency.

The SEE items appear to have good face validity, but these face validity observations imply that empirical evaluation of the discriminant validity of the SEE is crucial. The SEE is primarily focused on diversity in the U.S. rather than on interaction across nations and takes White Americans as its reference point, limiting its use outside the U.S. without rewriting the items and performing new validation research.

Sample SEE items:

- *EFE: Empathic Feeling and Expression:* When I hear people make racist jokes, I tell them I am offended even though they are not referring to my racial or ethnic group.
- *EP: Empathic Perspective Taking:* It is easy for me to understand what it would feel like to be a person of another racial or ethnic background other than my own.
- *AC: Acceptance of Cultural Differences:* I feel irritated when people of different racial or ethnic backgrounds speak their language around me.
- *EA: Empathic Awareness:* I am aware of how society differentially treats racial or ethnic groups other than my own.

Construct Validity. Relationships among the subscales are highly variable. Averaging correlations found in Cundiff and Komarraju (2008) and Wang et al., (2003; studies 1 and 2), they ranged from $r=.31$ to $.54$ (unweighted; using $r-z$ transformations). We performed a principal components analysis on the averaged correlations using oblique rotation. One factor with an eigenvalue greater than 1.0 was found, accounting for 58% of the variance. Forcing a 2-factor solution, a second factor accounting for 18% of the variance emerged. The first factor included the EFE, EP and EA subscales and the second factor included the AC subscale. This finding is consistent with the confirmatory factor analysis performed by Wang et al. (2003). All items in the AC subscale are reversed scored, so it is difficult to determine if AC represents a different construct or a method artifact.

Convergent validity of the SEE was supported by observed relationships between the SEE total score and its subscales with several related measures. The SEE was found to be related to a measure of explicit attitude toward females/males in authority positions (i.e., GAM; Cundiff & Komarraju, 2008), $r=.27$ to $.39$ for subscales and $r=.42$ for total score; with the Interpersonal Reactivity Index (IRI) Empathic Concern subscale, $r=.18$ to $.54$ for

subscales and $r=.48$ for total score; the IRI Perspective Taking subscale, $r=.23$ to $.42$ for subscales and $r=.42$ for total score; the Miville-Guzman Universality-Diversity Scale (M-GUDS) total score, $r=.44$ to $.67$ for subscales and $r=.70$ for total score; and the three M-GUDS subscales, $r=.27$ to $.65$ for SEE subscales, $r=.48$ to $.68$ for SEE total score. The M-GUDS subscales include Diversity of Contacts, Relativistic Appreciation [for other cultures] and Comfort with Differences (Wang et al., 2003). Spanierman and Heppner (2004) found that the SEE subscales were related to their White Empathic Reactions to Racism scale, $rs=-.16$ to $.67$.

Correlations between the EFE subscale and other measures presented in the previous paragraph were substantially higher than those of the other three SEE subscales, $rs=.50$ and $.34$, respectively (using r to z conversions) and slightly higher than the SEE total score, $r=.46$. This difference could be due in part to the EFE subscale's greater number of items and therefore higher internal consistency reliability. Wang et al. (2003) report alpha values for the EFE, EP, AC and EA subscales as $.90$, $.79$, $.71$ and $.74$, respectively. Taken together, these convergent validity findings, Wang et al's (2003) confirmatory factor analysis, and our exploratory factor analysis suggest that in practical use of the SEE, researchers may conserve on items by only using the EFE subscale (with consideration of EFE's confound with sociopolitical attitudes).

No discriminant validity findings have been reported to our knowledge, although two of the subscales, EP and EA, have low relationships to a measure of impression management, $rs<.10$. The SEE total score, $r=.23$, and the EFE and AC subscales show stronger relationships to impression management, $rs=.26$ and $.21$, respectively (Wang et al., 2003), which are higher than optimal. As noted above, the SEE is related to liberal, diversity-friendly and immigration-friendly attitudes and beliefs. For example, Lee, Gibbons, Thompson and Timani (2009) found that the AC subscale was related to their measure of "Islamaphobia," $rs=-.51$ and $-.36$ for the instrument's two subscales. Cundiff, Nadler, & Swann (2009) found that the SEE total score was related to attitudes toward a variety of ethnic, religious, and sexual identity outgroups, $r=.32$, as well as measures of need for diversity initiatives and diversity training attitudes. We are not aware of any research that has attempted to discriminate between these two concepts, for example, by partialing liberalism out of relationships between SEE scores and criterion variables.

Criterion Validity. Validation of the SEE rests mainly on known-groups validity using demographic variables. Low correlations were found between the SEE total score and all of its subscale and racial/ethnic background diversity, $r=.23$ to $.25$, diversity of friendships, $r=.22$ to $.32$. Moreover, studies consistently showed significant gender differences such that females score higher than males (e.g., Cudiff & Komarraju, 2008; Wang et al., 2003) on SEE total and all subscale scores except EP.

A 10-item version of the SEE was found to mediate the relationship between students' (age 11-15) perception of their school's multiculturalism and their subjective happiness (Le, Lai, & Wallen, 2009). However, the use of perceived rather than actual multiculturalism in this study casts doubt on the independence of the school multiculturalism measure and the SEE. The characteristics of this apparently ad hoc 10-item SEE are unknown.

Conclusion. The SEE attempts to focus empathy in a specific cultural/diversity domain, providing a potentially useful measure of cultural perspective taking for White Americans interacting with American ethnic groups. The conceptual and empirical confounding of the primary subscale, Empathic Feeling and Expression, with sociopolitical attitudes is problematic and implies that it should be used alongside attitude measures that can identify this confounding if present. It appears to be primarily one-dimensional. Use of the Empathic Feeling and Expression subscale alone, with the caveat noted above, may be warranted. Although little criterion validation support for the SEE has appeared, its strong convergent validity with instruments for which better criterion validity evidence has been found indirectly supports the SEE's own criterion validity.

Summary of Instrument Validity – Secondary Instruments

We evaluated the available evidence for the validity each secondary instrument by determining if it was supported with respect to performance (including work attitudes), psychological adjustment, sociocultural adjustment, experimental manipulations, or quasi-experimental variables; demographic known-groups variables were also considered. Table 10 presents a summary of our evaluation of these instruments. It can be seen that many of the instruments or their subscales are not supported by validation evidence. It should also be noted that criterion evaluation evidence for non-cultural criteria is available for some of the instruments (noted in Table 10). In this evaluation, we did not examine face validity or construct validity, instead focusing on the “bottom line” validation question—can the instrument be used to assess the Framework. We turn to this question directly in the following section.

Table 10. Summary of Evaluation of Secondary Instruments

Acro- nym	Instrument Name	Evaluation
ADS	Adjustment Difficulties Subscale	4-item scale; not validated
AIC	Beliefs, Events, and Values Inventory	No validation information found
ASSIS	Acculturative Stress Scale for International Students	Validated (COV, PA)
BASIC	Behavioral Assessment Scale for Intercultural Communication Effectiveness	Insufficient validation information
BEVI	Beliefs, Events, and Values Inventory	Based on a humanistic model; not validated
CCSI	Cross-Cultural Social Intelligence	Situational judgment test; no validity information
CGAIC	Culture-Generic Approach to Intercultural Competence	No information found
CWQ	The Culture in the Workplace Questionnaire	No validity information found
EMMIC	European Multidimensional Models of Intercultural Competence	This is not a measure; it is a model of intercultural competence; led to development of INCA instrument
GAP Test	Global Awareness Profile	Insufficient validity information
ICC (a)	Intercultural Communicative Competence	Little research on which to evaluate
ICC (b)	Intercultural Communication Competence	No face validity; apparently measures intercultural attitudes and behavioral preferences
ICSI	Intercultural Sensitivity Inventory	No validation information; has rarely been used
INCA	Intercultural Competence Assessment	No validation information; rarely used after construction
IRC	Intercultural Readiness Checklist	No validation information available
IRI	Interpersonal Reactivity Index	Validated in non-cultural contexts
ISAS	The Inventory of Student Adjustment Strain	No validation information
MAKSS	Multicultural Competence Scale	Minimal validation (DV)
MASQUE	Munroe Multicultural Attitude Scale Questionnaire	Validation only for composite (total score)
MCI	Multicultural Competence Scale	No validation information
MCKAS	Multicultural Competence Scale	No validation information
PCAT	Peterson Cultural Awareness Test	No validation information; dissertation based on Hofstede dimensions
PCSI	Peterson Cultural Style Indicator	Proprietary scale based on PCAT; No validation information
SCS	Social Connectedness Scale	Valid, one study (PA, SA)
WDS	Workplace Diversity Survey	Minimal validation (DV)

Note. PA = psychological adjustment; SA = sociocultural adjustment; P = performance; DV = dependent variable in experiment; KG = known groups.

VI. Assessing the Framework

This section used the instrument identification and evaluation findings presented in Section V to address the question, “can existing instruments adequately assess the DLO Framework?” Beginning with the full set of instruments described in Table 3, we mapped competency and enabler elements to the instruments and their subscales without regard to the quality of the instruments. Elements were mapped to instruments (most often, subscales of compound instruments) when a direct connection could be argued between the element and the instrument/subscale. In some cases, the relationship was partial, that is, only part of the construct assessed by the instrument appeared to have a direct connection to the element. Indirect relationships were not mapped, that is, those in which the construct assessed by the instrument could be considered a precursor or antecedent (or in some cases, an enabler as used in the Framework) to the element but not a measure of the element itself. Many judgment calls were made in this process, so for some elements and measures it could be argued that we were too narrow or too inclusive.

We also identified non-culturally-focused instruments that could be used to assess, fully or partially, the elements. Finally, we applied the instrument evaluation findings from Section V to winnow the mapping of elements to measures to just the instruments (or subscales) that we judged to be valid. For primary instruments, or evaluation of instrument adequacy was performed in depth, but for secondary instruments, we only employed criterion validation (specifically, culture adjustment and performance criteria) to evaluate the adequacy of these instruments for our present purposes involving the Framework.

Tables 11a and 11b present the results of this exercise. The constructs represented, directly or indirectly, by the elements are shown in the third column. It can be seen that a large number of candidate instruments were identified for Framework elements, although mapping elements to constructs, and constructs to instruments and their subscales, was often not possible. In some cases, only partial mapping could be performed, especially for the competencies (Table 11a). This is an intrinsic attribute of competency models that we discuss in other sections.

Overall, these findings indicate that insufficient instrumentation is available to assess the DLO Framework, in particular its core competencies. While many candidate instruments were judged to be of insufficient quality, others were rejected because sufficient validation evidence is currently unavailable. Suitable validation studies may rescue some of these instruments for use in 3C research or in applications involving selection and training for 3C in the military.

Table 11a. Summary of Framework Assessability - Competencies

Ref #	Category	Explanation or Specific Competency	Constructs	Candidate Instruments	Valid Measures
C1.1a	1. Culture-General Concepts and Knowledge	Acquires ...	Acquired knowledge Motivation to acquire knowledge	CQS-Cognitive MAKSS-Knowledge MCKAS-Knowledge ICC-Knowledge level 1 INCA-Knowledge discovery GAP Test	None
C1.1b	-	Applies ...	Behavioral CQ	INCA-Knowledge discovery	None
C1.2	-	... intercultural dynamics	Knowledge of cultures Knowledge of intercultural relationships and intercultural norms, styles, etc. Cross-cultural social skills	INCA-Communicative awareness ICC-Skills ICC-Knowledge CCAI-Perceptual acuity	<ul style="list-style-type: none"> • Social skills measures
C3.1	3. Cultural Perspective-Taking	Demonstrates an awareness ...	Knowledge of attributed stereotypes Self-insight	MAKSS-Awareness ICC-Awareness SEE-Empathic perspective taking SEE-Empathic Awareness BEVI-Sociocultural Closure	<ul style="list-style-type: none"> • SEE-EP (indirect)
C3.2	-	Understands and applies ...	Empathy Perspective taking skill Emotional Intelligence	MPQ-Empathy BASIC-Empathy INCA-Empathy SEE-Empathic perspective taking ICC-Awareness SEE-Empathic Awareness IRI-Perspective taking DCI	<ul style="list-style-type: none"> • MPQ-CE • SEE-EP (indirect)
C3.3	-	Takes the cultural context into consideration ...	Metacognition	CQS-metacognition	None

C4.1	4. Communication	Acquires and applies ...	ICC	MCI-Skills ICC-Skills (part) INCA-Communicative awareness SCAS-Cultural Empathy and Relatedness (part) IRC-Intercultural Communication CCAI-Perceptual Acuity	• SCAS (part)
C4.2	-	Employs resources...		(Implicit requirement for C4.1)	None
C5.1	5. Inter-personal Skills	... rapport	Social skills Emotional Intelligence Relationship skill	ICC-Skills (part) MCI-Relationships BASIC-Task role behaviors (part) BASIC-Relational role behaviors IRC-Intercultural relationship building BASIC-Interaction behavior and management (part) FFM-E	• Social skills measures • Big 5-Extra
C5.2	-	Manage conflict ...	Social skills (a skill related to conflict resolution)	IRC-Conflict management	None
C6.1	6. Cultural Adaptability	Understands ...adjusts ...	Flexibility (part) Metacognition Mindfulness	ICC-Awareness INCA-Behavioral Flexibility (part) CCAI-Flexibility-Openness (part) BASIC-Empathy ICE-social adaptability CQS-metacognition MPQ-Flexibility ICAPS-Flexibility ICSI-Flexibility	• MPQ-F

C6.2	-	Minimize/maximize, adjust, or integrate ...	Metacognition Mindfulness Flexibility Frame shifting Personal autonomy (PA)	CCAI-Personal autonomy BEVI-Need for control (part) CQS-metacognition MPQ-Flexibility ICAPS-Flexibility ICSI-Flexibility	• MPQ-F
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Note. See Table 3 for instrument acronyms.

Table 11b. Summary of Framework Assessability - Enablers

Ref #	Category	Explanation or Specific Competency	Constructs	Candidate Instruments	Criterion Status
E1.1	Tolerance of ambiguity	Accepts ambiguous situations...	Tolerance of ambiguity Uncertainty avoidance	BASIC-Tolerance of ambiguity IRC-Tolerance for ambiguity	None
E1.2	Low need for closure	Restrains from settling...	Uncertainty avoidance Need for closure	Need for closure scale	None
E1.3	Suspending Judgment	Withholds personal or moral judgment...	Open-mindedness Need for closure? Uncertainty avoidance Tolerance for ambiguity	MPQ-Open-mindedness SEE-Acceptance of cultural differences (part) Acceptance/Adaptation (IDI) INCA-Respect for otherness Big 5-O CCAI-Flexibility-Openness (part) BASIC-Interaction posture	• Big 5-Open (part)
E1.4	Inclusiveness	include and accept...	Open-mindedness Various worldview/attitudinal constructs: xenophobia, multicultural attitudes, social dominance orientation	SEE-Acceptance of cultural differences (part) INCA-Respect for otherness Big 5-O BASIC-Interaction posture CCAI-Flexibility-Openness (part)	• Big 5-Open
E2.1 E2.1.1	Stress Resilience	Tolerates emotionally shocking...	Emotional regulation Coping skills Disgust sensitivity	MPQ-Emotional Stability ICAPS-Emotion regulation Big 5-N CCAI-Emotional Resilience COPE scale and others Gross - Emotion regulation scale	• MPQ-ES • Big 5-Neur

E2.1.2	-	Avoids overly simplify culture...		IV would be E2.1 variables and DV would be cognitive style variables; stress as moderator	None
E2.1.3	-	Acts as a calming influence			None
E2.2	Emotion Regulation	Regulates/controls one's own emotions...	Emotional regulation	MPQ-Emotional Stability ICAPS-Emotion regulation Big 5-N CCAI-Emotional Resilience COPE scale and others Gross - Emotion regulation scale	<ul style="list-style-type: none"> • MPQ-ES • Big 5-Neur
E3.1	Self Confidence	Believes in one's capabilities...	Self-efficacy Ego strength Related to: wellbeing, neuroticism	GSE – generalized self-efficacy scale and others	<ul style="list-style-type: none"> • Self-efficacy measures
E3.2	Self-Identity	Maintain personal values...	Identity strength Cognitive differentiation Resistance to influence Self-identity	CCAI-PA Group Embedded Figures Test	<ul style="list-style-type: none"> • Self-efficacy measures (part)
E3.3	Optimism	Problems as solvable ...	Optimism Need for cognition Related to: well-being, depression	SWLS-Satisfaction with Life Scale LOT-Life Orientation Test Personal Optimism Scale	(no research)
E4.1.1	Learning through Observation	Gathers and interprets...		ICC-Awareness (part) INCA-Knowledge Discovery	None
E4.1.2	-	Make sense of inconsistent information...	Need for Cognition Motivation to engage other cultures Related to: attitude variables	CQS-Motivation Need for Cognition BEVI-Basic Openness	
E4.1.3	-	Learns and updates own knowledge...	Need for Cognition	INCA-Knowledge discovery Antecedent to E4.1.2	None

E4.2	Inquisitiveness	Active pursuit of understanding...	Strong relationship to E4 Need for cognition Openness Cosmopolitanism Related to: attitude variables	INCA-Knowledge discovery Big 5-O (part)	<ul style="list-style-type: none"> • Big 5-Open
E5.1.1	Social Flexibility	Creates favorable impressions...	Social skills Self-monitoring Extraversion Sociability	ICC-Skills (part) BASIC-Relational role behaviors (part) IRC-Intercultural relationship building (part) Social skills measures: Big 5-E Self-monitoring Scale (SMS)	<ul style="list-style-type: none"> • Social skills measures • Big 5-Extra • SMS
E5.1.2	-	Receptive to new ways of doing things...	Flexibility Openness	MPQ-Flexibility ICAPS-Flexibility ICSI-Flexibility Big 5: Openness (part) CCAI-Flexibility-Openness	<ul style="list-style-type: none"> • MPQ-F • Big 5-Open (part)
E5.1.3	-	Is able to compromise	Social skills	No measures available	<ul style="list-style-type: none"> No direct measures available • Social skills measures (part)
E5.2	Willingness to Engage	Seeks out and explores unfamiliar cross-cultural...	Willingness to engage others Extraversion Openness Cosmopolitanism (part) Related to: intercultural attitude measures	MPQ-Social initiative (part) SEE-Empathic Perspective Taking (part) SEE-Acceptance of Cultural Differences (part) Big 5-O	<ul style="list-style-type: none"> • Big 5-Open • Big 5-Extra • MPQ-SI (part)

Note. See Table 3 for instrument acronyms.

VII. Criterion Validity Evaluation of the Framework

Introduction

The criterion validity approach to validating the Framework, using the term “criterion validity” metaphorically, requires mapping the competency and enabler elements to constructs that have been employed in the empirical literature, finding measures of these constructs, then using available research involving these measures to assess the criterion validity of the elements. For example, the Framework Communication competency element C4.1, *Acquires and applies knowledge and concepts of intercultural communication skills*, maps to constructs such as intercultural communication competence (ICC), which in turn can be assessed by six measures that we identified in a search of the literature.

The success of this approach depends on three conditions: (1) our ability to accurately map the elements to constructs that others have sought to measure; (2) the availability of measures of these constructs that have proven validity; and (3) the suitability of these measures for 3C research and assessment in 3C competency models such as the Framework. In Section V we evaluated a large number of candidate instruments and in Section VI we mapped Framework elements to the full set of identified instruments and to the subset found to be valid for the present purpose.

Continuing our example for competency element C4.1, we deemed only one of the six candidate measures to be valid. However, as we discuss in the conclusion to this section, this indirect empirical validation of the competencies must be supplanted with other methods.

Mapping Elements to Constructs and Measures

The element-level deconstruction of Framework competencies employed in the content validity section formed the basis for mapping elements to constructs and to available instruments. The element mapping employed in the content validity section was conducted primarily within the domain of competency models, that is, we mapped competencies and enablers against others’ statements of the appropriate competencies and antecedent variables for 3C in military contexts. For the criterion validity approach, we must map the competency and enabler elements to constructs used in the extant expatriate or sojourner performance and adjustment literature. The Framework enablers had been derived from this literature in earlier DLO and ARI efforts described above, so the enabler element-to-construct mapping is reasonably straightforward. However, the competencies had been derived from several earlier statements of competencies, theoretical and empirical, as well as from the expat performance/adjustment literature. Our mapping of competency elements to previously-studied constructs is therefore less precise and in a few cases we were not able to find a corresponding construct. For example, we could not identify a construct or a measure of the Communication competency element C4.2, *employs human and material resources to facilitate intercultural communication*, so this competency element cannot be evaluated using our criterion validity approach.

Identifying Appropriate Instruments and Evidence

In Section VI, we identified the instruments that appear sufficiently valid for use in assessing the Framework. In this section, we use this information to determine if the elements are in fact related to 3C adjustment/performance outcomes. The successful criterion validation of an instrument against a cultural criterion indicates, *ipso facto*, that the element it assesses is a component of 3C (or of an enabler). However, in this section we also consider common personality and attitude measures that are reasonably well validated. Several elements could be evaluated using instruments not included in Table 3, such as personality measures of the constructs listed in Table 11. We used published metaanalyses and qualitative reviews for evidence regarding these measures.

Table 12a. Summary of Criterion Validity Findings - Competencies

Ref #	Category	Explanation or Specific Competency	Criterion Status
C1.1a	1. Culture-General Concepts and Knowledge	Acquires ...	No available measures
C1.1b	-	Applies ...	No available measures
C1.2	-	... intercultural dynamics	Supported: social skills measures
C3.1	3. Cultural Perspective-Taking	Demonstrates an awareness ...	Supported: SEE-EP
C3.2	-	Understands and applies ...	Supported: MPQ-CE and SEE-EP
C3.3	-	Takes the cultural context into consideration ...	No available measures
C4.1	4. Communication	Acquires and applies ...	Partly supported: SCAS
C4.2	-	Employs resources...	No available measures
C5.1	5. Inter-personal Skills	... rapport	Supported: Big 5-Extra; social skills measures
C5.2	-	Manage conflict ...	No available measures
C6.1	6. Cultural Adaptability	Understands ...adjusts ...	Mixed support: Flexibility: no; MPQ-F: yes
C6.2	-	Minimize/maximize, adjust, or integrate ...	Mixed support: Flexibility: no; MPQ-F: yes

Note. See Table 3 for instrument acronyms. No = research shows no relationships; yes = criterion validity support is present. (part) = partial mapping or partially corresponding measure.

Table 12b. Summary of Criterion Validity Findings - Enablers

Ref #	Category	Explanation or Specific Competency	Criterion Status
E1.1	Tolerance of ambiguity	Accepts ambiguous situations...	Not supported: Uncertainty avoidance: no Tolerance of ambiguity: mixed
E1.2	Low need for closure	Restrains from settling...	Partial support: Tolerance of ambiguity: mixed Need for closure: mixed
E1.3	Suspending Judgment	Withholds personal or moral judgment...	No support: Big 5-Open: no
E1.4	Inclusiveness	include and accept...	No support: Big 5-Open: no
E2.1	Stress Resilience	Tolerates emotionally shocking...	Supported: MPQ-ES; Big 5-Neur: yes
E2.1.1			
E2.1.2	-	Avoids overly simplify culture...	No available measures
E2.1.3	-	Acts as a calming influence	No available measures
E2.2	Emotion Regulation	Regulates/controls one's own emotions...	Supported: MPQ-ES; Big 5-Neur: yes
E3.1	Self Confidence	Believes in one's capabilities...	Supported: ego strength: yes; Self-efficacy: yes
E3.2	Self-Identity	Maintain personal values...	No available measures
	Optimism	Problems as solvable ...	(no research)
E3.3			
E4.1.1	Learning through Observation	Gathers and interprets...	No available measures
E4.1.2	-	Make sense of inconsistent information...	No available measures
E4.1.3	-	Learns and updates own knowledge...	No available measures
E4.2	Inquisitiveness	Active pursuit of understanding...	Supported: Big 5-Neur: no
E5.1.1	Social Flexibility	Creates favorable impressions...	Mixed support: Social skills: yes; Big 5-Extra: yes; SMS: no
E5.1.2	-	Receptive to new ways of doing things...	Mixed support: MPQ-F; Big 5-Open (part): no; Flexibility: no
E5.1.3	-	Is able to compromise	No direct measures available Social skills: yes
E5.2	Willingness to Engage	Seeks out and explores unfamiliar cross-cultural...	Mixed evidence: Big 5-Open: no; Big 5-Extra: yes; MPQ-SI (part)

Note. See Table 3 for instrument acronyms. No = research shows no relationships; yes = criterion validity support is present. (part) = partial mapping or partially corresponding measure.

Results of the Criterion Validation Analysis

The final column in Table 12 presents criterion validity outcomes for each of the elements. We indicate the valid instrument/subscale or general construct to which the element has been mapped. Instruments for which we could find sufficient validation information are not included in this table. Instruments are indicated by their acronyms, but general constructs that have been evaluated in meta-analyses and qualitative reviews are presented by their names, e.g., “flexibility” or “Big 5-Neur”. For general constructs, we indicate what the accumulated research shows, i.e., whether or not the measures used in multiple studies of these constructs have been found to be related to intercultural adjustment or performance criteria. Sometimes the evidence in reviews conflicts with the evidence from a particular instrument subscale. For example, the research does not support the relationship between flexibility and adjustment/performance outcomes, but such a relationship has been found for the MPQ Flexibility subscale. For some general constructs that

In the following section, we discuss the content and criterion validity of each competency and enabler and raise issues concerning validation, the location of the elements in the Framework and their relationships to each other. Given the paucity of performance criteria for many of the (otherwise valid) instruments, we evaluate the criterion validity of the Framework elements in terms of both performance and adjustment criteria.

VIII. Discussion of Content and Criterion Validity Findings - Competencies

Culture-General Concepts and Knowledge

This competency category includes at least three elements, although we arguably could have divided it into five elements. In a previous section we proposed a model relating these elements and variables external to the model (see Figure 2). Unfortunately, five instruments that were designed to measure culture knowledge cannot be considered valid, leaving no established measure of culture knowledge on which to base an evaluation of this competency. Gabrenya et al. (2011) developed a “culture knowledge test” in their evaluation of the Cultural Intelligence Scale (CQS) that was composed of 60 items in six domains (language, values, art, etc.) that they found was related to a situational judgment test involving cross-cultural interactions and perceptions. Their knowledge test was superior to the CQS self-reported knowledge subscale, suggesting that assessment of this competency requires objective testing rather than self-assessment. The application of acquired knowledge, while presumably a mediator of knowledge and performance, has not been studied to our knowledge and could not be assessed. Distinguishing acquired knowledge from its application would require a careful assessment design, probably involving observational methods or peer evaluations, but the successful application of knowledge would be difficult to distinguish from other competencies, such as perspective taking and communication competence.

The element C1.2: *Comprehends and navigates intercultural dynamics*, may belong in competencies C5 or C6, which speak to social interaction skills. The criterion validation findings for element C1.2 were similar to those found for the elements of C5 and C6. To the extent that C1.2 is mapped to social skills and to the CCAI Perceptual Acuity subscale, element C1.2 is supported. Social skills measured in the home country are consistently found to be related to social adjustment and performance criteria overseas, but C1.2 would be better assessed using a culturally-focused social skills measure.

Cultural Perspective-Taking

This competency includes elements that are widely recognized in the civilian literature as necessary to intercultural competency: C3.1: *Demonstrates an awareness of one’s own world view...and how that influences our behavior and that of others*, and *Understands how one’s own group is viewed by members of another group*; and its implications for behavior, C3.2: *Understands and applies perspective-taking skills to detect, analyze, and consider the point of view of others and recognizes how the other will interpret his/her actions*. Both were judged high in content validity. These elements are supported through valid compound instruments (MPQ, SEE) and indirectly through research on the relationship between perspective taking skills and intergroup relations, adjustment, and stereotyping (cf. Abbe, et al., 2007).

The third element, C3.3: *Takes the cultural context into consideration when interpreting situational cues*, goes hand-in-hand with C1.1b: *Applies culture general concepts and knowledge in that the application of culture knowledge would normally be*

expected to include interpreting information. C3.3 might be considered antecedent to C6.1: Understands the implications of one's actions and adjusts approach to maintain relationships with other groups, or cultures. Although high in content validity, the element could not be assessed. The closest constructs to this element are metacognition (Earley & Ang, 2003) and mindfulness (Thomas, 2006). The CQS-metacognition subscale was deemed invalid, but measures of mindfulness have begun to appear, e.g. Baer, Smith, Hopkins, Krietemeyer, and Toney (2006) and Lau et al. (2006). Cultural research with these scales may provide evidence to support the widespread assumption that mindfulness is an enabler for culture competency. Thomas and his colleagues have recently begun to develop new measures of metacognition, but the difficulty of administration of these measures suggests that criterion studies may not be soon forthcoming (Thomas et al., 2011). A direct assessment of C3.3 that isolates it from other contributions to performance might require a decision analysis style of measurement that attempts to trace the explicit or implicit decision processes that the individual undertakes in complex cultural contexts.

Communication

Intercultural communication skills have long been recognized as a needed competency, and to some investigators, intercultural communication competency (ICC) is the central construct of interest, rather than "cross-cultural competency." All four content sources agreed with this assessment in endorsing element C5.1. Despite this popularity, we found few valid measures of ICC: only the SCAS as a partial measure. Other measures that promised to provide a direct measure of ICC could not be validated.

The single element that we judged to be of low content validity was C4.2: *Communication/Employs resources to facilitate communication*. No empirical study or theoretical model, military or civilian, suggested this competency directly. C4.2 does not appear in the RACCA report or in the initial DLO Framework (Johnston et al., 2010) report. The two external resources that could be called upon to aid communication are human and mechanical. Human resources include translators and cultural mediators (usually bicultural, bilingual persons). Mechanical resources include translation devices which are now becoming available in mobile form to perform "machine translation"; and sociocultural resource databases that are appearing on mobile devices. Awareness of the existence of these resources, communicated to military personnel in various ways depending on their availability, probably does not rise to the level of a cross-cultural competency. However, all of these resources have advantages, shortcomings, and risks, so the focal competency may not be in the form "employs..." but rather in the form "understands when and in what situations to use..."

Interpersonal Skills

Social or relational skills and related constructs such as social adaptability have been found to be predictive of cross-cultural performance and adjustment in several metaanalyses (Bhaskar-Shrinivas et al., 2005; Hechanova, Behr, & Christiansen, 2003; Mol et al., 2005), so element C5.1 is well supported. Element 5.2 presented a problem in that we could not identify an individual difference measure for conflict management that has been used in cross-cultural interaction research. De Dreu, Evers, Beersma, Kluwer and Nauta (2001) report the development of a conflict management strategies measure for

organizations, and several measures designed for marital relationships have appeared in the clinical literature. However, relevant cultural research has not been reported.

Cultural adaptability

The first element in this category, *C6.1:Cultural Adaptability/Understands...adjusts*, was mapped to metacognition, mindfulness, frame-shifting, and flexibility. It also implies a required knowledge antecedent such as C1.1 and perception antecedent such as C3.1. Mol et al.'s (2005) metaanalysis found no relationship between flexibility and performance, although one instrument subscale, MPQ-Flexibility was validated with respect to mainly adjustment criterion.

The final word in C6.1, "culture," appears inappropriate, as it is logically impossible to have a relationship to a culture. The term "society" might be substituted for culture, indicating a social system involving a geographically bounded group of people (Rohner, 1984), but the intent of the Framework framers is probably best captured by the term "community." Although vague, community implies an aggregate larger than a local group but small enough to share an attitude toward the U.S. military personnel with whom they have contact.

C6.2:Cultural Adaptability/Minimize-maximize, was evaluated to be of medium content validity. It is a complex competency that can be thought of as moderating the other competencies. Cross-cultural competency, by definition, should enhance performance in situations where cultural considerations are relevant. C6.2 regulates the extent to which, and in what specific manner, culture will be or will not be seen a relevant in a particular situation. The Caligiuri (2011) model recognized this nuanced competency but it was not endorsed in any of the other content sources. We believe that in a more systematic research methodology respondents in some ranks or MOSs would identify this competency, hence it should not be removed from the Framework.

Element C6.2 was mapped similarly to C6.1 but with the addition of personal autonomy, operationalized in the CCAI subscale by that name. Personal autonomy only partially represents C6.2 in that it involves the ability to maintain enough distance from the cultural context to be able to know when culture should or should not be seen as a relevant consideration in carrying out an assignment. Therefore, it appears that element C6.2 lacks strong empirical support, pending better measures of metacognition and the appearance of cross-cultural mindfulness research.

IX. Discussion of Content and Criterion Validity Findings - Enablers

Cognitive Bias Resilience

Four enablers (three in the most recent revision) were included in this Framework category. E1.1:*Tolerance for ambiguity*, is frequently cited as a key cognitive or personality individual difference variable in determining or predicting adjustment of novel cultural contexts (e.g., Thomas & Fitzsimmons, 2008). However, in our sample of competency models and job analyses, only Caligiuri et al. (2011) suggested this enabler. One explanation for this finding is that military personnel in many, if not all, military contexts are presented with explicit orders or mission goals in which ambiguity is removed from the individual's concerns. Rank and MOS would be expected to moderate this situation, for example one would expect this enabler to be important to some special operations personnel operating in deep cultural contexts. However, Spencer (2010) did not suggest this enabler for Special Operations forces.

Surprisingly, research provides mixed support for the criterion validity of tolerance of ambiguity. It received some support in Mol's et al.'s (2005) metaanalysis but tepid support by Thomas and Fitzsimmons (2008) in their qualitative review.

E1.2:*Low need for closure*, and E1.3:*Suspending judgment*, are difficult to distinguish in content validity analyses and both received moderate support. Cross-cultural use of need for closure scales has resulted in mixed support for criterion validity (e.g., Kashima & Loh, 2006).

E1.3:*Suspending judgment*, was mapped to Big-5 Openness (partially). Openness failed to predict performance in Mol et al.'s (2005) metaanalysis., little support has been garnered for the criterion validity of enabler E1.3.

We also looked at E1.4:*Inclusiveness* because it was removed from the Framework only in the most recent version of which we are aware, allowing us to evaluate the decision for its removal. We judged Caligiuri et al.'s (2011) "agility facilitator," *willingness to operate without racism*, as an endorsement of Inclusiveness. Inclusiveness is closely tied to attitudes toward culture, diversity, multiculturalism, (non-) racism/ethnocentrism, and cultural openness, and these variables may be considered antecedents to this enabler. McCloskey et al. (2010) include cultural openness and open-mindedness in their empirically-driven collection of cross-cultural competencies while McCloskey et al. (2010) and Caligiuri et al. (2011) both stress the importance of positive attitudes or evaluations of other cultures as an antecedent to culture competency. Hence, given that reasonable antecedents of Inclusiveness are found in some models, this enabler appears to contribute to the content validity of the Framework. Inclusiveness could be viewed as an enabler for C3, Perspective taking and C5, Interpersonal skills.

Inclusiveness was mapped to open-mindedness and openness, similarly to Suspending judgment. As we found for Suspending judgment, there is little empirical support for this enabler. However, the probable antecedents if this enabler have been linked to outcome variables, lending Inclusiveness indirect support. For example, Mol et al. (2005) found a negative relationship between ethnocentrism and performance in a small sample of studies.

Emotional resilience

This enabler category includes three elements involving stress and one involving emotional regulation. E2.1.1:*Stress resilience/Tolerates emotionally shocking...* addresses psychological adjustment, in particular affective responses to cultural stressors that could be labeled culture shock. Several antecedent individual difference variables can be posited to contribute to stress resilience, including enabler E2.2:*Emotion regulation*, coping styles, pre-sojourn subjective well-being, and acculturation attitudes. Criterion validity support for element E2.1.1 was garnered from the MPQ-Emotional Stability subscale and the Big 5 Neuroticism measure.

E2.1:*Stress resilience* appears in most of the competency sources employed in the content analysis and in other theoretical and empirical approaches to overseas adjustment. However, element E2.1.2:*Stress resilience/Avoids adopting stress-induced perspectives that overly simplify culture*, places this individual difference variable in a causal sequence:

Resilience (lack of)

→ Stress (emotion)

→ Stress-induced perspective that oversimplifies culture (cognition)

Research has shown that arousal has consequences for cognitive processes such as perception and decision making (e.g., Ariely & Loewenstein, 2006), so the proposed causal sequence is plausible. Phrased positively, the endpoint of this causal process would be “maintains a nuanced, multifaceted view of culture.” On content grounds, this enabler element would fit well in the Cognitive Bias Resilience set alongside E1.2:*Suspending Judgment*, or it could be considered a competency in C6:*Cultural Adaptability*. This line of reasoning suggests that E2.1.2 should be moved to E1 or C6.

E2.1.3:*Stress resilience/Acts as a calming influence* can be treated in a similar manner. The implicit causal sequence is:

Resilience

→ Lower emotional reactivity (to a stimulus)

→ Calming influence on others

The endpoint of the causal sequence is a social influence or leadership competency that might belong in the E6:*Social interaction* enabler set.

Elements E2.1.2 and E2.1.3 were not successfully mapped to measurable constructs, so no criterion validity evidence is available.

E2.2:*Emotion regulation*, was endorsed by three of our four content sources. Criterion validation is nearly identical to E2.1.1:*Stress resilience/tolerance*, but we also mapped it to Big Five-Neuroticism. Research supports the criterion validity of this element.

Self-Identity Resilience

The three enablers in this set are treated independently in our content and criterion validity analyses but Self-Confidence and Self Identity are closely linked. E3.1:*Self-*

confidence was supported in the content validation and its criterion validity was supported in metaanalyses reported by Mol et al. (2005), Hechanova et al. (2003), and Bhaskar-Shrinivas et al. (2005).

E3.2:*Self-identity-Maintain personal values* was not supported in the content analysis. It was indirectly suggested by McCloskey et al. (2010) in their “leveraging own personality attributes” competency but received no other endorsements. However, the enabler has been suggested in the civilian literature (Bird & Osland, 2004).

We were unable to map E3.2 to a valid measure. Some research has demonstrated a relationship between self-esteem and influenceability (Rhodes & Wood, 1992), suggesting that a strong sense of self will enable an individual to maintain attitudes and beliefs in the face of social pressure. An antecedent to this enabler may be the cognitive/social style individual difference variable field independence or cognitive differentiation (Witkin & Berry, 1975), a construct that enjoyed a great deal of research attention in the 1960s and 1970s. Field independent people are able to differentiate themselves from the physical and social environment better than field dependent people, resulting in less conformity in the social domain (Witkin & Goodenough, 1977) and better perceptual independence in figure-ground style tasks. However, to our knowledge no research has been reported that shows a relationship between resistance to influence or cognitive differentiation and cross-cultural performance/adjustment variables. Beyond psychological differentiation, as many as 20 cognitive style dimensions have been identified that have some relationship to culture competence (Bennett, 2009), suggesting a larger set of possible cognitive constructs that might affect this and other enablers in the Framework.

The sole criterion support for this element was its relationship to the CCAI-PA subscale. Based on the content and criterion validation findings, it appears that this enabler is not a strong candidate for inclusion in the Framework.

None of our content sources endorsed E3.3:*Optimism/views problems as solvable...* Optimism (Carver, Scheier, & Segerstrom, 2010) is related to subjective well-being as assessed by Scheier, Carver and Bridges’ (1994) Life Orientation Test (LOT) and to the construct “personal optimism” as assessed by Schweizer, Schneider, and Beck-Seyffer’s (2001) Personal Optimism Scale (POS). None of these measures has been validated, however, as required in our current analysis. As used in the Framework, this enabler is a motivational construct with antecedents in more fundamental personality characteristics such as need for achievement, self-efficacy, self-confidence, intellectual ability, as well as attitudes toward culture or specific cultures. Motivation plays an important role in models of 3C, in particular in Caligiuri et al.’s (2011) model. It is also closely tied to enabler E5.2:*Willingness to engage*. We mapped this enabler to SWB and to the LOT and POS scales, but no criterion research was found. SWB is a component of psychological adjustment, so it might be considered a state variable in contrast to the trait-like Optimism enabler.

Given these findings, it may be difficult to justify retaining Optimism as an independent enabler in the Framework.

Learning Motivation

Enabler E4.1.1 is logically linked to competency C1:*Culture Knowledge*. Content validity was high for this enabler, but we mapped it to several INCA subscales for which no validity data can be found. Similar to C1, antecedents to this enabler can be identified in cultural attitudes, intellectual motivation, and metacognition.

Enabler element E4.1.2:*Learning through observation/Sensemaking motivation* (our term for this element) is represented in Caligiuri et al.'s (2011) suggested agility facilitator (enabler) "intellectual curiosity." Our other content validation sources did not suggest a corresponding antecedent variable or competency. This element of Framework enabler E4.1 stresses the motivation to perform a complex cognitive task, making sense of unfamiliar cultural characteristics that appear internally inconsistent from an outsider's perspective. An explanation for cultural inconsistencies can sometimes be identified by culture experts such as anthropologists and cross-cultural psychologists. For example, Taiwanese traditional respect for the elderly, viewed alongside images of elderly men collecting cardboard on pushcarts to recycle for little compensation, appears inconsistent to Westerners. However, through greater cultural and historical knowledge of Taiwanese society, the practice can be understood in terms of Chinese familism and the plight of unmarriageable veterans of the Chinese civil war who lived out their lives in Taiwan after 1949. We mapped E4.1.2 to several instruments that were found to not be valid and to Need for Cognition (Cacioppo & Petty, 1982). However, we found no evidence relating Need for Cognition (the Need for Cognition Scale) to cross-cultural performance/adjustment criteria.

We suggest that this enabler is moderated by MOS, rank, and assignment to an extent that it may not be suitable for the Framework. However, in the context of a developmental or learning model of 3C, levels of this enabler element may be identified suitable for a range of military personnel and assignments. E4.1.2 may also be considered a motivational antecedent to E4.1.1 and E4.1.3.

Element E4.1.3:*Continually learns and updates knowledge*, is nearly indistinguishable from E4.1.1:*Gathers and interprets information*. Like E4.1.1, its content validity is good but it could not be assessed empirically.

E4.2:*Inquisitiveness* was endorsed by half of our content validity sources, but is featured in many models of 3C and intercultural effectiveness. For example, Deardorff (2006) places "curiosity and discovery" at the base of her pyramidal model, at the top of which are behavioral performance criteria. Black, Morrison and Gregersen (1999) assembled a highly diverse panel of managers and asked them "what are the key characteristics of effective global leaders?" (p. 103). Inquisitiveness was most highly endorsed: "While international assignment responsibilities are not the same as global leadership, it does seem that whether a manager is crossing one country border or many, inquisitiveness is key to success" (p. 105). However, Black et al.'s definition of inquisitiveness shades into some facets of the Big Five Openness factor, which has not been shown to predict performance (Mol et al., 2005). Inquisitiveness is also related in part to cosmopolitanism (Levy, Beechler, Taylor, & Boyacigiller, 2007), a "citizen of the world"

orientation that includes interest in the world, other cultures, travel, and international events (as well as more complex uses in sociology, political science and philosophy).

Inquisitiveness may be a function of personality and attitudinal antecedents, and may in turn be an enabler for another enabler, *Learning Through Observation*, which in turn would serve as an enabler for the competencies categorized as Culture-general knowledge as well as other competencies that require information resources. Figure 3 illustrates one potential causal sequence for this set of antecedents, enablers, and competencies.

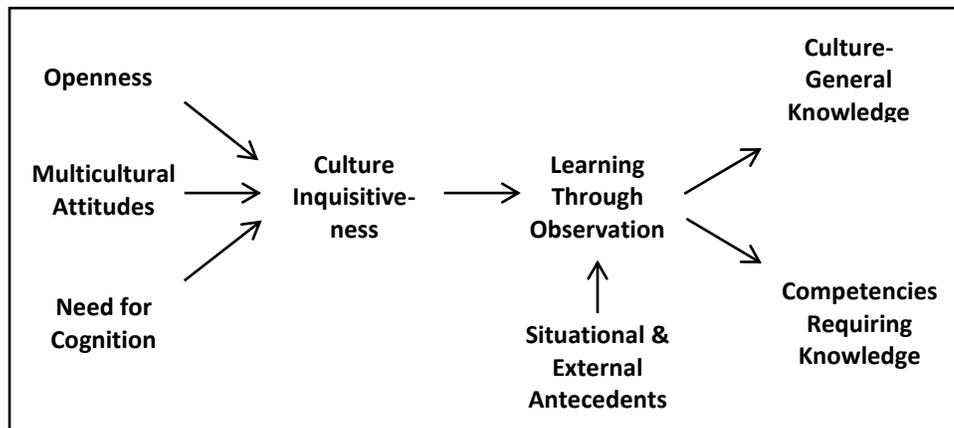


Figure 3. Inquisitiveness model

Social Interaction

We distinguished three elements in the Social Flexibility (E5.1) enabler category. E5.1.1: *Social flexibility/Self-presentation*, was endorsed by three of four sources. We mapped it to social skills, self-monitoring, and extraversion constructs that could be validly measured with Big Five instruments and the Self-Monitoring Scale (SMS). As noted previously, social skills, assessed in a variety of ways, are well validated. Big Five-Extraversion has also been supported in Mol et al.’s (2005) metaanalysis. Research employing the SMS has not found reliably consistent relationships with performance criteria.

E5.1.2: *Ability to modify ideas and behaviors and be receptive to new ways*, indicates cognitive and social flexibility and openness to experience. Three sources endorsed this enabler. As noted previously, evidence for flexibility is mixed. Big-5-Openness has been found to be unrelated to performance. Taken together, there is mixed evidence for the criterion validity of this enabler element, despite its considerable intuitive appeal.

E5.1.3: *Ability to compromise*, implies both general social skills and in some circumstances, negotiation skill. The content sources endorsed negotiation skills and “cultural integration” (see Note to Table 2), both corresponding partially to this element. To the extent that this enabler is linked to social skills, it is supported by criterion evidence. One way to garner some criterion evidence for this enabler is to look at its antecedents. Using a laboratory simulation, Imai and Gelfand (2010) discovered individual difference

predictors of effective cross-cultural negotiations. They staged negotiations between Americans and East Asians, coded the quality of the interactions for cooperative relationship management behaviors, and related the quality indices to Big Five and cultural intelligence measures. Cultural intelligence predicted some of the negotiation quality indices, suggesting the possibility of identifying antecedents to cross-cultural negotiation performance, but more direct measures are needed. Therefore, given that we were unable to identify a more direct measure of the skill, this enabler's criterion validity is at best tentative.

E5.2: *Willingness to engage* was explicitly cited by two of the content sources and is often endorsed in the civilian literature, as well, for example through the construct cosmopolitanism, discussed previously, and people orientation (Shaffer, Harrison, Gregersen, Black & Ferzandi, 2006). We made partial mappings of the element to subscales of the MPQ and to extraversion, supporting criterion validity, and to openness, which does not support it. Hence, the content validity of this element is supported but the criterion validity is weak. Indirectly supporting the element's criterion validity, its antecedents, such as extraversion, multicultural attitudes, and social skills, have been well validated against several criterion variables. It is surprising that a more direct, valid measure of this enabler has not appeared.

X. Shortcomings and Limitations of the Content/Criterion Approaches to Validating the Framework

Shortcomings of the Content Validation Analysis

The content validity approach to assessing the validity of the Framework has several shortcomings.

Quality of sources

This approach depends on the quality of the theoretical, subject matter expert, and empirically-based competency models or lists on which it is based. Each of our sources has flaws or limitations that lessen its authority. Critiquing these sources in depth is outside the scope of the present report. The McCloskey et al. (2010) empirical study used a small sample size and did not adequately consider rank and MOS. The Caligiuri et al. (2011) theoretical model depended on a competency model that we find unconvincing and burdened with vague terminology; it does not appear to have found traction in the expatriate research community. Military competency needs were shoehorned into this model. The RAND study of Air Force culture competency needs was highly ambitious but appears to have been grounded in a civilian/expat competency model with inadequate bottom-up generation of competencies relevant to deployed Air Force personnel. The Special Operations analysis (Spencer, 2010) relied overly strongly on the cultural intelligence concept, itself controversial and narrow in scope (e.g., Berry & Ward, 2006).

Insufficient articulation

Whether theoretical or empirical, competency models need to be articulated with respect to rank, MOS, and assignment. This problem has been recognized, but the prevailing use of a competency model approach rather than a more difficult and complicated job analysis approach may hinder the development of an articulated model. Competency models involve KSAOs at a relatively high level of generality that can be, hopefully, applied adequately across rank, MOS and assignment. Such an approach may be the most efficient one given training costs and constraints, as well as the uncertainty concerning which assignment, and in which culture region, any particular individual will be assigned. However, the RAND Air Force study revealed a degree of MOS, rank and deployment location variability that calls into question a focus on one-size-fits-all general competencies.

Independence of sources

The present content validity analysis of the Framework employed content sources that were not fully independent. That is, all four sources came from a virtual community of social scientists whose members shares ideas and reports. Because so few empirical studies of performance and adjustment in novel cultural contexts have been performed on military personnel, the empirical literature is based on expatriate workers. This paucity of appropriate data may lead to the development of unfounded, taken-for-granted assumptions about the necessity of culture-related competencies that are shared within this community.

Problems with self-report data

Two of our four content sources used self-report information to generate competency lists or to prioritize competencies. As noted in the previous section with respect to language competency, these self-reports are not as convincing as studies that look at the relationships between assessments of competencies or enablers on the one hand and performance criterion on the other.

Shortcomings of the Criterion Validation Analysis

Mapping competency elements to constructs

Competency models are based on KSAOs that are expected to increase performance, but unlike most of the social science research on expatriate performance/adjustment and related literatures, the competencies are not phrased in terms of constructs and they are not operationalized as measures and variables, rendering the mapping difficult. Many of the element-construct mappings performed in this analysis were one-to-many relationships, i.e., one element to more than one construct. In some cases, we may have not fully deconstructed a competency, so elements retained more than one meaning, leading to some many-to-many mappings. In addition to this complexity, some mappings associated only part of a construct to an element. Altogether, this mapping exercise results in ambiguity concerning the adequacy of evaluating competencies via familiar constructs. We discuss some remedies to this problem below.

Mapping enabler elements to constructs

The Framework enablers were created in a manner consistent with a competency model in that behavioral outcomes are used to describe the enabler. However, in this field, antecedent or precursor variables are identified from the domain of trait and occasionally individual difference constructs (plus situational variables, which are outside our consideration). Hence, the Framework enablers are, in a sense, precursor competencies that in many cases can be traced to more fundamental antecedents, as described for many elements in our discussions of each element's validity. Hence, they can be thought of as "competency potential" dimensions (Bartram, 2005) rather than traditional antecedent variables, and had to be mapped against such constructs. As a result, construct analysis of the enabler elements is subject to the same ambiguities as the competency elements analysis.

Indirect validation

Because direct measures of most elements do not exist, criterion validation was performed by examining the extent to which measures of the constructs to which they were matched had been found to be related to performance or adjustment criteria. This indirect approach provides more distal and less precise validation information. Most of the valid measures that we identified to aid in this procedure had been found to predict adjustment rather than performance criterion variables, whereas the overall thrust of the Framework is toward performance, not adjustment. (Indeed, perhaps adjustment should be considered an important and broad enabler.)

Conflicting findings

For a few constructs, such as flexibility and tolerance of ambiguity, criterion validity findings were mixed. Overall, more weight should be placed on metaanalyses when they disagree with results from individual instruments or subscales. We did not attempt to precisely weight the strengths of evidence in such cases, however, preferring a verbal description of the mixed research outcomes.

Weakness of instrument validities

Our logic in the Framework criterion validation approach was to evaluate the validity of the commonly used instruments prior to using them as evidence for Framework validity. We were surprised at the extent to which well-known instruments were poorly validated, especially lacking in predictive and concurrent validity studies. We had to reject several instruments that included potentially useful subscales for lack of validity. In many cases, instrument validation was confined to construct validity efforts such as MMMT matrix studies to show convergent and divergent validity. Of greatest concern, the criterion validity information that was available for most instruments was disproportionately based on psychological and sociocultural adjustment rather than any kind of performance measures. Hence, our conclusion that a particular element's criterion validity is supported must be tempered by the shortcoming that this support was not necessarily based on the needed performance measures.

XI. The Framework as a Cross-Cultural Competence Model

Our third approach to evaluating the validity of the Framework is to examine the adequacy and usefulness of the Framework as a scientific model. In this section, we compare the Framework to other models used in this field and make suggestions concerning how it could be reframed in a manner more conducive to research and training.

Types of Models in the Cross-Cultural Competence Literature

The Framework is a recent attempt to organize and understand the large, disparate literature on 3C and related concepts. Spitzberg and Changnon (2009) identified five kinds of models that have appeared in this field, developed within several academic disciplines as well as by individuals who are primarily consultants or professional trainers. Unfortunately, as models proliferate, comparative testing of these models is not keeping up:

There is almost no empirical work in which the various models that have been proposed are compared and tested. As a consequence, a leading theory of intercultural competence is missing (Van de Vijver & Leung, 2009, p. 406).

Causal path models are among the most common in the field. They are familiar to social scientists who primarily create models to represent individual and social processes and to generate testable hypotheses. Causal path models represent a linear causal system that may or may not involve feedback paths; such models can usually be tested using multivariate methods. A good model is a “mini-theory” that is tentative and falsifiable. The Abbe et al. (2007) model of cross-cultural competence in Army leaders is a causal path model. The communications researcher Ting-Toomey (1999) proposed a causal path model that is similar to the Abbe et al. model, albeit somewhat more detailed (see Figure 4).

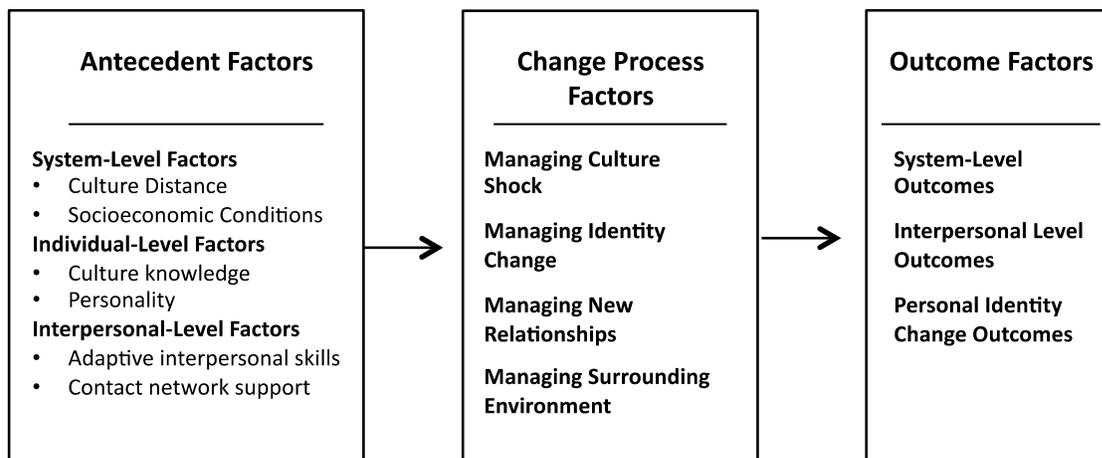


Figure 4. Ting-Toomey (1999) model, abbreviated.

In the 3C field, more modest models have been proposed than those of Abbe et al. (2007) and Ting-Toomey (1999) that are designed to represent a smaller range of phenomena, for example, Arasaratnam’s (2007) model of the relationship of cultural empathy to ICC.

Developmental models attempt to represent change in 3C over time, as a function of training, experience, and personal growth. Perhaps the best-known developmental model is Bennett's (1986) Developmental Intercultural Competence Model, on which the IDI (Hammer, 2011) was based. Figure 5 present Bennett's model.



Figure 5. Bennett Developmental Model

The Framework that was evaluated in the present report is a static model, but its goals involve training and to some extent selection for 3C. Researchers concerned with time and change effects address the U- and W-curves of adjustment (Ward et al., 1998), for which little support has emerged with the exception of one synthetic metaanalysis on adjustment of expatriate workers (Bhaskar-Shrinivas et al., 2005).

Adaptational models focus on psychological and sociocultural adaptation rather than performance, often in the context of the experience of migrants such as immigrants and refugees. The most popular such model is Berry's acculturation model, shown in Figure 6 (Berry, Phinney, Sam, & Vedder, 2006).

		Migrant Values Maintaining Cultural Identity	
		Yes	No
Migrant Values Maintaining Relationships with Other Groups	Yes	Integration	Assimilation
	No	Separation	Marginalization

Figure 6. Example of an adaptational model (Berry et al., 2006).

Co-orientation models are representations of interactive processes, often between host and sojourner individuals. These models may be directed toward describing a communication or interaction process that is embedded in a larger, perhaps implicit, 3C model. In this sense, successful interaction is necessary but not sufficient to meet other goals. The Framework includes several competencies and enablers involving communication and social interaction, so models of this type are relevant to the Framework's larger concerns.

Compositional models are primarily lists of KSAOs that comprise 3C, usually organized in logical sets in a way that implies a causal sequence. Figure 7 presents a compositional model. The Framework is best described as a compositional model, however

it uses behavioral descriptions, in the manner of a competency model, rather than constructs or variable names, to describe the set of desired qualities. All of the components of the model shown in Figure 7 are found in the Framework, and in most cases competency and enabler elements were mapped to the constructs that appear in this model.

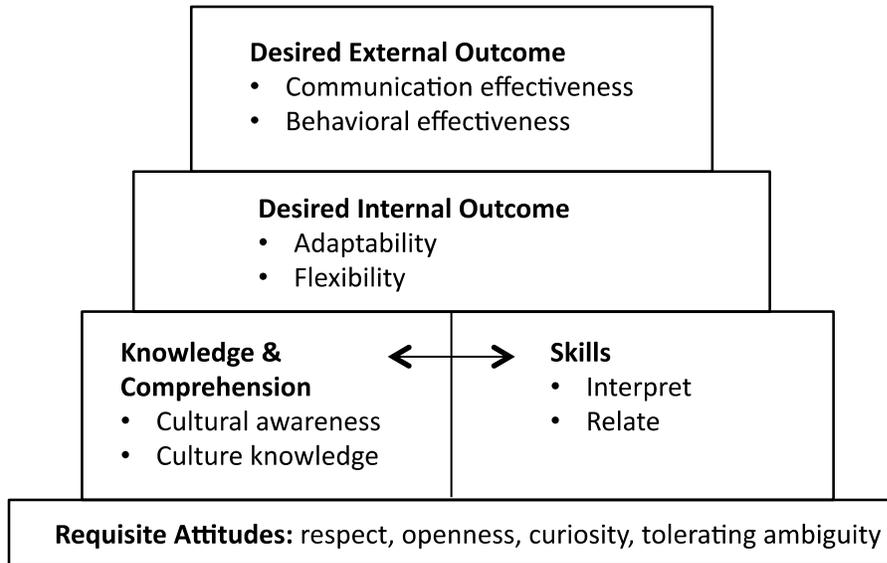


Figure 7. Compositional model (Deardorff, 2006, abbreviated).

Is a Compositional Model Desirable for the Framework?

A competency model of 3C can be classified as a compositional model as the term is used here. The main distinction between these two models is the extent to which competency models are described in terms of job-related behaviors versus traditional constructs and variables, a point that was made several times in previous sections. The Framework, as well as other compositional models, is not a scientific model in the sense of a mini-theory that is a “simplified representation of phenomena [that has a] point to point correspondence with some of the characteristics of the phenomena” and can “provide convenient, manageable, and compact representations of the larger, complex, and mostly unknown reality” (Graziano & Raulin, 2004, p. 40).

Advantages of a competency model

The purpose of the Framework is to guide training, selection and assessment within the domain of a set of competencies that are expected to increase performance across a broad range of military, and to some extent civilian, activities and situations. A competency model provides more highly generalizable guidance in this respect than a traditional job analysis, but both are directed to solving an applied psychology problem rather than to theory development or testing. Hence, a competency model provides a solution that is more proximal to the problem at hand. A causal model, on the other hand, is unlikely to be able to

provide information sufficiently focused on the training, selection and assessment needs of the U.S. military.

While causal models are the *sine qua non* of science, most research on culture competency, with the exception of training studies, uses cross-sectional correlational or differential designs that may not be able to adequately test causal models. Van de Vijver and Leung (2008) proposed the “consilience approach” to establishing causal models that employs theory, external validity (diverse sampling), multiple methods and disconfirmatory model testing to converge on defensible causal models of 3C.

Advantages of a causal model

Training, selection and assessment cannot be directed toward the Framework competencies or enablers in a simple, unqualified manner for several reasons. First, some enablers or their antecedents (e.g., personality, cognitive style) are not trainable and some are only partially trainable (e.g., social skills, attitudes). Second, among those that are deemed trainable, the required time and costs for satisfactory training outcomes vary, and the level of proficiency or development required vary across rank, MOS and possibly mission. Third, as noted in previous sections, enablers, enabler antecedents, and competencies are sometimes causally related, but the point in the causal sequence at which training should be directed is not specified in the Framework. Trainability and training costs may differ over variables in the sequence, but only an empirically based causal model can identify the optimal point to which training should be applied. Figure 3 presents a set of antecedents, two enablers, and more than one competency in a simple, unmoderated causal sequence involving inquisitiveness. A more complex model would combine Figures 2 and 3. The components in Figure 3 range from untrainable to trainable and most can be assessed using existing instruments or instruments that could be developed. Research can be performed to confirm the model and to evaluate the effects of training on its components.

Framework competencies, and to a lesser extent enablers, are more difficult to map to previously researched constructs than those included in most compositional models in this field. Therefore, the Framework is difficult to assess using existing instrumentation. Not only does such difficulty limit the extent to which evaluation research can be performed to understand the effects of training, but it also decreases the accuracy of selection-oriented assessments and assessment of overall personnel readiness.

Finding the middle way

The conceptual, theoretical, and research advantages of a causal model may not be sufficient to outweigh the usefulness of a competency model in delineating the Framework’s training, selection and assessment goals in this quintessentially applied setting. A middle ground might be achieved, however. First, the Framework can be revised to integrate the competencies and enablers in models that show causality, mediation, or moderation. Specifications of the relationships between enablers and measurable constructs can be enhanced to provide explicit measurement models for the antecedent side of the Framework. Some enablers may need to be reconceptualized as competencies, and the enabler-competency distinction may become blurred. Second, valid measures of

the competencies would be need to be identified or developed. The need for new instrumentation is discussed in the next section. Finally, cross-sectional and longitudinal correlational studies, and experimental training studies, can be conducted to test the Framework reconfigured as a causal model. In this way, the applied usefulness of the Framework can be retained, while a research capability is added.

XII. Conclusions and Recommendations

Need for New Instrumentation

Throughout this report, we have pointed out the deficiencies of measurement in this field. In the previous section, we suggested a path toward transforming the Framework to a testable model without losing the advantages of a competency modeling style. The measurement deficiencies stand in the way of implementing this approach. Although there is certainly some advantage to fine-tuning the Framework by adding and eliminating elements or restructuring, a more important—indeed critical—need at this point is to develop measurement methods to test it. These methods will require at least the following characteristics:

Behavioral: use behavioral measures, or rating methods highly proximal to behavior (e.g., behaviorally-anchored rating scales employed by supervisors or peers)

Validated: using consensually acceptable methods

Specialty sensitive: designed to be appropriate to multiple ranks and MOSs; or specifically designed for particular ranks and MOSs.

Efficient: can be practically utilized for large military samples

Training and the Framework

Arguing the fine points of the Framework may be unproductive in the context of the resources and methods available for training 3C in the military services. While training procedures can be developed to improve functioning on specific competencies or competency elements, as well as some of the enablers, it is more likely that cultural training performed in the field will gloss over these distinctions. Training methods that target more than one competency are not necessarily problematic and may indeed be efficient, so long as assessment can be performed to determine if the desired competencies actually improve with training. The competency-causal model integration suggested in a previous section may prove useful in identifying the most important competencies or enablers to target in training (as well as in selection), so training procedures can be developed that affect more than one competency not due to a lack of focus, but rather through a strategic focus on the “pressure points” of the 3C developmental process.

Competency at Multiple Levels of Analysis

The Framework and all of our work in evaluating its quality in this report were conducted at the individual level of analysis. A critical and vexing issue in cross-cultural psychology is the “levels of analysis problem” (e.g., Gabrenya, 1999). While theory and research in psychology are undertaken at the individual level of analysis, social processes in the organizational, economic, historical, political, and societal domains take place at higher levels of analysis, that is, they take place above, but not independent of, individual processes. By convention, organizations that are nested within societies are considered the *meso* level of analysis and society- or macro-level processes are considered the *societal* level. The nature of meso- and societal-level processes and their relationship to individual

processes has been actively debated in cross-cultural psychology, from Hofstede's (1980) pioneering research on values at the country level to the most recent research on the nature of value consensus within and between societies (Fischer & Schwartz, 2011). Theorizing on the levels problem has become more sophisticated in the last decade to the point where social scientists can begin to talk about working empirically at the meso and societal levels.

Some recent research that addresses meso-level processes in the U.S military illustrates some possible avenues for working on 3C at a higher level of analysis (Van Driel, 2008; Van Driel & Gabrenya, 2011). Van Driel's research attempted to establish the validity and interpretability of 3C at the level of the military unit (varying across services; e.g., platoon). He was able to show that three measures, the Cultural Intelligence Scale, a theoretically-created measure of organizational cultural intelligence, and an empirically-generated measure of unit 3C, could be meaningfully aggregated at the unit level. Some relationships of these meso-level measures with using unit-level measures of 3C were found, although the performance criterion problem noted elsewhere in this report limited his options for validating the meso-level scales.

Given the importance of the unit, however defined or constructed, in military organizations, the cross-cultural competency of units may prove as important as the competencies of the individuals of which they are composed. While individuocentric models of group behavior see the group as the sum of its members, emergent models that are more familiar to sociologists see the group as possessing an emergent quality that is "more than the sum of its parts." A new Framework may be developed that is focused on meso-level competencies at the unit level or at higher levels of organization. Such an organizational level Framework would not be expected to simply scale up the existing Framework to the meso level, but may instead prove to be qualitatively different.

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