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A Validation Study of the Cross Cultural Competence Navigator

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A Validation Study of the Cross Cultural Competence Navigator

By
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Master of Arts
Applied Linguistics and Lexicography
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A Validation Study of the Cross Cultural Competence Navigator
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Abstract

Title:

A Validation Study of the Cross Cultural Competence Navigator

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Cross cultural competency (3C) is defined as an individual's capability to effectively function in culturally diverse contexts, which is influenced by a set of individual antecedents. In the literature 3C has been characterized by a number of models and associated measures. In this thesis, 3C capability was described by seven distinctive antecedents, i.e. mindfulness, inquisitiveness, interpersonal skills, emotional stability, cultural knowledge, cultural experience and foreign language. A pragmatic 3C model was presented based on the literature findings, detailing the underlying mechanisms of 3C and its potential nomological network. The model attempted to reconcile three major disagreements in 3C research, i.e. categorization disagreement, denomination disagreement and relational disagreement. The model also presented a theoretical guide for validation on existing 3C instruments and the construction and development for new 3C measures.

The author conducted a validation of the Cross Cultural Competence Navigator (3CN). A set of validity evidence from different sources were accumulated and hypotheses stemming from suggested validation designs were tested. The 3CN demonstrated adequate content-based validity evidence with reference to the thesis model, and acceptable internal structured-based and relationship-based validity evidence based on an analysis of archival data.

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Chapter 1 - Introduction

The overarching goal of this thesis was to examine the validity of the Cross Cultural Competence Navigator (3CN), a psychometric instrument designed to measure an individual's potential to operate in culturally diverse contexts¹. The 3CN was designed for several purposes: to be used as a selection tool, for self-evaluation and self-awareness, and for developmental purposes when paired with training interventions.

Due to the complexity of the construct of cross cultural competency (3C), which has been explored and discussed by numerous scholars² (Abbe et al., 2007; Ang et al., 2007; Black, et al., 1999; Deardorff, 2006; Gabrenya et al., 2012; Johnson et al., 2006; Jokinen, 2005; McClelland, 1985; O'Sullivan, 1999; Shaffer et al., 2006; Spitzberg & Changnon, 2009; Tarique and Weisbord, 2013; Trompenaars & Woolliams, 2009; etc.), the first goal of this thesis was to develop a guiding model of the nomological network of 3C based on a clarification of the construct (Chapter 2) and on the conceptual analysis of antecedents predictive of individual's cross cultural competency (Chapter 3). The model was then used to guide the examination of the validity of the 3C Navigator (Chapter 4 and 5), the second goal of the thesis. A series of validity evidence sources were investigated based through an analysis of archival data.

In Chapter 2, I presented literature and a description of the state of 3C construct research. In short, 3C measurement research could be characterized by a confusing use of the construct terminology and poor psychometric support for the existing measures of 3C. I compared the various terminologies used to denominate the construct of interest, and based

¹ 3CN was developed by the Institute of Cross Cultural Management, Florida Institute of Technology.

² The construct of 3C has been studied by a wide range of perspectives including management, education, military, psychology and anthropology.

on conceptual analysis of the literature, proposed the nomenclature of *cross cultural competency* (3C) as a suitable name for the construct. I then presented an evaluation of the merits and deficiencies of the pervading KSAO-oriented and capability-oriented definitions of 3C, and offered the definition of 3C as *an individual's capability to effectively function in culturally diverse contexts, which is influenced by a set of individual antecedents*. A preliminary model was proposed based on the initial elaboration of the construct terminology and definition. The merits of the proposed model for guiding 3C instrument development were then discussed.

Chapter 3 further developed the antecedent portion of the model by exploring the antecedent variables through a literature review of both theoretical and empirical research on 3C and 3C-related constructs. I presented three major philosophical disagreements on the categorization, denomination, and relationships among 3C individual antecedents that may have hindered the development of 3C research and measurement. In an attempt to resolve those disagreements, I synthesized the relevant research findings and proposed seven key individual antecedents contributing to the prediction of individual's cross cultural competency, i.e. mindfulness, inquisitiveness, emotional stability, interpersonal skills, cultural knowledge, cultural experience and foreign language proficiency. The four psychological antecedents, mindfulness, inquisitiveness, emotional stability and interpersonal skills, reflected an individual's competency in cognitive, motivational, emotional, and communication domains respectively. This framework may reduce the conceptual overlap across 3C antecedent dimensions and hence provide guidance to avoid repeated or redundant measurement in designing and evaluating a 3C measurement instrument.

Construct validation of 3CN was the major goal of this thesis. In Chapter 4 I examined

the reported problems in existing 3C instruments, reviewed the content of 3CN, and mapped the 3CN predictors to the antecedents in the proposed model. In Chapter 5, a description of the 3CN construct validity evidence was accumulated and tested according to the best practices laid out in the *Standards for Educational & Psychological Testing* (2014) and *Principles for the Validation and Use of Personnel Selection Procedures* (4th edition, 2003). In addition, the methods used to analyze two archival data sets were presented. Data to be analyzed in this thesis were collected by the Army Research Institute for Behavioral and Social Sciences, and from undergraduate students at a small private University in the South Eastern United States. Three studies were conducted to analyze the evidence of internal consistency and inter-item correlations of the 3CN, the overall measurement structure, and its relationships with external variables. Study 1 focused on the investigation of internal consistency, as measured by Cronbach's alpha, and inter-item consistency. In study 2, exploratory factor analysis was conducted to examine the initial structure of the 3CN. Finally, Study 3 replicated study 1 with a different sample, and a confirmatory factor analysis was performed to assess model fit, the relationships between 3CN scores and the score of Cultural Competence Self-assessment Checklist (CCS), and between 3CN and the scores of 3 subscales of the Big Five Inventory (BFI).

Chapter 2 - Cross Cultural Competency

2.1 Cross Cultural Competency in Demand

Globalization has been increasing rapidly since the 1980s, and a large number of successful local firms now find themselves extending their business to foreign countries to penetrate overseas markets, or to establish manufacturing overseas for lower labor and material costs. Many expatriates have been sent abroad to work with, or manage people of different cultural backgrounds. In 2013, approximately 50.5 million expatriates were working abroad and by 2017, the number of expatriates was estimated to grow to 56.8 million³. However, international business is not without costs. Expatriation is an expensive and risky endeavor for companies. Sending workers abroad may cost two to three times more than the annual home country compensation of an employee (Black & Gregersen, 1999). Costs can be much higher if the expatriate assignment ends in failure (Johnson et al., 2006). Unfortunately the current overall outlook on expatriation is not optimistic (Black, et al., 1999; Johnson et al., 2006; Jokinen, 2005; O'Sullivan, 1999; Shaffer et al., 2006), and “most companies get anemic returns on their expat investment” (Black & Gregersen, 1999). A high proportion of expatriate assignees fail to accomplish expected goals and many assignees terminate their assignment earlier than scheduled. Those two types of expatriate failure were estimated to cause American firms to lose between \$250,000 and \$1,000,000 dollars a year (Hill, 2001). In addition to the hard costs of doing business abroad, less quantifiable costs include low performance, reduced productivity, inaccurate information sharing, poor relationships with local partners, bad reputation, and lost opportunities (Black

³ The data are from http://www.finaccord.com/press-release_2014_global-expatriates_-size-segmentation-and-forecast-for-the-worldwide-market.htm.

& Gregersen, 1999; Johnson et al., 2006).

The majority of expatriate failures are caused by errors in selection (Chew, 2004; Stone, 1991; Tung, 1987), by mistakenly assigning personnel with an improper selection rationale that focuses on technical rather than interpersonal skills (Caligiuri et al., 2009; Shaffer et al., 2006; Spitzberg & Changnon, 2009; Stone 1991; Tung, 1987). Therefore, cross cultural competency is slowly becoming one of the major criteria in expatriate selection and training; and has been found to be more important in expatriation assignments than technical or professional competency (Arthur & Bennett, 1995; Caligiuri et al., 2009; Shaffer et al., 2006).

Along with the growing demand from the business world, an increasing number of international students also need cross cultural competency for their success in their overseas learning and living. According to ICEF Monitor (2015) 5 million students were estimated to be studying outside their home countries in 2014. This was twice the number of overseas students in 2000 and the number of international students maintains growth⁴. Research examining the challenges faced by international students stated that cultural challenge was one of the major obstacles international students encountered on their path to academic success (Hopkins, 2012; Rosenberg, 2016; Shafaei & Razak, 2016; etc.). When international students come to a foreign country and start learning overseas, they will unavoidably be thrust in an unfamiliar cultural environment, and are very likely to suffer cultural shock by immersion in different living styles, food, climates, social values and norms. Understanding the differences between home culture and local culture and openness to new environments and different people is vitally important for psychological adaptation in the foreign environment. Therefore, cross cultural competency may be an effective predictor for the adaptation and success of overseas students, and 3C training may

⁴ From <http://monitor.icef.com/2015/11/the-state-of-international-student-mobility-in-2015/>

improve their ability to adapt, ultimately enhancing their overseas learning and quality-of-life in a foreign country (Shafaei & Razak, 2016).

2.2 Validity of Existing Cross Cultural Competency (3C) Instruments

Given its critical role in overseas assignment, researchers, administrators, and HR practitioners have shown great interest in measuring an individual's cross cultural competency (e.g. Abbe et al., 2007; Caligiuri & Tarique, 2012; Joshson et al., 2006; O'Sullivan, 1999; etc.). There are many cross cultural competency measures, such as the IDI (Hammer, et al., 2003), ICAPS (Matsumoto, et al., 2001), CQ (Ang, et al., 2006), ICC (Arasaratnam, 2009), etc., that have been developed and used in organizational personnel assessment and expatriate selection. However, the validity of the majority of those measures has been criticized, and close scrutiny has revealed that existing measures and instruments demonstrate "a plethora of deficiencies" (Trompenaars & Woolliams, 2009).

Gabrenya et al. (2012) investigated the validity of nine primary instruments (*See Appendix A*) from thirty-three 3C relevant measures and found significant deficiencies. The researchers stated that only one instrument showed "satisfactory validity" and one showed moderate validity. In addition, twenty-three secondary instruments measuring constructs related to 3C (*See Appendix A*) were examined and many of those instruments and subscales were "not supported by validation evidence" (*p.76*). Similarly, Matsumoto & Hwang (2013) conducted a comprehensive review of ten "qualified" 3C tests (*See Appendix B*), and examined the strength of the evidence for ecological validity. The examination indicated that only three measures were considered "promising" while a number of 3C assessments lacked evidence of construct validity.

Although both groups of researchers evaluated a set of same instruments⁵ and drew similar pessimistic conclusions on the validity of the existing measures, the discrepancy between the two investigations' results warrants additional doubt. For instance, the Cultural Intelligence Scale (Ang et al., 2006), which was labeled as promising in Matsumoto's evaluation research, was indicated by Gabrenya et al. (2012) to have face validity problems, lacked evidence of construct validity, and was "not suitable as a research instrument"(Gabrenya et al., 2012, *p.* 58).

The deficiencies of 3C measures and instruments, to some degree, have been influenced by ambiguous definitions and conceptualizations of the construct. Although a large amount of research on the construct has been conducted for decades, unfortunately little agreement has been reached on the name of the construct, the nature of the construct (e.g. trait or performance), and the definition of the construct. This confusion hinders research efforts and has contributed to poor validity evidence to date. The development of a valid measure and deeper understanding of the construct of 3C remains elusive until the concept is clarified and clearly defined. Therefore, it is necessary to have clear answers to the following questions: (1) What name /terminology is suitable for the construct? (2) How should the construct be conceptualized and defined? and (3) What model(s) can sufficiently support the conceptualized construct and serve as an appropriate framework for instrument development?

2.3 Construct Terminology

A variety of names have been used to denote the construct of cross cultural competency, which predicts effectiveness in culturally diverse settings such as expatriates'

⁵ They are CCAI, CQ, ICAPS, ICC, ICSI, IDI, ISS and MPQ.

achievement in oversea assignments, studying abroad, and working in multicultural groups. The most commonly used names are cross cultural competence (e.g. Johnson, et al., 2006; Spitzberg & Changnon, 2009; etc.), intercultural communication competence (Spitzberg & Changnon, 2009), bicultural competence (e.g. Bell & Harrison, 1996; Black et al., 1991; etc.), global competence (e.g. Adler & Bartholomew, 1992; Hunter et al., 2006; etc.), cultural intelligence (e.g. Ang et al., 2003; Thomas et al., 2008; etc.), intercultural sensitivity (Chen & Starosta, 1997), and intercultural competence (e.g. Deardorf, 2006; Howard-Hamilton et al., 1998; Ting-Toomey & Kurogi, 1998; etc). Popular publications have exacerbated the issue using terms like cultural dexterity (Molinsky, 2013) or cultural agility (Caligiuri, 2013).

Although the definitions and conceptualizations of 3C overlap to a degree, the different names cause (and perhaps are caused by) confusion in understanding and conceptualizing the construct. The variety of names indicates the complexity of the construct as well as ambiguity regarding the components and subsequent outcomes associated with 3C. To clarify the concept of 3C, perhaps one fruitful step is to find consensus (or a degree of concurrence) on the terminology.

2.3.1 Cross Cultural, Bicultural, Intercultural, Global, or Other?

The construct of 3C is used in a wide range of culturally demanding situations, not just limited to interactions between two different cultures (Bicultural). It is useful in a variety of contexts like expatriation, overseas management, multinational work teams, multiculturally domestic work teams, global leadership, etc. These interactions are not just between cultures (Intercultural), they also happen across multiple cultures and nationalities. Therefore, I argue that the term *cross cultural* seems most appropriate and situates the construct in a broader context of boundary spanning. The term avoids potential conceptual

restriction on the number of cultures involved caused by *bi-* or *inter-*, and meanwhile covers multicultural working situations in domestic companies which the term *global* does not accurately capture. Furthermore, comparing with the wider scope of the term *global*, *cross cultural* is more descriptive in that the construct is associated with culture and culture-relevant issues. Therefore, I argue that the term *cross cultural* is more appropriate than other terms for the construct.

2.3.2 Competence or Competency?

The terms competence and competency are often used inconsistently. There is considerable variability in the usage of the two terms even outside of the field of cross cultural research, and in many cases practitioners, use them interchangeably. Researchers have suggested that the terms are “too loosely bandied about in scholarly literatures (Spitzberg & Changnon, 2009, p. 6; Deardorff, 2009; Trompenaars & Woolliams, 2009), and surprisingly little attention has been paid to “semantic and conceptual landmines” (Spitzberg & Changnon, 2009, p. 6).

The Webster Dictionary (1831) defines the two terms as synonyms. The Oxford Online Dictionary only includes the term *competence* while under the lemma of *competence* a note *also competency* was presented; therefore in lexicography the two terms are treated as the same.

However, in professional fields scholars have begun to distinguish the two terms. In I/O psychology *competency* refers to individual attributes and is “typically defined as the knowledge, skills, abilities, behaviors and other characteristics that contribute to successful performance within an organization” (Dugan, 2014, p. 315). *Competence* is associated with objective and measurable performance standards which individual should meet or go beyond in order to yield the expected outcomes in the workplace (Dugan, 2014;

Teodorescu, 2006; Trompenaars & Woolliams, 2009). Thus as commonly used in the I/O literature, the term *competency* refers to individual's innate or obtained capability while the term *competence* refers to explicit description of individual's actual performance in a job or task. 3C does not focus on specific job performance or deal with issues happening within one specific culture; instead, it is a broader construct predicting individual's effectiveness across culturally diverse situations, and it can be malleable and generalized to different cultures. Therefore, the term *competency* is more accurate to denominate the construct than *competence*.

Another intriguing question arises in terms of what constitutes a *competency*. Lexicographers only tell us it is ability or capability or skills, but such an explanation may be too simplistic for scientific research. Some researchers have proposed that a *competency* consists of a set of behaviors or behavior patterns instrumentally realizing the desired outcomes (Roberston, et al., 2002; Woodruffe 1992). A broader view on *competency* has suggested that competency could embody knowledge, abilities, skills, behaviors, characteristics and other attributes. That all-in-one-tendency dominates 3C research, however, some researchers have found the overly inclusive approach problematic (Johnson et al., 2006), and stated that such a treatment confuses 3C and its antecedents (e.g. knowledge, skills and attributes).

As it pertains to 3C, there is considerable confusion in the literature on the distinctiveness of the construct and its antecedents. For example, Tarique & Weisbord (2013) and Caligiuri & Tarique (2012) treated tolerance for ambiguity, flexibility, ethnocentrism as dynamic cross cultural competencies while treated personality traits as their antecedents. To the contrary, in Abbe et al's (2007) model, both tolerance for ambiguity and personal traits were regarded as antecedents to 3C. In other research, 3C

was proposed as the combinative ability of openness and flexibility and its antecedents included cultural awareness, cultural knowledge, cultural sensitivity, cultural skills and cultural encounters (Suh, 2006). Those confusing distinctions often reveal themselves empirically. Such as a finding that openness did not predict tolerance for ambiguity and ethnocentrism (Tarique & Weisbord, 2013) may hint that openness, tolerance for ambiguity and ethnocentrism were 3C antecedents, rather than 3C itself. Therefore, for the purposes of this paper, I prefer to adopt the term *competency*, and to define cross cultural competency in the scope of individuals' capability to perform, rather than performance itself. The narrowly-defined *competency* provides a departure point for the confusion in conceptualizing the construct of interest, and Section 2.4 will provide more academic evidence in support of such a treatment.

2.3.3 Competency or Specific Intelligence?

Instead of using competency, Earley and Ang (2003) recommended the term *cultural intelligence*. They define *cultural intelligence* as “a person’s capability for successful adaptation to new cultural settings, that is, for unfamiliar settings attributable to cultural context” (p. 9). The definition articulated two points: first, the definition stated that *cultural intelligence* resulted in the same outcome as the previously described cross cultural competency; second, it confirmed that it was an individuals’ capability in accordance with the definition of intelligence, i.e. the ability to solve problems (Schmidt & Hunter, 2000).

However, intelligence itself is a complicated and controversial construct with dissimilar definitions (Sternberg, 2000b), and it is conceptualized differently based on divergent academic philosophies and orientations (Sternberg, 1986). Using a more complex construct to define a complex construct would risk adding further obstacles and ambiguity in the understanding of 3C. In addition, empirical research has found that measures of

cultural intelligence actually load onto measures of personality traits, not intelligence (Gabrenya, 2010). Therefore, it would be prudent to adopt the term *competency* rather than *intelligence* to denominate 3C.

2.4 Variation in the Definition of Cross Cultural Competency (3C)

A sizeable body of 3C research and associated interventions have been conducted by both academicians and practitioners, who have established a multitude of 3C models based on their definitions of cross cultural competency. Those definitions could be briefly grouped into two types: KSAO-framing and capability-oriented.

2.4.1 KSAO-framing Definitions

This type of definition originates from the KSAO categorization, the acronym for Knowledge, Skills, Abilities and Other characteristics. KSAO is a common term in personnel psychology and is frequently used in job analysis, selection, evaluation and other HR functions. The majority of 3C research tends to frame cross cultural competency in a KSAO structure. Thus 3C is commonly defined as the knowledge, skills, abilities, attitudes and personality traits which enable individuals to think, behave and work effectively in a cultural environment different from their own (Abbe et al., 2007; Black et al., 1999; Caligiuri & Tarique, 2012; Howard-Hamilton et al., 1998; O'Sullivan 1999; Shaffer et al., 2006). Cross cultural knowledge, skills and abilities are posited under the categories of KSA respectively, and the personality traits and attitudes are often categorized into "O" category (Bell & Harrison, 1996; O'Sullivan 1999).

This framework treats 3C not as a single construct, but a combination of competencies. Based on this conceptualization 3C is delineated as both a stable and dynamic competency

(Caligiuri & Tarique, 2012; Johnson et al., 2006; O'Sullivan 1999; Shaffer et al., 2006). Ability and personality are regarded as stable competencies because they are relatively fixed. Cross cultural knowledge and skill components are regarded as dynamic, malleable competencies that can be acquired via training and/or experience.

Another way of conceptualizing 3C under the KSAO-framing rationale excludes personality attributes from cross cultural competency and treating personality attributes and cross cultural competency as two separate but interdependent constructs. Both have been found in empirical studies to influence intercultural effectiveness, but differentially (Mendenhall & Oddou, 1985; Shaffer et al., 2006). Personality attributes were found to have a positive impact on the development of 3C rather than influence the intercultural effectiveness directly (Bell & Harrison 1996; Calligiuri & Tarique, 2012). Those empirical findings imply that personality traits actually act as an antecedent to cross cultural competency instead of 3C per se.

Another drawback of 3C definitions based on the KSAO framework is that the definition deviates too much from the semantic meaning of *competency*, and hence unavoidably causes confusion in understanding the construct. Even when researchers proposed that knowledge and personal attributes are cross cultural competencies, they actually treated some of those “competencies” as predictors or antecedents. For example, in Tarique and Weisbord's empirical study (2012) they defined dynamic cross cultural competency as “knowledge, skills, and (personality) attributes” meanwhile they treated personal traits, openness and extroversion, as predictors of cross cultural competency. Such ambiguous construct definitions unavoidably cause confusion and obstacles in research (Ang et al., 2007).

2.4.2 The Capability-oriented Definition

Other researchers conceptualize cross cultural competency as an ability or capability. The two words are often used interchangeably, however, in general understanding *ability* is partially innate and comparably stable while *capability* is regarded as to be trainable and more likely to be changed, which is in more accordance with the nature of 3C. In addition, to avoid unnecessary confusion and to maintain consistency, this thesis used the term capability specific to the cultural context in order to differentiate from the use of ability in a general context.

As McClelland (1973, 1985) and Boyatzis (1982, 2008) suggested, a competency is a capability that leads to, or causes, effective performance and it is “an underlying characteristic” of an individual which makes effective performance possible. Based on this view, 3C was defined as the capability of individuals to function effectively in cultural diverse settings (Ang et al., 2007; Gabrenya et al 2012; Gertsen, 1990). People with cross cultural competencies are capable of understanding cultural differences, exhibiting proper behaviors in multicultural interactions, and working well in different cultural environments with people of different cultural backgrounds.

The problem in capability-oriented definitions is that they indicate 3C is static, and ignore its developmental nature. Another problem in the capability-oriented definitions is a lack of consensus on the inclusive dimensions in the construct although those researchers suggested that 3C was not a simple but rather a multidimensional construct. Gertsen (1990) recommended that capability consisted of three interdependent dimensions: affect, cognition and communication, while Ang and his colleagues (2007) proposed that capability consisted of four dimensions, that is, metacognition, cognition, motivation and behavior. Those dimensions seemed not to manifest 3C itself but potential antecedents or

the expected outcomes of 3C. For example, the metacognitive CQ proposed by Ang is the “mental processes” to acquire and understand cultural knowledge (Ang, et al., 2007). Such cultural knowledge is essential for individual to function effectively in multi-cultural contexts (Byram, 1995; Gabrenya et al., 2012; Howard-Hamilton et al., 1998; Johnson et al., 2007; Ting-Toomey & Kurogi, 1998), and hence metacognitive CQ actually acts more as an antecedent to cultivate cross cultural competency than a part of cross cultural competency.

2.4.3 Recommended Definition

From the discussion on the two types of 3C definitions, KSAOs-oriented and capability-oriented, it is clear that there is a risk of comingling antecedents and the focal construct. Such complicated definitions are problematic as theoretical guides for developing a measurement instrument. A concrete and straightforward definition may work better for development purposes; therefore I defined cross cultural competency based on its function: cross cultural competency makes cultural effectiveness possible (Ang et al., 2007; Johnson et al., 2006; Ruben & Kealey, 1979; etc.). Therefore cross cultural competency is defined as *an individual's capability to effectively function in culturally diverse contexts, and is influenced by a set of individual antecedents*. Its effectiveness can be measured by both external and internal outcomes, and it interacts with objective factors on those outcomes. I will further explain the construct by situating it in a model (*See Figure 1*).

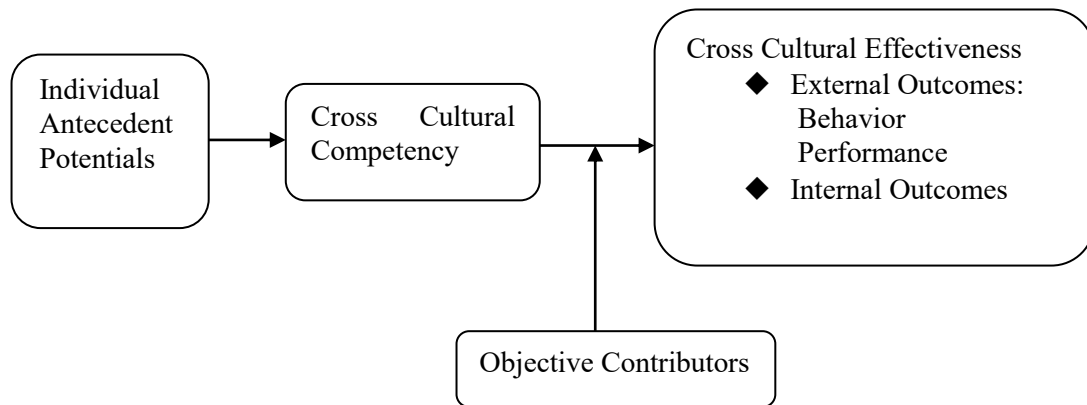


Figure 1. A Pragmatic Model for 3C Instrument Development

2.4.3.1 Cross cultural Effectiveness

Cross cultural effectiveness, or functioning effectively in culturally diverse settings, refers to the extent of success in culturally complex situations and it can be measured by the individual's internal and external outcomes in such situations. Those with higher levels of cross cultural competency have a greater likelihood of achieving both desired external and internal outcomes in a cross cultural environment.

External outcomes include behavioral outcomes and performance outcomes. Behavior outcomes refer to adapting to the cross cultural environment, engaging in cross cultural interaction and displaying appropriate behaviors during cross cultural interactions. Performance outcomes are the evaluative accomplishment or achievement of one's duties and responsibilities expected by a supervisor or the organization. Behavior and performance are related, but the desired behavior does not always necessarily result in optimal performance, because objective factors, such as organizational factors, global economy, enterprise policy and strategies, can also influence goal achievement. Desired internal outcomes, mainly psychological health and adjustment, can be indicated by the

extent to which an individual feels comfortable in the cross cultural interaction/context (Deardorf, 2006; Kim, 1988; Matsumoto & Hwang, 2016).

Cross cultural competency should be positively related to individual's external and internal outcomes in culturally diverse contexts. Individuals who have higher levels of 3C are more likely to apply situation-appropriate behaviors in culturally diverse environments and on average, are more likely to produce better performance on culture-relevant issues than those with lower 3C. Those individuals with higher levels of 3C should also better adjust to the new cultural environment and enjoy higher levels of psychological wellbeing than those with lower levels of 3C.

2.4.3.2 The Three Principal Features of 3C

The proposed definition implies three principal features of cross cultural competency. The first is that there are individual differences in capability. A series of individual antecedents⁶ work jointly on an individual's 3C, and those antecedents determine how capable an individual is of managing cultural complexity. Thus, some individuals have an advantage in developing cross cultural competency because of the variability of 3C antecedents.

The second feature is malleability. A person's capability changes over time and can be modified through experience or interventions, and cross cultural competency is no exception. An individual's cross cultural competency is dynamic and can be developed through experiential learning, training, or other means. King, Baxter, and Magolda (2005) suggested that an individual's cross cultural competency can be developed through initial, intermediate and mature levels by experience (Abbe et al., 2007; Tarique & Weisbord, 2013). Cultural training and cultural knowledge accumulation also help in increasing individuals' levels of cross cultural competency (Abbe et al., 2007; Gabrenya et al., 2007;

⁶ The series of antecedent variables will be discussed in Chapter 3.

Johnson et al., 2006; Kim, 1988; O'Sullivan 1999; etc.).

The third feature is that the effect of cross cultural competency on desired outcomes is influenced by a set of objective factors. The objective factors are proposed to moderate the relationship between cross cultural competency and outcomes in cross cultural interactions. Those factors could be, but are not limited to, political and economic factors, the physical environment, organization policy and strategy, or family-relevant issues. Johnson et al. (2006) proposed that two moderating factors, institutional ethnocentrism and cultural distance, negatively influenced an individuals' cross cultural competency on outcomes in the multicultural workplace. Abbe et al. (2007) also suggested that situational and organizational factors may affect "the degree to which a cross-culturally competent person is successful" in intercultural contexts. They pointed out that cultural distance, family and spouse adjustment, and organizational support were external contributors which shaped individual's intercultural outcomes. In addition, agent-specific situational variables such as conditions of stress, uncertainty or threat may also have an impact.

2.5 The Proposal Model

Based on the definition and the elaboration of 3C's critical features, a model (*Fig.1*) was created to provide theoretical guidance for both 3C instrument development and validation. The proposed model illustrates the inter-relationship of the mechanisms of 3C, the antecedents, and 3C related outcomes (e.g. cross cultural effectiveness). The separation of objective contributors from individual antecedents is helpful in isolating those external elements beyond the individuals' control. The targeted instrument users are also taken into consideration in the proposed model. Organization administrators, HR practitioners and individuals exposed to cultural diversity are more interested in and likely to use a 3C

instrument; however, those users generally lack academic and professional background in cross cultural competency. Therefore a straightforward model based on a simple and semantically-salient definition may be easier to understand.

2.5.1 Differentiating the Proposed Model with Other Models

Spitzberg & Changnon (2009) summarized the existing cross cultural or relevant models into five types: compositional, co-orientational, developmental, adaptive and causal path models. Compositional models were recommended to illustrate the elements which comprised cross cultural competency. They may be useful to define the basic scope and contents of a theory but may be too “theoretically weak” to display the conditional relations among the elements (Spitzberg & Changnon, 2009). For instance, the Intercultural Competence Components Model (*Fig. 2*) created by Howard-Hamilton et al. (1998) listed three domains of factors, attitudes, knowledge and skills, which were envisioned to be components of cross cultural competency. However, no relationships among the three domains were revealed in the model. The model was criticized as “haphazardly representing multiple levels of abstraction” (Spitzberg & Changnon, 2009, *p.* 11). Although Spitzberg and Changnon categorized Deardorff’s (2006) Pyramid model of intercultural competence as a compositional model, the model indicated the potential relationships among the domains, *i.e.* the lower level was expected to enhance the higher level. Accompanying the pyramid model, Deardorff (2006) proposed the Process Model of Intercultural Competence, a causal path model (*Fig. 3*), in which the relationships among the domains were articulated as a causal loop. Unfortunately most compositional models fail to clarify where the 3C construct should be positioned in the model as well as the relationships among attitudes, knowledge, skills and internal and external outcomes. Thus compositional models may serve as a poor theoretical guide for 3C instrument design.

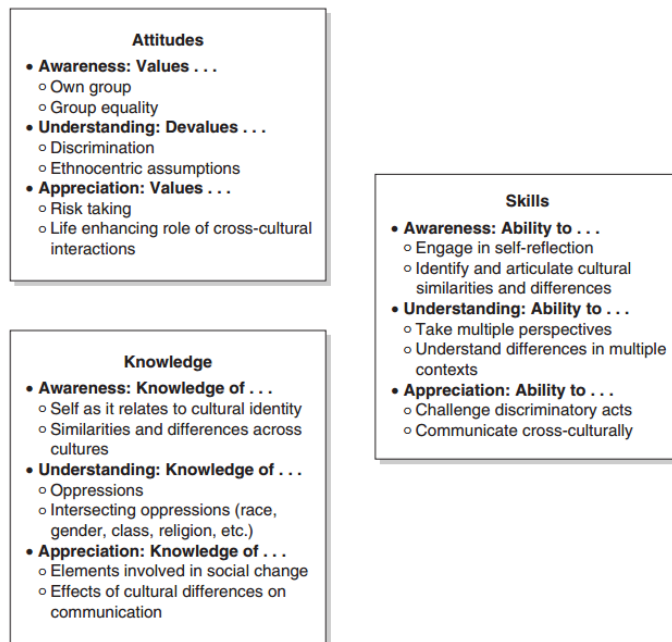


Figure 2. Intercultural Competence Components Model (Howard Hamilton et al., 1998)

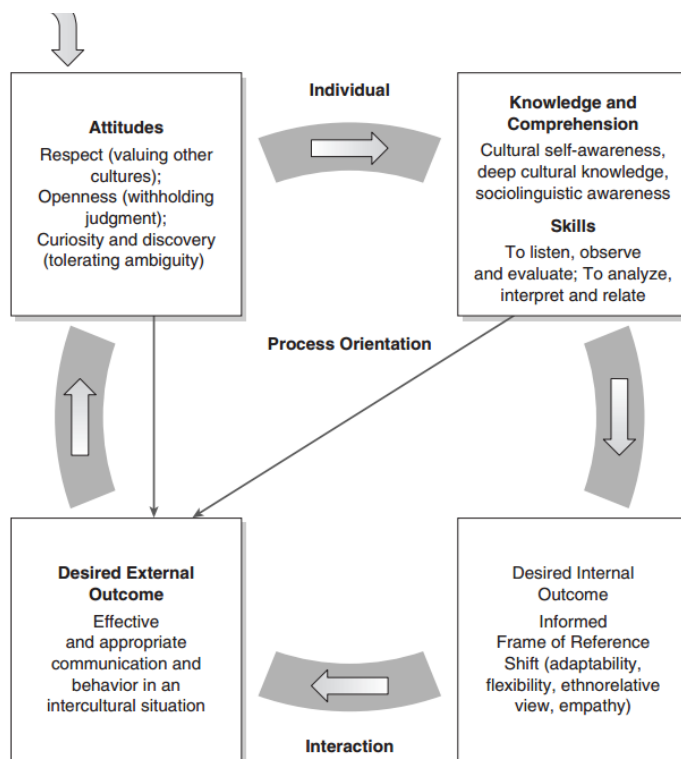


Figure 3. Process Model of Intercultural Competence (Deardorff, 2006)

Co-orientational models mainly focused on the action-reaction in intercultural communication and attempted to demonstrate the interaction mechanisms in a cross cultural context. For example, Byram’s influential Intercultural Competence Model (1997) (Fig. 4) illustrated the crucial factors of cross cultural competency and interactions among intercultural competence, linguistic competence, sociolinguistic competence and discourse competence, but the model failed to present the exact relationships between the elements involved. The co-orientational models focused on “a particular outcome of competent interaction” (Spitzberg & Changnon, 2009, p. 24), therefore some models may not applicable for 3C instrument design.

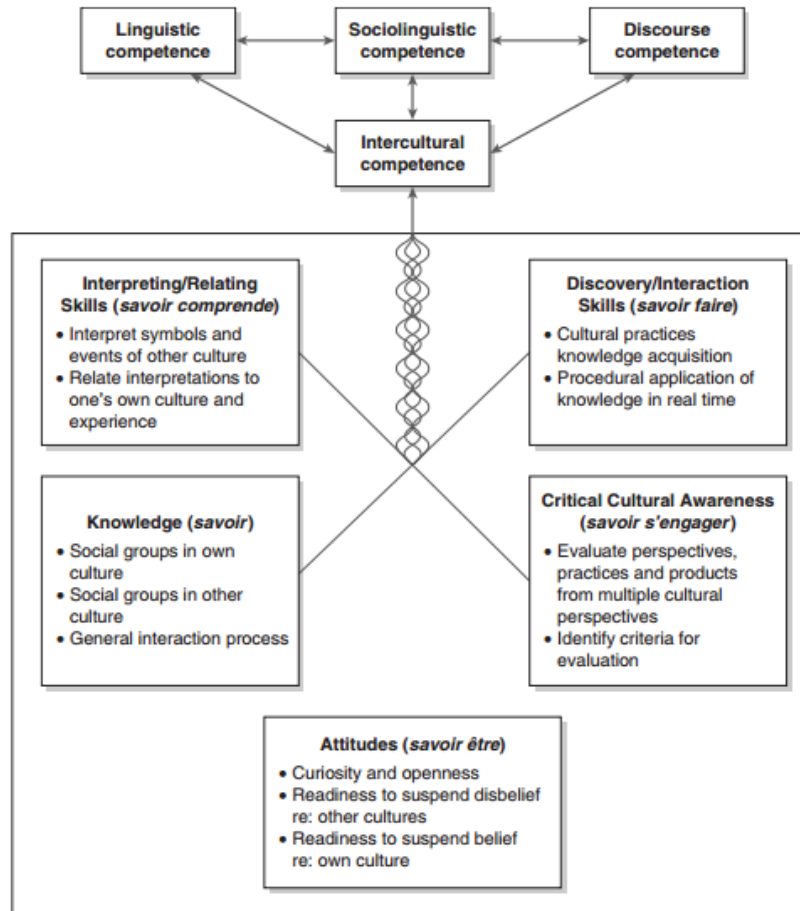


Figure 4. Intercultural Competence Model (Byram, 1997)

Development models recognized one important trait of cross cultural competency, *i.e.* malleability. These models demonstrated the dynamics of cross cultural competency and emphasized the progression of the construct. For example, the Intercultural Maturity Model (King & Baxter, 2005; *Fig. 5*) illustrates the three developmental stages of 3C (initial, intermediate and mature) and the assessment criteria in cognitive, intrapersonal and interpersonal dimensions. Although the progressive models provided strong theoretical support to the 3C definition proposed in the thesis, they do not delve into the process of 3C formation and how 3C functions in cross cultural effectiveness, and thus may be suboptimal to guide 3C instrument development.

Initial Development Level	Intermediate Development Level	Mature Development Level
<ul style="list-style-type: none"> • Cognitive <ul style="list-style-type: none"> ○ Categorical knowledge ○ Naïve about cultural practices ○ Resists knowledge challenges • Intrapersonal <ul style="list-style-type: none"> ○ Lacks awareness of social role intersections (race, class, etc.) ○ Lacks awareness of cultures ○ Externally defined beliefs ○ Differences viewed as threats • Interpersonal <ul style="list-style-type: none"> ○ Identity dependent on similar others ○ Different views are considered wrong ○ Lacks awareness of social systems and norms ○ Views social problems egocentrically 	<ul style="list-style-type: none"> • Cognitive <ul style="list-style-type: none"> ○ Evolving awareness and acceptance of perspectives ○ Shift from authority to autonomous knowledge • Intrapersonal <ul style="list-style-type: none"> ○ Evolving identity distinct from external perceptions ○ Tension between internal and external prompts ○ Recognizes legitimacy of other cultures • Interpersonal <ul style="list-style-type: none"> ○ Willingness to interact with divergent others ○ Explores how social systems affect group norms and relations 	<ul style="list-style-type: none"> • Cognitive <ul style="list-style-type: none"> ○ Able to consciously shift perspectives ○ Use multiple cultural frames • Intrapersonal <ul style="list-style-type: none"> ○ Able to create internal self ○ Challenges own views of social identities (class, race) ○ Integrates self identity • Interpersonal <ul style="list-style-type: none"> ○ Able to engage in diverse interdependent relationships ○ Ground relations in appreciation of differences ○ Understands intersection of social systems and practices ○ Willing to work for others' rights

Figure 5. Intercultural Maturity Model (King & Baxter, 2005)

Adaptational models focused on exploring the process of individual acclimatization, emphasizing the mutual adaptation between two cultures and proposing a significant

moderating effect of contextual factors (Kim, 1988; Gallois et al., 1988; Navas et al., 2005). Kim's (1988) model tended to equate cross cultural competency to adaptation, and pointed out the function of host mass communication, host cultural context in individual's adaptive outcomes like functional fitness, psychological health and intercultural identity (Fig. 6). The adaptational models provided some support to the third feature of 3C proposed in the thesis; namely that objective factors moderate the function of 3C on cross cultural effectiveness. However, they treated adaptation as a developmental construct rather than an outcome, which is distinct from the model proposed in the current thesis where adaptation is one of important outcomes indicating cultural effectiveness. Another potential problem hindering adaptational models from becoming a useful guide for 3C instrument development is that those models included situational factors which were important in explaining the adaptational process but would cause "noise" in personnel selection and self-evaluation.

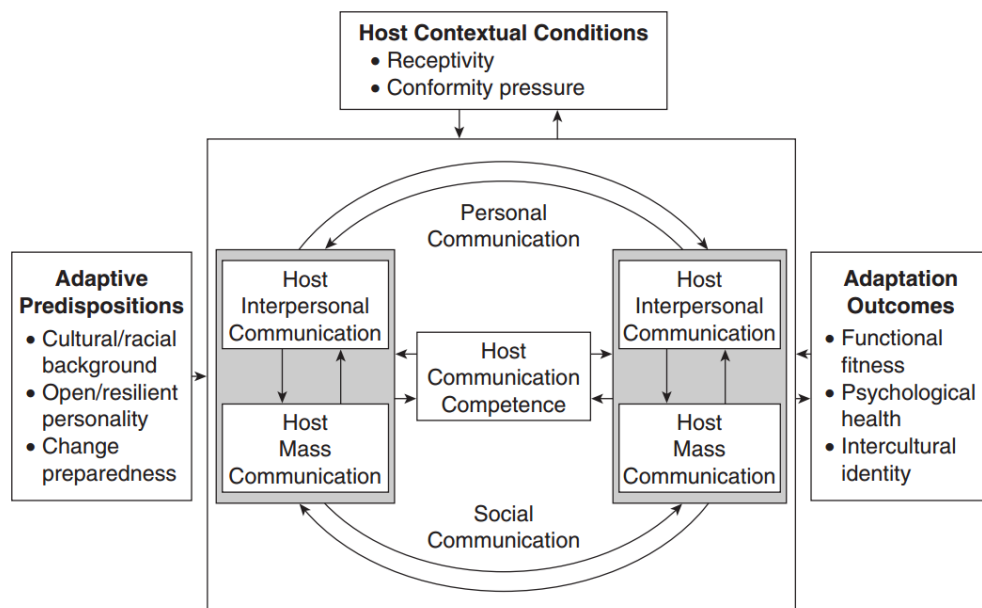


Figure 6. Intercultural Communicative Competence Model (Kim, 1998)

Causal path models were most similar with the proposed model in the current thesis. They articulated the direction of the relationships between two elements in a model. In those models an element or variable influenced or was influenced by another and some elements regarded as moderators or mediators. For instance, in the Multilevel Process Change Model of Intercultural Competence (*Fig. 7*) Ting-Toomey (1999) depicted that a set of change process factors mediated the relationship between antecedent factors and outcome factors. The antecedent factors in three levels (system-level, individual-level and interpersonal level) influenced an individual's behavior to deal with cultural shock, identity change, relationships and the surrounding environment, and thereby yielded different outcomes. Ting-Toomey's model, alike the proposed model, purported that there were a list of antecedents predictive of cross cultural competency.

But there are two major distinctions between Ting-Toomey's model and the thesis model. One distinction is that Ting-Toomey's model included contextual factors, such as the system-level factors, the contact network support and ethnic media, in antecedent domain, while in the proposed model those contextual factors are regarded to moderate the effect of individual's cross cultural competency on the desired internal and external outcomes. Another distinction is that Ting-Toomey hypothesized that the individual behaviors mediated the influence of antecedent factors on intercultural outcomes while the proposed model views those individual behaviors as part of external outcomes. Since the proposed thesis model is expected to serve as a theoretical framework for designing and validating 3C instruments to measure individual cross cultural competency, the treatment of excluding non-individual antecedent variables from individual ones could be more feasible and straightforward for instrument developing and evaluating requirements. In addition, human behavior is driven by thought (Ryan et al., 2011) and reflects "a harmony

of thinking and feeling that supports adaptive behavior” (Lillas & Turnbull, 2009, p. 401). Individual behaviors in cultural diverse situation are the result of negotiating identity across cultures (Ryram et al., 1997) and self/other face (Ting-Toomey & Kurogi, 1998), therefore it is more reasonable and logical to treat individual behaviors as outcomes rather than mediators in a cross cultural competency model.

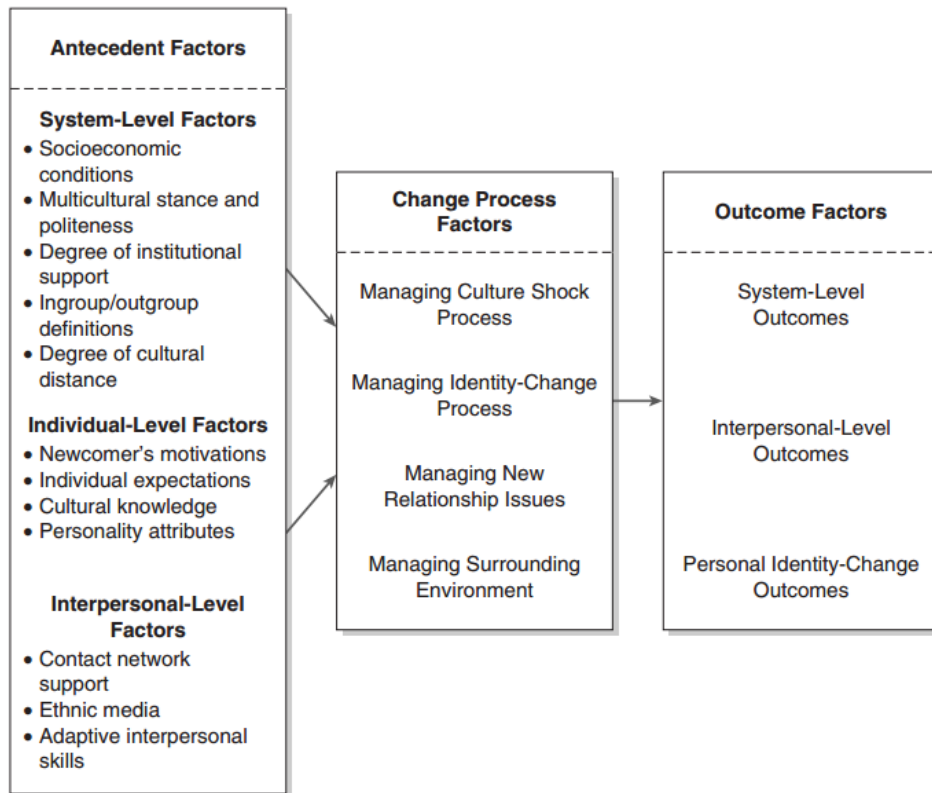


Figure 7. Multilevel Process Change Model of Intercultural Competence (Ting-Toomey, 1999)

2.5.2 The Advantages of the Proposed Thesis Model

Compared with the five main types of the existing models, the proposed thesis model may have some advantages in serving as a theoretical guide for a 3C instrument development and validation. First, it may display a clearer process of cross cultural competency on the desired external and internal outcomes and its relationships with

individual variables and objective contributors which may be beyond individual control. Second, the exclusion of objective factors from individual antecedent variables makes the model feasible for 3C instrument development where only individual-level factors are relevant. Third, the inclusion of individual behaviors, behavior outcomes and psychological health as criteria of cross cultural effectiveness meets both academic and practical requirements.

2.6 Conclusion

This chapter reviewed literature on the definitions and conceptualizations of cross cultural competency, and proposed that *cross cultural competency* was the most suitable name to describe the construct of concern. Then the 3C construct was defined in terms of its widely-agreed function on cross cultural effectiveness. A pragmatic model was created based on the proposed 3C definition and its practical purposes. Compared with the other models, the proposed thesis model displayed advantages over the existing models in serving as a theoretical guide to develop and validate a 3C instrument for expatriate selection and self-evaluation. In the next chapter I explored the critical individual antecedent variables of cross cultural competency to complete the model.

Chapter 3 - Antecedent Variables of Cross Cultural Competency

A variety of antecedents, which influence an individual's level of cross cultural competency, have been explored by scholars (Abbe et al., 2007; Arasaratnan, 2008; Byram et al., 1997; Caligiuri & Tarique, 2009; Deardorff, 2006; Gabrenya et al., 2012; Hannigan, 1990; Harrison et al., 1996; Johnson et al., 2006; Kim, 1998; Navas et al., 2005; Nishida, 1985; Palthe, 2004; Shafaei & Razak, 2016; Shaffer et al., 2006; Tarique & Weisbord, 2013; Ting-Toomey, 1999; van Der Zee & Oudenhov, 2007; etc.). Although many researchers attempted to focus on the antecedent variables of cross cultural competency, they tended to conceptualize the 3C construct differently, adopt distinct models, and utilize widely varying research designs. For example, some researchers focused only on the individual-level antecedents (Abbe et al., 2007; Deardorff, 2006; Johnson, et al., 2006), while others included non-individual antecedents like situational and external precursors (Gabrenya et al., 2012) or system-level antecedent factors (Ting-Toomey, 1999). As defined by the present thesis, cross cultural competency refers to an individuals' capability which is largely determined by individual differences. Therefore, this thesis will exclusively focus on the research and literature on individual-level antecedent variables.

3.1 Disagreements in 3C Antecedent Research

The antecedent/predictor research, both empirical and non-empirical, is fraught with ambiguity, which leads to disagreement on the categorization, denomination, and proposed relationships among 3C individual antecedents.

Categorization disagreement. In 3C research, the same individual antecedents are

often categorized into different domains. One example is the construct of openness. While widely acknowledged as an antecedent in cross cultural competency, some researchers regarded openness as personality trait (Abbe, et al., 2007; Caligiuri & Tarique, 2009; Kim, 1988) while other researchers placed it in the attitude domain (Byram, 1997; Deardorff, 2006). Such categorization disagreement is common in the existing research. For instance, Byram et al. (1997) regarded cultural awareness as an independent domain from skill and knowledge domains, but other researchers categorized cultural awareness into the cognitive domain (Abbe et al., 2007). Imahori and Lanigan (1989) categorized tolerance for ambiguity as a skill but Abbe et al. (2007) classified it under the disposition domain.

Knowledge, attitude, and skills are commonly used 3C antecedent domains (e.g. Howard-Hamilton et al., 1998; O’Sullivan, 1999). However, researchers often conceptualize those domains differently, and researchers even hold differential opinions on the widely accepted attitude domain. In Deardorff’s (2006) model attitudes included respect (valuing other cultures), openness (withholding judgment), curiosity and discovery (tolerance ambiguity), while Abbe et al. (2007) treated motivation as an attitude in their model, and some other researchers proposed the attitude domain should include ethnocentrism vs. ethnorelativism (Bennett, 1986). This variability in the structure of the 3C nomological network considerably slows progress toward the understanding and measurement of the 3C construct.

Denomination disagreement. In addition, it is common to see similar constructs denominated with different terminologies. Quite often different names have been used by researchers to refer to similar 3C individual antecedents. For example, *cultural empathy* refers to “the capacity to clearly project an interest in others, as well as to obtain and reflect a reasonable complete and accurate sense of another’s thoughts, feelings, and/or

experiences” (Ruben, 1976, p. 341), which is similar to *cultural understanding* proposed by Griffith & Harvey (2000), *cultural flexibility* by Shaffer et al. (2006) and *cultural agility* by Caligiuri (2008). The concept also overlaps *cultural awareness* defined by Abbe et al. (2007), *ethnocentrism* (Bennett, 1986), and *mindfulness* defined by Langer & Moldoveanu (2000).

Relational Disagreement. Relational disagreement may be the most serious problem besetting 3C research. Many empirical studies have found that 3C-related variables were highly inter-correlated (Arthur & Bennett, 1995; Bird et al., 2010; Kealey & Ruben, 1983; Shaffer et al., 2006; van Der Zee et al., 2003; etc.). The challenge lies in the positioning of constructs in the nomological network of cross cultural competency. The same individual variables were treated as predictors of 3C in some research, while in other research they were regarded as outcome variables. It can be exceedingly difficult to judge which constructs precede others (Leung et al., 2005). For example, cultural flexibility (Shaffer et al., 2006) was treated as a predictor of cross cultural competency, whilst in other studies cultural flexibility, or similar constructs, was treated as a component of cross cultural competency (Black, 1990). Similarly, ethnorelativism was treated as cross cultural competency in some studies (Caligiuri & Tarique, 2012; Cargile & Bolkan, 2013; Tarigue & Weisbord, 2013) while some researchers regarded it as a predictor of cross cultural competency (e.g. Altshuler et al., 2003; Ting-Toomey & Kurogi, 1998).

Indeed, categorization, denomination and relational disagreements in the academic field leave 3C research largely in a confused state. In the rest part of this chapter I synthesize the empirical and non-empirical literature and create a pragmatic model by extending the model proposed previously for 3C instrument development and validation, in which the key individual antecedents predictive of cross cultural competency are

demonstrated (Figure 8).

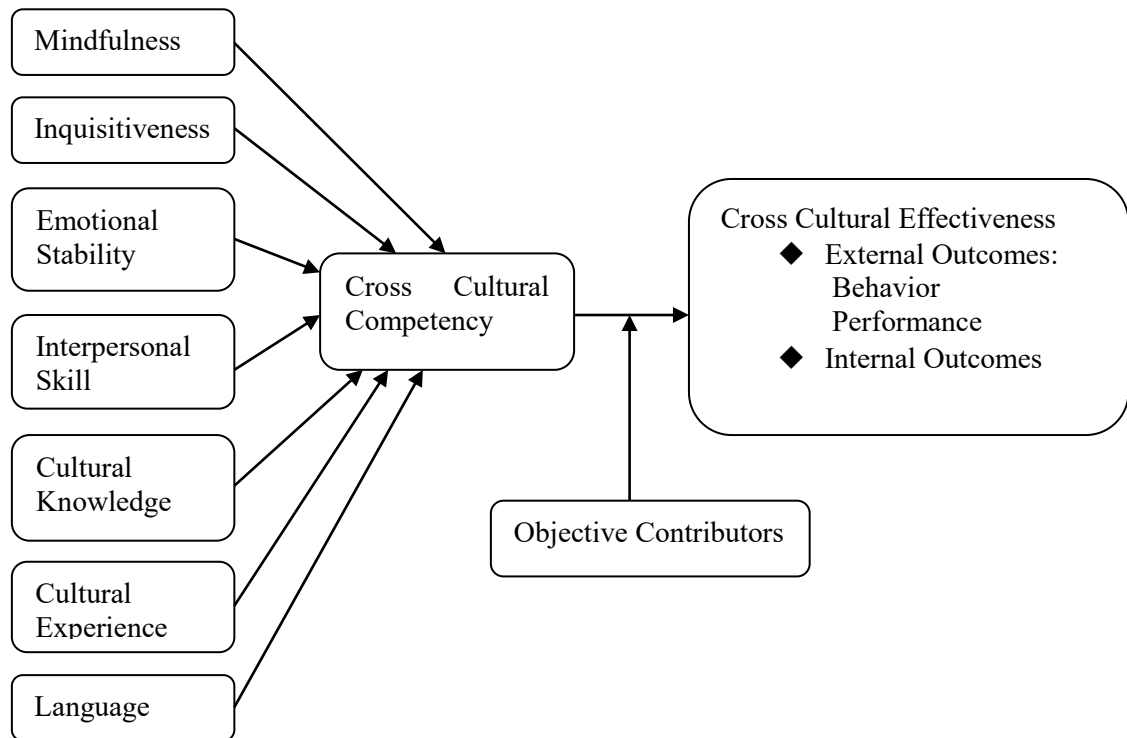


Figure 8. A Pragmatic Model for 3C Instrument Development and Validation

3.2 Mindfulness

Mindfulness, which originated from Eastern Buddhist tradition (Hanh, 1976; Haigh et al., 2011), has been defined as maintaining awareness of momentary experience while withholding judgment (Kabat-Zinn, 1990; Thera, 1962). Mindfulness was introduced to social psychology more than two decades ago, and its best description in this field is to “actively draw novel distinctions” (Langer, 2000). Mindfulness overlaps with many psychological constructs like cognitive ability, self-awareness, and situational awareness (Carroll, 1993; Langer, 2000; Sternberg, 1985, 2000). Sternberg (2000) suggested that

mindfulness “almost certainly” overlapped openness to experience, one of the major Big 5 personality traits. Sternberg also argued that mindfulness was most similar to cognitive style, the assertion Langer (2000) did not completely agree with. Although some disagreement exists over the nature of mindfulness, its five essential components are commonly acknowledged among researchers (Langer, 1997; Goswami et al., 2009; Roberts et al., 2007; Sternberg, 2000; etc). These components are: (1) openness to novelty, (2) alertness to distinctions, (3) sensitivity to different contexts, (4) implicit, if not explicit, awareness of multiple perspectives and (5) orientation in the present (Langer, 1997). Regarding relationships between the five mindfulness components, Langer pointed out that mindfulness revolved around those components which were “really different versions of the same thing”, and each component “leads to the others and back to itself” (p. 6)⁷.

Langer (2000) further explained that “Learning with openness to novelty and actively noticing differences, contexts, and perspectives, makes an individual receptive to changes in an ongoing situation. In such a state of mind, basic skills and information guide our behavior in the present” (p. 23). Burgoon et al. (2000) suggested that elevated levels of mindfulness may play a role in resolving management conflicts and problems caused by intercultural misunderstandings. Attention to distinctions between cultures may arouse international interactants’ recognitions on the discrepancy in assumptions, preference, agendas, unstated values, and behaviors. Thus mindfulness may make cultural differences more explicit, and hence could help international interactants become more tolerant to differences and accommodating to the other’s culture.

The five mindfulness components overlap with some 3C individual antecedents which have been found to be significantly associated with cross cultural competency. Openness to

⁷ Her statement rendered hints on the relational chaos in 3C antecedent variables: are some interrelated 3C antecedent constructs “different versions of the same concept?”

novelty overlaps with openness (Deardorff, 2006; Hunter et al., 2006; etc), open-mindedness (Imahori & Lanigan, 1989), extra-cultural openness (Arthur & Bennett, 1995); alertness to distinctions overlaps with cultural awareness (Deardorff, 2006); sensitivity to different contexts overlaps with cultural agility (Caligiuri, 2013) and self-monitoring (Snyder, 1974); awareness of multiple perspective overlaps with cognitive flexibility (Redden, 1975), cognitive complexity (Abbe et al., 2007), and ethnorelativism (Bennett, 1986); and orientation in the present overlaps with cultural flexibility (Shaffer et al., 2006). Those overlapping constructs are presented in Table 1 and will be discussed in detail.

Table 1

The relationship mapping of 3C-relevant constructs

	3C Individual Antecedents	Definition
Mindfulness Components		
Openness to novelty	Requisite openness attitude (Deardorff, 2006)	Openness to intercultural learning and to people from other cultures (p. 254)
	Openness to experience (Hunter et al., 2006; Caligiuri & Tarique, 2009)	N.A.
	Open-mindedness (Imahori & Lanigan, 1989)	Open and unprejudiced attitude toward other cultural people and values.
	Open personality (Ting-Toomey, 1999; etc.)	N.A.
	Extra-cultural openness (Arthur & Bennett, 1995)	N.A.
Alertness to distinctions	Cultural awareness (Deardorff, 2006; etc.)	To keep aware, value and understand cultural differences, to experience other cultures and to be aware of one's own culture too.
Sensitivity to different contexts	Cultural agility (Caligiuri, 2008)	Meta-competency to work in different situations or with people from different culture

		comfortably and effectively.
	Self-monitoring (Snyder, 1974)	Self-observation and self-control guided by situational cues to social appropriateness (p. 526)
Awareness of multiple perspective	Cognitive flexibility (Redden, 1975)	The degree an individual accept the new ideas and beliefs
	Cognitive complexity (Abbe et al., 2007)	Category width
	Category width (Detweiler, 1980)	The degree of variability to which an individual can endure in a single category of objects or evnets
	Ethnorelativism (Redden, 1975; Bennett, 1986)	The degree an individual don't view western (one's own) cultural value is appropriate for other parts of the world.
	Nonjudgementalness (Bryam 1997, Deardorff, 2006)	Withhold judgment on both one's own and other culture(s)
	Cultural empathy (Ruben, 1976; Hannigan, 1990; etc.)	the ability to participate in other's cognitive behavior and to accurately sense/understand the feelings, thoughts and behaviors of people from a different culture
Orientation in the present	Cultural flexibility (Shaffer et al., 2006; Black, 1990)	the capacity to substitute activities enjoyed in one's home country with existing, and usually distinct, activities in the host country
Other proposed antecedents		
Inquisitiveness	Inquisitive motivation (Bird et al., 2010; etc.)	An active pursuit of understanding, values, norms, situations and behaviors that are new and different (p. 815)
	Learning motivation (Arasaratnam, 2009; etc.)	The desire to engage in intercultural interactions for the purpose of understanding and learning about other cultures (p. 94)
	Curiosity (Spreitzer et al., 1997; Deardorff, 2006; Mendenhall, et al., 2008; Dainty, 2008)	N.A.

Emotional stability	Emotional stability (Costa & McCrae, 1992; Tung, 1981; Shaffer, et al., 2006; Kealey 1996)	Experience and maintain the positive emotional states and control negative emotions when facing stressful events
	Emotional resiliency (Wildman et al., 2016)	Regain emotion balance and bounce back in stressful events
Interpersonal skills	Interpersonal skills (Shaffer et al., 2006; etc.)	N.A.
	Interpersonal engagement (Bird et al., 2009)	The degree to which people have a desire and willingness to initiate and maintain relationships with people from other cultures (p. 817)
	Others-/people-orientation (Shaffer et al., 2006)	Skills and attributes that assist in the development and maintenance of relationships and effective communication with host-country nationals (p. 7)
	Outgoingness or extraversion (O’Sullivan, 1999)	An interpersonal orientation, or willingness to develop interpersonal relationships with people in general (p. 716)
	Sociability and interest in other people (Kealey & Ruben, 1983)	N.A.

*Notes. N.A.: No definition is available in the article(s).

Openness to novelty. People who are open to novelty are open-minded to new information, new environments, new life styles and other new experiences in their life. They tend to withhold judgment when confronting different values, views, or behavioral styles. Openness to novelty enables individuals to be more conscious of the causal influences underlying those differences. Therefore, they are more aware of context, other people’s perspectives, and are less influenced by their own past experience (Langer, 2000). The concept of openness to novelty is similar to the concepts of requisite openness attitude (Deardorff (2006), openness to experience (Caligiuri & Tarique, 2009; Hunter et al., 2006), open-mindedness (Imahori & Lanigan, 1989), open personality (Ting-Toomey, 1999) and

extra-cultural openness (Arthur & Bennett, 1995). Those with high levels of openness to novelty are open to extra-cultural learning as well as to people from other cultures. They are more likely to respect different cultural values, and are ready to suspend disbelief in other cultures while withholding beliefs from their own culture (Byram, 1997; Deardorff, 2006; Hunter et al., 2006).

Openness has been found to be significantly related with cross cultural competency or relevant constructs in a number of empirical research studies (Deardorf, 2006; Kim, 1988; Shaffer et al., 2006; Ting-Toomey, 1999; etc.). Shaffer and colleagues (2006) examined the effects of personal traits and behaviors on individual cross cultural competency among international assignees, and found openness to experience significantly predicted cultural flexibility, “the capacity to substitute activities enjoyed in one’s home country with existing, and usually distinct, activities in the host country” (*p.* 12).

Shaffer’s findings were supported by another empirical study conducted by Tarique and Weisbord (2013). In order to avoid the potential confound of previous international working experience, the study was conducted among 159 participants from more than 50 countries who had no international working experience. The results suggested that openness to experience was positively related to cultural flexibility ($r = 0.17, p < 0.05$).

Alertness to distinctions. Alertness to distinctions includes both perceptual speed and conceptual induction (Sternberg, 2000). People, who are alert to distinctions, can perceive differences quickly and tend to quickly analyze the gap between what *they think* is happening and what is *actually* happening. They are more skillful in objectively defining the nature of a problem and making more accurate judgments through comparing and contrasting elements in the problem set. In culturally complex environment where people interact with others from different cultural backgrounds, being vigilant to distinctions and

analytical thinking enable them to yield win-win solutions to conflicting needs and preferences (Burgoon et al., 2000).

Alertness to distinctions is similar to the concept of cultural awareness in cross cultural competency (Byram, 1997; Deardorff, 2016; Kupla, 2008; etc.). Cultural awareness is comprised of three parts: self-awareness of one's own culture, awareness of other's culture, and awareness of the discrepancy between cultures and cultural influence on individuals' values, beliefs and behaviors. The essence of cultural awareness is alertness to distinctions between home and host cultures. Cultural awareness facilitates the generation of culturally appropriate behaviors in cross cultural communication and interactions. Such alertness has been found to be an effective adjustment intervention for the psychological health and intercultural interactions of Australian managers who worked in south-east Asia (Fish, 2003). In a qualitative study, the analysis on the outcomes of open-ended and semi-structured interviews among senior managers of multinational companies in China suggested that cultivating cultural awareness of the local culture largely improved relationships with local partners, and eliminated conflicts in management (Buckley et al., 2006).

Research has suggested that without adequate levels of alertness to cultural distinctions, overseas assignees are more likely to fail in their assignment. For instance, Christopher et al. (2014) illustrated that American psychologists failed in helping people in Sri Lanka after the 2004 Indian Ocean tsunami because they lacked awareness of the significant cultural discrepancies between their values and local values of Sri Lanka. In a word, both empirical findings and anecdotal illustrations have demonstrated that alertness to distinctions, or cultural awareness is essential for cultural effectiveness.

Sensitivity to different contexts. People's thoughts and performance often vary with

context (Sternberg, 2000). Research has demonstrated the major effect context plays on people's behavior (Ceci & Bronfenbrenner, 1985; Nunes, 1994). People performed much better in solving problems when considering realistic relevant contexts (Lave et al., 1984; Nunes, 1994). If this effect generalizes, perhaps those engaged in cultural diverse communication and interactions may also benefit from sensitivity to context. Sensitivity to context may have significant overlap with constructs predictive of 3C, such as cultural agility (Caligiuri, 2008) and self-monitoring (Snyder, 1974). A culturally agile person can "quickly, successfully and comfortably assess cross-cultural situations and appropriately adapt based on the needs of cultural and business contexts" (Caligiuri, 2008, *p.* 235). Self-monitoring refers to "an acute sensitivity to the cues in a situation which indicate what expression of self-presentation is appropriate and what is not" (Snyder, 1974, *p.* 527). An individual skilled in self-monitoring is more likely to show concern for the appropriateness of his/her words and behaviors and tend to adjust his/her words or behaviors based on context.

Research has demonstrated that individuals with higher sensitivity to context tend to be less behaviorally consistent across situations and more situationally-flexible than those with lower sensitivity (Gudykunst & Nishida, 1984; Snyder & Monson, 1975). In early research, self-monitoring was found to be positively related to overall individual performance ($r = .29, p < .01$) (Caldwell & O'Reily, 1982) and the extent to which individuals controlled their expression and self-presentation behavior (Snyder, 1974). The immigrant and expatriate literature also supported the notion that people more sensitive to contexts were more flexible in adjusting their behavior to be consistent with the host culture (Day et al., 1996; Finney & Von Glinow, 1988). American expatriates in Europe who were higher in self-monitoring reported feeling more adjusted to life in a new culture

and more comfortable interacting with people from different cultural backgrounds (Harrison et al., 1996); Polish immigrants in Rome with high self-monitoring were more likely to choose assimilation strategies to replace their native cultural behaviors with habits consistent with the host culture (Berry et al., 1989), an effective strategy for adaptation (Kiosic et al., 2005).

Awareness of multiple perspectives. There is no universal “good” culture or “bad” culture. Culture is formed gradually from the joint forces of geographical, economical, and other factors, and in turn influences peoples’ values, beliefs, and lifestyles. In culturally diverse contexts it is common for people to hold discriminatory views owing to their differentiated cultural perspectives and assumptions. Awareness of multiple perspectives, the tendency to view things from different and sometimes opposing viewpoints, is a critical contributor to problem solving and success (Sternberg, 2000). Perspective taking may elicit better performance based on numerous experiments in the education context (Lieberman and Langer, 1997).

When examined in the context of cross cultural competency, awareness of multiple perspectives is similar to the concepts of cognitive flexibility (Redden, 1975), cognitive complexity (Abbe et al., 2007), category width (Detweiler, 1980), non-ethnocentrism (Bennett, 1986), non-judgementalness (Bryam 1997, Deardorff, 2006) and cultural empathy (Abbe et al., 2007; Hannigan, 1990). Increasing cognitive complexity when attempting to understand a specific culture helps people to interpret their experience in unexpected situations, and to apply the new knowledge in future situations (Abbe et al., 2007). Cognitive complexity is operationalized in terms of category width by Detweiler (1975) which was defined as “a consistent preference for broad inclusiveness in categories as opposed to narrow exclusiveness” (Carroll, 1993, p. 554). Expatriates with broader

category width demonstrate a larger amount of variability in a single category of objects or events, and can accept and embrace more perspectives and cultural paradoxes (Abbe et al., 2007). Therefore, they are less likely to consider their own culture, beliefs, values and perspectives as “right” (ethnorelative rather than ethnocentric). They are also more likely to consider multiple perspectives when dealing with conflicting cross cultural issues. Ethnorelative expatriates tend to integrate their worldview with others to resolve actual or perceived incompatibility in cross cultural interactions.

Awareness of multiple perspectives overlaps with the construct of cultural empathy, the ability to participate in other’s cognitive behavior and to accurately sense and understand the feelings, thoughts, and behaviors of people from different cultures (Deardorff, 2009; Ruben, 1976; Spitzberg & Cupach, 1984; Van der Zee et al., 2003). Empathy demands “a shift in frame of reference”. It is an ethnorelative construct, presuming difference and a readiness to suspend one’s own world view to participate in a novel one (Ting-Toomey & Kurogi, 1998). The ability to shift one’s frame of reference to conform to cultural context is believed to be associated with cross cultural competency by most intercultural scholars. In Deardorff’s (2006) survey all participating scholars agreed that understanding other’s worldviews was a specific component of cross cultural competency.

Orientation in the present. People who pay attention to the present situation are more aware of context and less controlled by their past experience and previous mindsets (Langer, 1989). Home cultures influence the formation of people’s worldviews and behavioral patterns. If expatriates fail to orient themselves in the present situation of the host culture, their thoughts and behaviors would be rigidly reliant to norms, values, and beliefs formed by their earlier home culture experience. They then may feel more frustrated

and dissatisfied with the new, often conflicting, cultural circumstances, and hence be more likely to miss their past life or previous work circumstances, and experience withdrawal intentions. Past experience may prevent them from appreciating the present and from learning new cultural information and knowledge that are helpful for their adaptation in the host environment. Past-oriented expatriates would be more likely to withdraw from their expatriate assignments because past experience magnifies the perceived cultural discrepancy and the negative emotions associated with maladaptation (Kim, 1988).

On the contrary to orientation in the past (which may make individuals less culturally flexible), focusing on the present enables people to replace their old interests and activities with local ones (Shaffer et al., 2006). Such transformation helps them adapt to the new culture as well as enhance their self-esteem and self-confidence (Mendenhall et al., 1985). Orientation in the present reflects cultural flexibility, which was proposed to influence expatriate adaptation and adjustment in host cultures (Black, 1990), and has been found to be positively related to cultural adjustment ($r = .31, p < .01$) (Shaffer et al., 2006).

The overlaps between the components of mindfulness and some 3C antecedents partially explain the existing confusion and disputes on denomination, categorization, and relation in 3C research. The level of an individual's mindfulness may efficiently capture the variance associated with those 3C antecedents. Therefore, when it comes to cross cultural measure design, a reliable and valid measure of mindfulness may be sufficient to assess many of those 3C antecedents and decrease the instrument's complexity.

3.3 Inquisitiveness

Motivation is one of most frequently examined factors associated with cross cultural competency (Abbe et al., 2007; Arasaratnam, 2009; Arthur & Bennett, 1995; Gabrenya et

al., 2012; Imahori & Lanigan, 1989; Kupla, 2008; etc.). Many studies specified motivation as acquisition or inquisitive motivation (Ang et al., 2007; Arasaratnam, 2009; Gabrenya, 2012). Arasaratnam (2009) defined this type of motivation as “the desire to engage in cultural interactions for the purpose of understanding and learning about other cultures” (p. 94); Ang et al. (2007) articulated that motivation in their cultural intelligence model was “the capability to direct attention and energy toward learning about and functioning in situations characterized by cultural differences” (p. 338). Learning motivation was also referred to as inquisitiveness by some researchers (Black et al., 1999; Bird et al., 2010), and was defined as “an active pursuit of understanding ideas, values, norms, situations, and behaviors that are new and different” (Bird et al., 2010, p. 815). Inquisitiveness or learning motivation is related to the concept of curiosity proposed by some researchers (Dainty, 2008; Deardorff, 2006; Mendenhall, et al., 2008; Spreitzer et al., 1997) and reflects actively seeking opportunities for learning (Arasaratnam, 2009; Bird et al., 2010; etc.).

Learning motivation is viewed as an individual difference and is a precondition of acquisition behavior, acquired knowledge, and knowledge application (Gabrenya et al., 2012). Expatriates with higher acquisition motivation presumably inquire cultural knowledge more frequently and are more likely to apply the acquired knowledge in solving problems encountered in the new cultural context. When expatriates learn new cultural knowledge and update their knowledge base, their category width will be broadened and their cognitive complexity will be elevated (Abbe et al., 2007). Therefore, their overall cross cultural competency can be improved.

Empirical studies on inquisitiveness in the context of cross cultural competency are relatively rare, but some relevant findings exist. Black et al. (1999) found that inquisitiveness was viewed as one of the major capabilities of effective global leaders in

their three-year research among more than 130 executives in 50 companies located in Europe, North America and Asia. In another longitudinal study in a Malaysian university, Gong and Fan (2006) found that learning oriented international undergraduate students appeared to be higher on academic and social self-efficacy, and were more adjusted in both academic and social environments. Messelink & Thije (2012) also found that among intercultural students and recent graduates with a wealth of overseas experience, inquisitiveness was a key characteristic enabling those participants “to expand common ground and achieve unity due to diversity in multicultural teams” (p. 93). When Kawashima (2008) examined the cultural competency of a sample of 1035 Japanese nurses, he found inquisitiveness was a significant predictor ($\beta = .141, p < .001$). His finding was consistent with the conclusion of Doutrich and Storey’s (2004) study that inquisitiveness was significantly related with cultural knowledge, skills and attitudes ($r = .66$).

Overall empirical findings have indicated that learning motivation, inquisitiveness, or curiosity, is a reliable individual-level antecedent of cross cultural competency. When dealing with culturally unfamiliar people or situations, the desire to learn helps people to actively collaborate with others and get culturally adapted.

3.4 Emotional stability

In my cross cultural competency workshops⁸ participants were asked to write down their feelings after a cultural simulation activity (*Bafa Bafa*). Most of the feelings reported by participants were negative and surprisingly similar: confused, frustrated, scared, isolated, angry and anxious. The reported negative emotional reactions reflect the fact that individuals tend to experience disequilibrium in an unfamiliar cultural context. Kim (1988)

⁸ The 3C workshop is a part of Quality Enhance Program of my university. It provides of the cross cultural competency training for all the first year students to prepare them for the cultural diverse campus life.

explained that when people came to a foreign country, cultural discrepancy would break existing consistency in their internal structure because “human systems are characteristically homeostatic” (p. 54). People in a state of disequilibrium will inevitably experience stress, which may trigger negative emotions. Stress and negative emotions are likely to adversely influence job performance (Chi et al., 2013; Kaplan et al. 2009; Yang & Diefendorff, 2009), and expatriates may become aggressive, demonstrate defensive reactions to the host culture, or become narrow-minded (Kim, 1988).

In contrast, positive emotions may broaden people’s momentary thought-action repertoires (Fredrickson, 2001), and broader repertoires provide the expatriate more flexible solutions to unexpected issues occurring in the new environment (Bell & Harrison, 1996). Therefore, emotional stability (Costa & McCrae, 1992; Kealey 1996; Shaffer, et al., 2006; Tung, 1981), or emotional resiliency (Wildman et al., 2016), is a critical antecedent variable to an individual’s cross cultural competency and thereby impact cultural effectiveness. Emotional stability reflects an individual’s capacity and capability to control and manage their emotions in challenging situations. Those who are more emotionally resilient are more likely to manage the challenges of the host environment (Bird et al., 2009; Kim, 1988).

Empirical research has also revealed that emotional stability is positively associated with cross cultural competency. Ones and Viswesvaran (1999) used a policy-capturing methodology to assess the importance of an expatriate’s personality traits in accomplishing overseas assignments among managers engaged in expatriate staffing and management. The results showed that emotional stability was one of the most important personal traits to predict job performance ($\beta = .25$)⁹, overseas adjustment ($\beta = .28$), assignment completion ($\beta = .27$), and interpersonal relationship building with locals ($\beta = .24$). Shaffer et al. (2006)

⁹ The original article didn’t provide *p*-values because it was primarily based on meta-analysis.

conducted a series of studies among expatriates from different nations to test the direct and indirect effects of individual differences on cultural effectiveness, and found that an individual's emotional stability strongly influenced expatriate withdrawal cognitions ($r = -.30, p < .01$). Similar effects were also found in expatriates working in Japan (Peltokorpi & Froese, 2014) in that emotional stability partially predicted expatriates' cross cultural adjustment.

Research has also demonstrated that a lack of emotional stability was likely to amplify the effect of stressful environments (Ormel, et al., 2001) and emotionally unstable expatriates were more likely to make hasty decision to leave assignments (Caligiuri, 2000a). Thus emotion stability, the individual's ability to control negative emotions when facing frustrations and challenges caused by uncertainty or conflict, is likely an important antecedent to an individual's cross cultural competency.

3.5 Interpersonal skills

Interpersonal skills or relational skills have been discussed and studied by many cultural scholars, and was proposed as one of critical factors associated with cross cultural competency and global leadership (Arthur & Bennett, 1995; Byram, 1997; Deardorff, 2006; Hammer et al., 1978; Ting-Toomey, 1999). Different terms have been used for the same or similar concept, such as interpersonal engagement (Bird et al., 2009), other-/people-orientation (Shaffer et al., 2006), interpersonal skills (Abbe et al., 2007; Bird et al., 2009; Shaffer et al., 2006), outgoingness or extraversion (Arthur and Bennett, 1995; O'Sullivan, 1999), sociability and interest in other people (Kealey & Ruben, 1983). Both interpersonal engagement (Bird et al., 2009) and people orientation (Shaffer et al., 2006) refer to the desire and willingness to building interpersonal relationships, and outgoing,

extraversion, sociability, and interest in other people are personality traits and psycho-social factors underlying such a desire and willingness. Interpersonal skills, or relational skills, seem to lie in another domain, and they are neither desire nor trait, but the communication and interaction competencies to build relationships with people. Abbe et al. defined interpersonal skills as the ability to “communicate effectively and build relationships with individuals from other cultures” (2007, *p.* 1). The desire and willingness to build relationships enhances the development of interpersonal skills, which in turn reinforce people’s desire and willingness in a positive feedback loop.

First, interpersonal skills include communicative skills like listening, observing, discovering, evaluating, analyzing, interpreting, and relating (Byram, 1995; Deardorff, 2006). These skills ensure smooth communication and help to reduce/avoid misunderstanding among people with different cultural backgrounds. Expatriates with good interpersonal skills can appropriately deliver their ideas to recipients and at the same time ensure that their ideas are accurately interpreted by recipients. Interpersonally skillful expatriates are more sophisticated in exploring the information they receive and can accurately understand and interpret those input information. Second, interpersonal skills across cultures, especially for expatriates or global leaders, include using communicative strategies to weave social networks with local business partners, one of major tasks for expatriate assignees. Communicative strategies include, but are not limited to, respect, displaying kindness, courtesy and sincerity, and using empathy, etc..

In the Delphi study among the top cross cultural scholars and administrators (Deardorff, 2006), good interpersonal skills were rated as one of basic intercultural competence elements with 80% to 100% agreement. Shaffer et al. (2006) recommended that functioning effectively in cross cultural contexts required strong interpersonal skills,

and suggested that interpersonal skills be considered along with technical competency when international HR managers are selecting expatriates. Arthur and Bennett (1995) carried out a survey among 338 international assignees in 45 multinational companies across 20 countries and the results showed that relational skills were regarded by those assignees as a major contributor to the success of overseas assignments regardless of job types. Those international assignees in service organizations rated relational skills more important than job knowledge and motivation (Arthur & Bennett, 1995).

3.6 Cultural knowledge

Cultural knowledge is regarded as a critical antecedent for cross cultural competency by many researchers (Arthur & Bennett, 1995; Byram, 1995; Deardorff, 2006; Gabrenya et al., 2012; Howard-Hamilton et al., 1998; Imahori & Lanigan, 1989; Johnson et al., 2007; Ting-Toomey & Kurogi, 1998; Ting-Toomey, 1999). Culture knowledge was proposed as a precondition of intercultural communication and effective outcomes in intercultural interactions (Byram, 1997; Imahori & Lanigan, 1989; Ting-Toomey & Kurogi, 1998). It includes culture-general knowledge, culture-specific knowledge (Byram, 1997; Deardorff, 2006; etc.), and additionally some researchers recommended knowledge of interaction rules and processed as a third type of cultural knowledge (Byram, 1997; Imahori & Lanigan, 1989).

Culture-general knowledge involves the understanding of cultural values and dimensions (e.g. Hofstede, 1984; Schwartz, 1994), cultural roles and their impact on an individual's beliefs, values and behaviors. Culture-specific knowledge can be divided into knowledge of one's own culture and knowledge of the host's culture. Knowledge of one's own culture is one basis of self-awareness. By knowing one's own culture, expatriates can

recognize the strength and weaknesses of their own culture and maintain awareness that their home cultural values and norms may lead to some stereotypes and bias. Knowledge and awareness of the host culture is the foundation of extra-cultural awareness. It is a crucial contributor for expatriates when adapting to host cultures (Varner & Palmer, 2005). With the assistance of the host cultural knowledge, expatriates can comparatively easier to understand local people's behaviors and thoughts.

Culture-general and culture-specific knowledge are declarative knowledge regarding working/living in cultural diverse contexts, while knowledge of the communicative/interactive rules in another culture is kind of procedural knowledge. Such procedural knowledge may be equally important in achieving an effective relational outcome (Imahori & Lanigan, 1989). Imahori & Lanigan suggested that knowing the rules that govern interactions should be included in the expatriate knowledge dimension. They also suggested that intercultural interaction should be skill-oriented and outcome-oriented, and that interactive appropriateness be a necessity for cross cultural effectiveness. The knowledge of interactive and communicative rules and norms can help expatriates be alert to normative expectations in intercultural interactions, and avoid inappropriate words and behaviors (Wiseman, 2002).

Thus, cultural knowledge provides expatriates of an important resource to understand new cultural situations and to communicate with locals. Without cultural knowledge cultural shock will be more distressing. Some researchers have expressed the notion that cultural knowledge is the most important component to make international assignees competent in intercultural assignments (Arasaratnam and Doerfel, 2005), which may be the reason why most expatriate training programs focus on cultural knowledge.

3.7 Cultural Experience

Overseas experience, or other cross culture experiences, has been suggested to be an important antecedent to cross cultural competency (Abbe et al., 2007; Arasaranam, 2008; Arasaratnam & Doerfel, 2005; Black, et al., 1991; Benet-Martinez et al., 2006; Hammer et al., 2003; O'Sullivan, 1999; Tarique & Weisbord 2013). Such experiences could be categorized into different dimensions such as living abroad, working abroad, studying abroad, travelling abroad, family diversity, culture-related training, and personal contact or relationships with people of different cultural backgrounds (Arasaranam, 2008). Those experiences may increase people's ability to detect and process the unique but implicit values underlying a different culture, and cultivate their cognitive complexity and psychological maturity to handle cultural discrepancy and cultural shock (Abbe, et al., 2007; Hammer et al., 2003). Exposure to more than one culture may also raise people's awareness of the potential benefits of multiculturalism (Benet-Martinez et al., 2006).

In an interview investigation of participants representing 15 different countries, the participants described their personal experience as the basis of competent intercultural interactions (Arasaratnam and Doerfel, 2005). The follow-up study confirmed the positive relationship between cultural experience and attitude to other cultures ($\beta = .13, p < .01$) (Arasaratnam, 2009). Another empirical study yielded similar results demonstrating that individuals who had more early international experiences were more tolerant of ambiguity and showed more flexibility in multicultural interactions. In addition, individuals who experienced greater cultural dissimilarity showed less ethnocentrism (Tarique & Weisbord, 2013).

3.8 Foreign Language

Although language competency is often ignored by 3C researchers, it is an important factor which directly influences individuals' cross cultural competency (Abbe et al., 2007; Brislin, 1981; Byram, 1997; Fantini, 1995; Kupla, 2008; Imahori & Lanigan, 1989; Okazaki-Luff, 1991). Speaking the same language makes communication less effortful. Without a common language, intercultural communication and cooperation is almost impossible. The competent use of the host country language is critical to cultural adaption. Take expatriate selection as an example; HR professionals often put the priority to whether the candidates have reached a certain level of the foreign language. However, only a few cultural researchers mention it (Abbe et al., 2007; Byram, 1997; Fatntini, 1995; Huff, 2013; Kupla, 2008;) probably because foreign language competency is often taken for granted in cross cultural communication. Besides, the dominance of English as the universal language of science and business de-emphasizes the need to learn additional languages.

3.9 Conclusion

Based on the literature review on the individual antecedent variables of cross cultural competency, the finalized proposed thesis model (Figure 9) illustrates that mindfulness, inquisitiveness, emotional stability, interpersonal skills, cultural knowledge, cultural experience and foreign language proficiency jointly contribute to an individual's cross cultural competency. The model provides a reference framework for 3C instrument design in attempt to largely reduce the conceptual overlap among 3C antecedent dimensions, and thereby avoid repeated or redundant measurement of the same (or similar) antecedent constructs. However, all antecedent variables may not be measured within a single

instrument. For example, language proficiency can be evaluated by a separate instrument such as English proficiency with the TOEFL. And an individual's cultural experience can be easily retrieved from candidates' demographical and biological history, and culture specific knowledge can be assessed by pencil-and-paper tests. Indeed, 3C instruments are expected to measure those more latent and intangible psychological antecedents such as mindfulness, inquisitiveness, emotional stability and interpersonal skills.

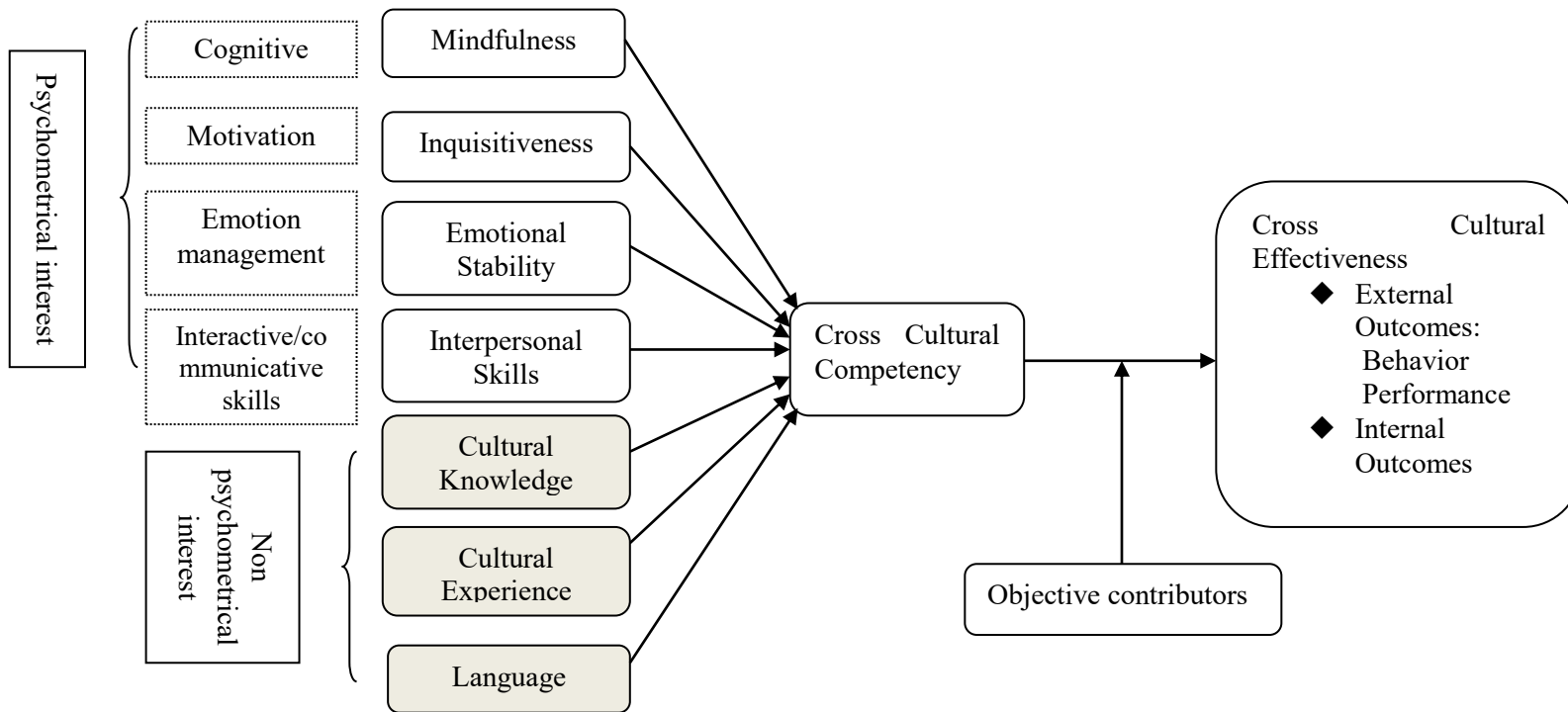


Figure 9. The finalized model of 3C antecedents

Chapter 4 – The Cross Cultural Competence Navigator (3CN)

4.1 Existing 3C instruments

There is an abundance of research on the antecedents associated with cross cultural competency. These studies have yielded some important findings, however, these findings have not always been successfully leveraged to develop psychometrically sound instruments. The gap between science and practice remains quite large and few attempts have been made to close this gap.

When reviewing the 3C measurement field, in addition to psychometric problems (Gabrenya et al., 2012; Mastumoto & Hwang, 2013) (See Section 2.2), I have identified other practical problems that may potentially hinder the development of applied measures.

First, many 3C instruments are quite lengthy. Many of the existing 3C instruments are comprised of subscales measuring individual attributes across multiple dimensions. As a result, those instruments often contain an excessive number of items, which may hinder measurement in an applied setting. For example, the Multicultural Personality Questionnaire (van der Zee & van Oudenhoven, 2000) contains 91 items, the Intercultural Adjustment Potential Scale (Matsumoto et al., 2001) contains 55 items, and Cross-cultural Adaptability Inventory (Kelly & Meyers, 1987) contains 50 items. The completion of each questionnaire illustrated above requires 20-45 minutes to complete at a normal speed. A benefit of a large number of items are reliable subscales, however, the more items an instrument contains, the more time needed to complete the measurement, which is often a concern for practitioners who emphasize brevity.

While positive psychometric results are possible, too many items in an instrument also have the potential to undermine the quality of the measuring results. Longer questionnaires are associated with lower response rates (Yammarino et al., 1991) and lower completion rates (Galesic & Bosnjak, 2009). Researchers suggested that a questionnaire requiring 20 minutes or more to complete obtained lower response rates than those requiring 10 or less minutes (Crawford et al., 2001; Marcus et al., 2007). In addition, longer questionnaires are more likely to lead to uniform answers (Herzog & Bachman, 1981). Galesic & Bosnjak (2009) found that in long questionnaires the responses to later questions were faster and more uniform than those to questions positioned near the beginning. Long assessments may challenge a respondent's patience, as cognitive resources are depleted causing fatigue, and as a result, participants were more likely to complete lengthy assessments hastily. Therefore 3C instruments with too many items may not be favored in application settings, and results may not reflect the real competency level of the participants due to measurement error.

Second, it is not uncommon to see mis-categorized items in existing 3C instruments. The major reason may be confusion in conceptualizing 3C and its antecedents as discussed in Section 3.1. For example, in MPQ-65 (van Oudenhoven et al., 2003) the three items, "*Is insecure*", "*Is nervous*" and "*Is under pressure*", were listed respectively in three subscales of *Emotional Stability*, *Openmindedness*, and *Cultural Empathy*, although the three items are more associated with negative emotions and perhaps more suitable to be lie in the same domain of emotional stability. Another example is ICAPS-55 (Matsumoto et al., 2001) where some items in *Openness*, *Flexibility* and *Creativity* dimensions overlapped in content: the same item "*I am a traditional person*" appeared repeatedly in *Flexibility* and *Creativity* dimension; and the item in *Flexibility* domain "*I think women should have as much as*

sexual freedom as men” seemed more reflective of *Openness* than *Flexibility*¹⁰.

Third, the results of 3C assessment often do not provide the respondents with in-depth insights on their cross cultural competency. Many 3C instruments produce a final score of respondent’s cross cultural competency but don’t provide of sufficient feedback. Raw scores actually make little sense to users, who are unlikely to accurately understand the results without context and interpretation. Thus, respondents can’t determine their strengths and weakness in multicultural communication and interactions for the self-development purpose. HR professionals, who simply depend on rank ordered scores to select expatriates but fail to understand the distinctions among the scores, cannot effectively utilize the measure results for future training and developing considerations.

4.2 Cross Cultural Competence Navigator (3CN)

4.2.1 The Introduction of the 3CN

Measure Purposes. The Cross Cultural Competence Navigator (3CN) was designed to reliably and validly measure individual differences in the antecedent variables which contribute to an individual level of cross cultural competency. By measuring the antecedent variables, 3CN is expected to provide meaningful evidence for HR professionals to select persons who will benefit from 3C training and/or intercultural experiences and who are more likely to be successful in expatriate assignments. In addition, the measure may be useful for those want to develop their proficiency in managing challenges in cultural diverse contexts. Also, the 3CN reports provide feedback and recommendations for individuals to improve their cross cultural competency.

Measure scale and items. 3CN is a 30-item questionnaire encompassing five

¹⁰ Actually Openness, Flexibility, Creativity, Open mindedness and Cultural Empathy in the two instruments fall into mindfulness in the proposed thesis model (see Chapter 3).

predictors that “are designed to identify whether someone is likely to be successful in cross cultural settings”¹¹. The five predictors assessed in the 3CN are MINDFULNESS, BROAD PERSPECTIVE, RAPPORT, ACCEPTANCE and PERSERVERENCE. Each predictor domain has 6 items, and all of the items are written in a short sentence with simple English words, which can reduce response bias caused by cognitive fatigue and potential limitation of English proficiency¹². Items are randomized across predictor domains to reduce respondent’s faking behaviors (McFarland et al., 2002), and 6 items are reverse-scored to reduce acquiesce bias (Barnette, 2000). The questionnaire can be completed within 8-10 minutes at average reading speed. A 5-point Likert scale is used for the ratings: 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Disagree Nor Agree*, 4 = *Agree*, and 5 = *Strongly Agree*. MINDFULNESS focuses on assessing the respondent’s level of self-awareness, BROAD PERSPECTIVE assesses the extent to which the respondent desires to inquire other cultures and values, RAPPORT evaluates the respondent’s interpersonal skills in building and maintaining relationships, ACCEPTANCE assesses the extent to which the respondent is able to acknowledge different cultures, and PERSERVERENCE evaluates the respondent’s emotional stability and resilience. The item samples in each predictor are listed in Table 2.

¹¹ From the introduction part of 3CN Insight Report.

¹² 3CN is expected to be used not only by English native speakers but also by those English as a foreign language.

Table 2

The predictor domains and the item samples of 3CN

Predictor domains	Item Samples
MINDFULNESS	Understanding who I am is important to me.
BROAD PERSPECTIVE	I am appreciate opportunities to learn about different traditions
RAPPORT	I enjoy working with international coworkers.
ACCEPTANCE	Being in a new situation is a positive experience.
PERSEVERENCE	I do not let setbacks get me down.

4.2.2 The Mapping of 3CN Constructs to the 3C Antecedents in the Proposed Thesis Model

The 3CN was not designed to measure all individual-level antecedent variables illustrated in the proposed thesis model. It only examines individual differences in five psychometric constructs predictive of an individual's cross cultural competency, i.e. mindfulness (self-awareness), broad perspective (the width of perspective), acceptance (acceptance of other cultures), rapport (interpersonal skills on cross cultural interaction) and perseverance (emotional stability/resilience). These constructs are referred to as factors to success in cultural diversity. To what extent do the five predictors in 3CN reflect the 3C psychometric antecedents in the proposed thesis model? With scrutiny on the item content, I mapped the five predictors in 3CN against the 3C antecedents in the thesis model which have been supported by theoretical and empirical evidence (see Table 3).

Table 3

The mapping between 3CN predictors and 3C antecedents in the proposed model

Predictors in 3CN	3C Antecedents in the Model
MINDFULNESS	Mindful cognitive style
BROAD PERSPECTIVE	Inquisitive motivation
RAPPORT	Interpersonal skills
PERSEVERENCE	Emotional stability
ACCEPTANCE	

In the MINDFULNESS domain the six items are consistently associated with self-awareness of the impact of the respondent's past experience, values and assumptions on his/her present behaviors and attitudes. The predictor falls into mindful cognitive style in the proposed model, although the latter has a wider scope, broader than self-awareness. The 6 items in BROAD PERSPECTIVE focus on evaluating the respondent's interest and desire to learn or acquire new culture, knowledge and information, which is quite similar to inquisitive motivation in the proposed model. RAPPORT items are all involved with communicative skills, like talking and listening, and relationship management, which project well on to interpersonal skills in the model. In PERSEVERENCE all items relate to emotions especially the negative ones, and map well against emotional stability in the proposed model. However, unlike the other four predictors, ACCEPTANCE maps less cleanly to one antecedent variable in the proposed model.

The overall mapping between predictors in 3CN and 3C antecedents in the proposed model is relatively good. Although ACCEPTANCE fails to map to a sole 3C antecedent, four of six items under it do project to three 3C antecedents, i.e. inquisitive motivation, mindful cognitive style and interpersonal skills. The mapping results indicate that 3CN is supported by adequate content evidence of validity, and also implies that the antecedents in

the proposed thesis model might cover the major psychometrical antecedents in assessing individuals' cross cultural competency.

Chapter 5 - Validation of the 3CN

The predictor domain and the item content of the 3CN have been discussed in the previous chapter, and the mapping results suggested that the 3CN factors reasonably represented the 3C antecedents in the proposed thesis model, and thus the 3CN was supported by initial content-based validity evidence. However, additional evidence was available to further test the validity of 3CN. The validation design conducted for this study adheres to *Standards for Educational & Psychological Testing* (2014) and the *Principles for the Validation and Use of Personnel Selection Procedures (4th edition, 2003)*, which “is intended to facilitate and assist in the validation and use of selection procedures” (SIOP, 2003, p. 2).

5.1 Validity and sources of evidence

The *Standards* defined validity as “the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests” (AREA et al., 2014, p. 9). Validity is a concept in which the researcher tests the inferences that are to be drawn from the target measure; that is, the test is believed to measure the targeted construct well if it is supported by sound validity evidence. The judgment on the validity of a test is based on a variety of sources of evidence, and “a single source of validity evidence may not be sufficient to support the interpretation of the test scores” (SIOP, 2003, p. 8). The process of accumulating validity evidence is called validation. Therefore, validation is the process of accumulating evidence to demonstrate how well the test scores represent the targeted construct and whether the test predicts desired outcome behaviors.

Academics have debated on the best “type” of validity versus a more Unitarian

validity of a variety of evidence (e.g. Landy, 1986). In the middle of the last century, an established taxonomy of validity evidence (Cronbach & Meehl, 1955) was popular among researchers and widely accepted. The terms offered by the taxonomy, *i.e.* predictive, concurrent, content and construct validity, are still often encountered in research articles and practitioner settings. However, in 1980s the unitary concept of validity became the dominant model, and has been widely accepted. This broad acceptance influenced the newer versions of *Standards* (1985, 1999, and 2014) and the *Principles* (2003). The *Standards* articulated that elements of validity presented in the Cronbach and Meehl framework “do not represent distinct types of validity” and that “validity is a unitary concept” (AREA et al., 2014, p. 11) with “different sources of evidence contributing to an understanding of the inferences that can be drawn from a selection procedure” (SIOP, 2003, p. 4).

Five sources of validation evidence were currently recommended by the *Standards* and the *Principles*, *i.e.* evidence based on relationships between predictor scores and external variables, content-related evidence, evidence based on the internal structure of a test, response processes evidence, and consequence-based evidence.

Relationship-based validity evidence refers to the empirical relationships between the scores of the predictor construct and scores on measures of external variables (e.g. criterion data, or other variables in a nomological network). With relationship-based validity evidence three types of validity evidence are most frequently discussed: discriminant evidence, convergent evidence, and criterion evidence. Discriminant evidence of validity can be examined by comparing the relative differences of the test scores with other distinct construct test scores (*i.e.* previously validated measures of constructs that are *theoretically different* than the target construct). Statistically comparing the target measure results with

other validated measures of the *same or similar construct(s)* will yield convergent evidence of test validity. Finally, criterion evidence refers to how well the test scores predict criterion performance, by demonstrating a statistically significant relationship between test scores and a measure of the criterion of interest (often supervisor ratings of job performance).

Content-related evidence is primarily based on the examination on whether the content of a test (item content) adequately matches the domain it intends to measure. Content validity is primarily a concern when tests are constructed to assess mastery of a domain of declarative knowledge. When content validity is used in discussing non-cognitive scales such as the 3CN, it often refers to the face validity of the measure. Internal structure-based evidence is “how test scores relate to specific aspects of the construct to be measured”, and include information on the relationships among the test items (SIOP, 2003, *p.* 6). Internal structure-based evidence strongly relies on the assessment of the internal consistency of the measure and its subscales, and is usually demonstrated through Cronbach’s alpha, exploratory factor analysis, and confirmatory factor analysis. Response processes evidence is typically used when the test scores are interpreted as “reflecting a particular response process on the part of the examinee” (SIOP, 2003, *p.* 6). For example, if a test developer claims that a test requires analytical reasoning, but the items can be answered through memorization, validity may be challenged through response processes evidence. Finally, consequence-based validity evidence refers to the outcomes of the decision-making based on the test scores. This type of evidence is often viewed through the lens of test fairness.

5.2 Evidence to be Analyzed in the Validation of the 3CN

The five sources of validity evidence are not intended to be used as a unified approach,

and each can provide information which may be highly relevant to some proposed test score interpretations, and less relevant (or irrelevant) to others (SIOP, 2003, *p.* 5). Therefore, not all “types” of evidence are feasible or mandatory in each validation effort.

As the Standards stated, “a sound validity argument integrates various strands of evidence into a coherent account of the degree to which existing evidence and theory support the intended interpretation of test scores for specific uses” (AREA et al., 2014, *p.* 17). In addition to content-based evidence accumulated in Chapter 4, internal structure-based evidence and relationship-based evidence for the 3CN validity were examined and presented in the rest of this chapter.

5.2.1 Internal structure-based validity evidence

Nearly all validation studies report the internal consistency of the target test or measure (Ang et al., 2007; Gabrenya et al., 2012; Matsumoto et al., 2001; Matsumoto & Hwang, 2013; van Der Zee & van Oudenhoven, 2000; etc.) because “internal structure is important in planning the development of a selection procedure” (SIOP, 2003, *p.* 25). I estimated the internal construct consistency of 3CN, inter-item correlations and item-total correlations. Considering the purpose of the 3CN is to assess the respondent’s potential to develop cross cultural competency, all of the items in 3CN are expected to be significantly related to the 3C construct, and hence the internal consistency index for the full scale (Cronbach’s alpha coefficient) should be higher than .70 (Nunnally, 1978), which is conventionally used as the lower bound of reliability of a non-cognitive assessment (Kristoff, 1974). Given that the 30 items of 3CN are expected to predict five distinct 3C antecedents, the internal consistency and interrelationships among items in the same antecedent domain should be stronger than their interrelationships with the items in the other domain. Therefore, I hypothesized for the 3CN scale as followed:

H1: The overall internal consistency as measured by coefficient alpha is greater than .70;

H2: The interrelationship of the items (as measured by the average item-total correlation) in the same antecedent domain is stronger than the interrelationships of the items of other domains.

The 30 items of 3CN are designed to predict five sub-constructs, i.e. MINDFULNESS, BROAD PERSPECTIVE, RAPPORT, ACCEPTANCE and PERSERVERENCE, thus a five-factor model is expected to fit the data. Therefore, I proposed the hypothesis that

H3: A five-factor model in which the items intend to measure each subscale are modeled to load on their respective construct results in good model fit.

There are several goodness-of-fit indices widely used in measurement psychology research: Chi-square, CFI (comparative fit index), RMSEA (root mean square of error approximation), SRMR (standardized root mean squared residual), and CMIN/*df*, a modification of Chi-square. Multiple indices were used to estimate the model fit instead of Chi-square alone because Chi-square often underestimates the model fit in large samples (Bollen, 1989; Haigh et al., 2011). CMIN/*df* values less than 3 to 4 reflect a good model fit (Haigh et al., 2011) and CFI values larger than .90 imply acceptable model fitness (Bentler, 1990). A RMSEA value around .06 is recommended to reflect adequate model fit, and the SRMR value close to .08 also implies good model fit (Hu & Bentler, 1999).

5.2.2 Relationship-based validity evidence

Convergent evidence is a commonly used type of relationship-based validity evidence, and required “for the justification of novel trait measures, and the validation of test interpretation” (Campbell & Fiske, 1959, *p.81*). The accumulation of convergent evidence, as well as discriminant evidence, is essential but can be a challenge because of the need for

“the representativeness of the research samples and the adequacy of statistical power” (SIOP, 2003, p. 14).

The Cultural Competence Self-assessment Checklist (CCS) was used as a convergent comparison for 3CN validation. The CCS is a self-assessment tool developed by Central Vancouver Island Multicultural Society to examine individual cross cultural competency in three aspects: awareness, knowledge and skills. It is similar to the 3CN in terms of the objectives and purposes, that is, to assess individual cross cultural competency and to help individuals to explore and develop their own cross cultural competency. The two measures have similar structures and are assessed in a similar fashion. Hence CCS score was expected to be convergent with 3CN score.

H4: The score of CCS scale will be statistically significantly positively correlated with the scores of the 3CN.

The Big Five Inventory (BFI) (John et al., 1991) was adopted to explore another source of relationship-based evidence for the 3CN validation, because three subconstructs of the BFI scale, openness, extraversion and neuroticism, are theoretically and/or empirically related to the 3C antecedents mindfulness, interpersonal skills and emotional stability (Caligiuri & Tarique, 2009; Deardorff, 2006; Hunter et al., 2006; O’Sullivan, 1999; Ting-Toomey, 1999). Therefore, the scores of the three subscale of BFI were expected to be significantly correlated to 3CN score as stated in the following hypotheses.

H5: The score of the openness subscale of the BFI is statistically significantly positively correlated with the scores of the 3CN;

H6: The score of the extraversion subscale of the BFI is statistically significantly positively correlated with the scores of the 3CN;

H7: The score of the neuroticism subscale of the BFI is statistically significantly

negatively correlated with the scores of the 3CN.

5.3 Three studies

The primary goal of the thesis was to examine the validity of 3CN by investigating a variety of evidence including internal consistency, item correlations, the factor structure pattern, and the relationships with external variables. Three studies were conducted to test the seven validity hypotheses proposed in Section 5.2. Archival data were utilized for the purposes of the studies. The archival data were collected from two sample populations, university students in a small private University in the South Eastern United States, and veterans from the U.S. military whose data was collected by the Army Research Institute. The student samples were randomly split into two data sets for study 1 and study 2, and the veteran sample data were used in the analysis for study 3.

5.3.1 Study 1

The goal of Study 1 was to investigate the internal consistency of the 3CN to test hypothesis 1 that the overall internal consistency of 3CN would be greater than .70, and to examine the inter-item consistency to test hypothesis 2 that the interrelationship within subscale items would be greater than the overall item interrelationship for the full 3CN.

5.2.1.1 Method

Participants and procedures. The student data were used in study 1. The respondents were newly registered undergraduate students in the university. The respondent students attended the first-year University Experience class, and were encouraged to complete 3CN for extra credit. Students were notified by their class instructor of the extra credits if they completed 3CN online by the end of the third week in the new semester. Students were told that neither instructors nor other professors could

read their assessment outcomes, and they could acquire their own assessment report directly from an outside 3CN administrator. Participants were also informed that their information would be kept confidential, and the outside 3CN administrator would only provide the instructors the name list of completion for the purposes of awarding extra credit.

A total of 660 students completed 3CN, however, 40 respondents were removed because of missing data. For analysis purposes, the student sample was randomly split into two datasets using the Statistical Package for Social Sciences version 18.0 (SPSS 18.0), and each dataset consisted of 310 respondents, one for study 1 (Dataset 1) and another for study 2 (Dataset 2).

Measure. *Cross Cultural Competence Navigator (3CN)* was used to measure the cross cultural competency of the student respondents. The 3CN consists of five subscales to measure respectively the five antecedents predictive of individual's cross cultural competency. Each subscale is comprised of 6 items. Respondents indicate to the extent they agree with the item statements on a 5-point Likert scale: 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Disagree Nor Agree*, 4 = *Agree*, and 5 = *Strongly Agree*.

Data analysis. The data were screened and no outliers were found largely because the online assessment provides only 1-5 points for participants to choose. But missing data was found and the samples with missing data were removed from the dataset. Internal consistency and inter-item correlations of 3CN were examined in the study. Internal consistency "is a measurable property of items that implies that they measure the same construct", and indicates "the extent to which items interrelate with one another" (Spector, 1992, p. 30). Co-efficient alpha is recommended as a vital index of internal consistency (Cronbach, 1951; Spector, 1992), and α -value should be at least .70 to demonstrate

adequate internal consistency. Since 3CN was expected to measure the five antecedent predictors, subscales of those predictors should be relatively distinct although they may evidence moderate intercorrelations (Spector, 1992). The average item inter-correlation among items in the same subscale was expected to be higher than the average item inter-correlation in the multidimensional scale.

SPSS 18.0 was used to process the first set of student data ($N=310$) to calculate the α -value of 3CN and the average item-total correlation co-efficiency. Given that the subscales had a smaller number of items, the Spearman-Brown correction formula was used to adjust the subscale reliability when compared with the reliability of the whole scale.

5.2.1.2 Results and discussion

The reliabilities of 3CN and its five subscales were computed in terms of Cronbach's alpha. The results were as follows: that is, $\alpha = .86$ for the full 3CN, $\alpha = .67$ for the Mindfulness scale, $\alpha = .76$ for the Broad Perspective scale, $\alpha = .55$ for the Rapport scale, $\alpha = .81$ for the Acceptance scale, and $\alpha = .80$ for Perseverance scale. The reliability estimate of the whole 3CN scale, the reliability estimates and adjusted reliabilities of five subscales and the correlations of the five subscales were listed in Table 4. The whole 3CN scale showed a good overall internal consistency ($\alpha > .70$), and hence Hypothesis 1 was supported. Overall, sub scale reliabilities were within acceptable limits, but the Rapport scale and Mindfulness scale were on the low side.

Table 4

Means, standard deviation, the overall reliability of 3CN, the reliabilities and adjusted reliabilities of its five subscales, and the correlations of the subscales based on student dataset 1.

Scale and subscale	M	SD	α	Adjusted α	2	3	4	5
1. Whole scale	3.83	.40	.86					
2. Mindfulness	4.13	.50	.67	.91				
3. Broad Perspective	3.73	.66	.76	.94	.15**			
4. Rapport	3.84	.52	.55	.86	.35**	.34**		
5. Acceptance	4.07	.55	.81	.96	.46**	.36**	.49**	
6. Perseverance	3.39	.71	.80	.95	.30**	-.01	.31**	.36**

Note. ** $p < .01$

In order to compare the internal consistency of each subscale with the overall internal consistency of 3CN, Spearman-Brown correction formula (Figure 10) was adopted to adjust the reliabilities of the five subscales. The adjusted reliability of each subscale was: .91 for the Mindfulness scale, .94 for the Broad perspective scale, .86 for the Rapport scale, .96 for the Acceptance scale, and .95 for the Perseverance scale. The adjusted reliabilities of the subscales were greater than the overall reliability of 3CN scale, therefore Hypothesis 2 was supported. The inter-item correlation coefficients of the whole 3CN scale and its five subscales were listed in Table 5.

$$\rho_{xx'}^* = \frac{n\rho_{xx'}}{1 + (n - 1)\rho_{xx'}}$$

Notes. n is the number of subscale, $\rho_{xx'}^*$ is the adjusted reliability, and $\rho_{xx'}$ is the original reliability of the target scale.

Figure 10. Spearman Brown correction formula

Table 5

The inter-item correlations of the whole 3CN scale and its five subscales based on student dataset 1.

Scale and subscale	Inter-item correlation coefficient
1. Whole scale	.18
2. Mindfulness	.27
3. Broad Perspective	.35
4. Rapport	.17
5. Acceptance	.41
6. Perseverance	.40

The calculated Pearson's correlation coefficients suggested that only the Perseverance scale and Broad perspective scale were not significantly correlated to each other, and significant correlation existed between all other pairs of subscales. The Acceptance scale was moderately correlated with the Mindfulness scale ($r = .46, p < .01$), the Broad perspective scale ($r = .36, p < .01$), the Rapport scale ($r = .49, p < .01$) and the Perseverance scale ($r = .36, p < .01$). The Rapport was significantly correlated with the Mindfulness scale ($r = .35, p < .01$) and the Broad perspective scale ($r = .34, p < .01$). The Perseverance scale was significantly correlated with the Mindfulness scale ($r = .30, p < .01$), the Rapport scale ($r = .31, p < .01$) and the Acceptance scale ($r = .36, p < .01$). And the correlation between the scales Mindfulness and Broad perspective was also significant ($r = .15, p < .01$). Those correlations fell into the acceptable range and could be anticipated because all of measured sub-scales are antecedents to 3C.

5.3.2 Study 2

Study 2 explored the structure of the available 3CN data to examine Hypothesis 3,

such that the potential structure of the data is in accordance with the expected 5-factor structure of 3CN.

5.3.2.1 Method

Participants and procedure. The second student dataset (Dataset2) was used for Study 2 ($N= 310$).

Measures. The 3CN was used to measure the students' cross cultural competency.

Data analysis. It is common to do exploratory data analysis when validating a new measure because exploratory factor analysis can provide a preliminary view of the dimensionality of the scale. Exploratory factor analysis was first conducted to investigate the potential dimensions of the dataset. Bartlett's test of sphericity and KMO-value were examined. A significant Bartlett's test of sphericity implies that meaningful factor(s) exist in the dataset, and a KMO-value of at least .60 indicates an acceptable sample adequacy. The method of principle component analysis (PCA) is usually used for explore the natural pattern of the data, and hence at the initial attempt it was employed to explore the probable factor structure of 3CN based on dataset 2. The communalities and factor loadings were examined, and a factor loading equal to or larger than .40 were accepted based on Comrey and Less's determination rule on the quality of factor loadings (1992). In addition, as Cattell (1966) suggested, the scree plot was examined to determine the reasonable number of components. Finally, a promax rotation was performed, due to the common correlations among subscales, with a fixed number of factors suggested by initial factor analysis, and the pattern matrix was examined.

5.3.2.2 Results and discussion

Table 6 reported the descriptive statistics, the reliabilities of 3CN and its subscales, the adjusted reliabilities of those subscales and their correlations. Overall, the analysis

produced similar outcomes with those in Study 1. The overall reliability of 3CN ($\alpha = .84$) was similar with the estimated .86 in Study 1, showing a good internal consistency and providing additional support for Hypothesis 1. The reliabilities of the five subscales also yielded the similar results and pattern with the estimates in Study 1, except the Mindful scale of which the α -value (.59) was lower than the α -value (.67) in Study 1 (although both estimates are lower than the widely accepted level of .7). The adjusted α -value of each subscale was greater than the overall α -value of 3CN, therefore providing additional support for Hypothesis 2. The pattern of correlations appeared nearly the same as those demonstrated in Study 1: all the correlations between any two subscales were significant except the relationship between the Broad perspective and Perseverance scales. The Acceptance scale was moderately correlated to the Mindfulness scale ($r = .42, p < .01$), the Broad Perspective scale ($r = .44, p < .01$), the Rapport scale ($r = .46, p < .01$) and the Perseverance scale ($r = .37, p < .01$). The inter-item correlation coefficient value of each 3CN subscale was greater than the average inter-item correlation coefficient value of the overall 3CN scale respectively (see Table 7).

Table 6

Means, standard deviation, the overall reliability of 3CN, the reliabilities and adjusted reliabilities of its five subscales, and the correlations of the subscales based on student dataset 2.

Scale and subscales	M	SD	α	Adjusted α	2	3	4	5
1. Whole scale	3.84	.38	.84					
2. Mindfulness	4.12	.49	.59	.88				
3. Broad Perspective	3.77	.67	.75	.93	.28**			
4. Rapport	3.82	.53	.58	.87	.31**	.30**		
5. Acceptance	4.08	.51	.75	.93	.42**	.44**	.46**	
6. Perseverance	3.39	.67	.77	.94	.25**	.10	.27**	.37**

Notes. ** $p < .01$

Table 7

The inter-item correlations of the whole 3CN scale and its five subscales based on student dataset 2.

Scale and subscale	Inter-item correlation coefficient
1. Whole scale	.16
2. Mindfulness	.22
3. Broad Perspective	.34
4. Rapport	.19
5. Acceptance	.33
6. Perseverance	.35

The KMO value of the 3CN (.82) was greater than .6, indicating an adequate sample size, and Bartlett's test of sphericity was significant which implied significant factor(s) existed in the dataset (Kaiser, 1974). Eight factors (eigenvalues >1) were extracted in the initial factor analysis, which explained 57.29% of the variance in total (see Table 8), χ^2

(435) = 2555.17, $p = .000$.

Table 8

Initial principle component analysis: total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.113	20.377	20.377	6.113	20.377	20.377
2	2.790	9.301	29.679	2.790	9.301	29.679
3	1.701	5.670	35.349	1.701	5.670	35.349
4	1.598	5.328	40.677	1.598	5.328	40.677
5	1.553	5.177	45.853	1.553	5.177	45.853
6	1.278	4.259	50.112	1.278	4.259	50.112
7	1.136	3.787	53.900	1.136	3.787	53.900
8	1.008	3.360	57.259	1.008	3.360	57.259

The next factor analysis with the fixed 8 factor was conducted and promax rotation was performed because the common-existing correlations among subscales indicated the items were not orthogonal. Those loadings smaller than .40 were suppressed. Table 9 demonstrated the rotated factor loadings for the eight-component solution.

Table 9

Eight-component solution rotated component matrix.

	1	2	3	4	5	6	7	8
P3	.814							
P6	.797							
P4	.755							
P1	.520							
P2	.497				-.413			
P5	.492							
A2		.724						
A1		.647						
A6		.629						
A5		.622			.471			
A4		.588						
B2			.856					
B4			.750					
B5			.682					
B1			.585					
M1				.685				
M4				.658				
M5				.646				
M2				.527				
M3				.527				
M6				(.394)				
B3					.729			
B6					.649			
R2					.418			
R1						.711		
R4						.692		
R6							.792	
R5							.680	
A3							(.397)	
R3								829

Notes. P refers to the items in the Perseverance scale, A to the Acceptance scale, B to the Broad perspective scale, M to the Mindfulness scale, and R to the Rapport scale.

The factor loading of most items were greater than .40, and only two of them, Item A3 (.397) and M6 (.394), were slightly lower than .40 which were displayed in parentheses Table 9. Two items (P2 and A5) were loaded in two components. A further investigation on the pattern structure showed all Perspective items were loaded in Component 1; all Mindfulness items were loaded in Component 4; all Acceptance items except A3 were loaded in Component 2; four Broad perspective items were loaded in Component 3, and the other two items, B3 and B6, were loaded in Component 5. The items in the four subscales were distinctly loaded in four different factors; however, Rapport items required closer examination because its six items were loaded dispersedly in Component 5, 6, 7, 8. With a careful inspection on the content of the Rapport items, it was found that the scale contained two negatively worded items (R5 and R6) and two reversed coded items (R1 and R4), and the diversity of item wording may have caused inconsistency in the factor loading pattern. Overall, the pattern matrix roughly demonstrated an acceptable four-factor solution, with a plausible fifth-factor in the structure of the data, and hence Hypothesis was partially supported. However, to further support Hypothesis 3, the five-factor model structure should be confirmed in a new dataset; therefore, the veteran data were used in Study 3 to test the data-model fit.

5.3.3 Study 3

The purposes of Study 3 were to confirm the five-factor model structure in a different dataset to complete the test of Hypothesis 3, and to further test the 3CN validity evidence.

5.3.3.1 Method

Participants and procedure. The archival veteran data was utilized in Study 3. The dataset used in the present study was a part of the large research effort conducted by the Army Research Institute (ARI). 528 veterans in total participated in the ARI survey, and six

instruments were used in the study, that is, background questionnaire, *Superiority of American Value and Assumptions Scale*, *Generalized Ethnocentrism Scale*, *3CN*, *Cultural Competence Self-Assessment Checklist (CCS)* and *Big Five Inventory (BFI)*. All of the veteran participants completed background questionnaire, but were directed to complete a specific sub-set of instruments instead of the set of full study items.

Thus for the current study, data reflecting 3 measures were extracted from the original dataset and analyzed, that is, 3CN data, CCS data and BFI data. A total 264 respondents completed 3CN, and among them 89 respondents completed CCS and another 101 respondents completed BFI. None of 3CN respondents completed both CCS and BFI. Three sets of data were generated based on the instrument completion. Dataset 3 comprised of veterans samples who completed 3CN ($N = 264$), Dataset 4 of samples who completed both 3CN and CCS ($N = 89$), and Dataset 5 of samples who completed both 3CN and BFI ($N = 101$).

Measures.

Cross Cultural Competence Navigator. 3CN was used to measure the students' cross cultural competency (see Section 5.3.1.1).

Big Five Inventory. The BFI (John et al., 1991) was designed to assess the five sub-constructs of an individual's personality: openness, agreeableness, extraversion, conscientiousness, and neuroticism. It consists of 44 "prototypic items formed into short phrases" (Brooke et al., 2014, *p.* 98): 10 items for openness, 9 items for agreeableness, 8 items for extraversion, 9 items for conscientiousness, and 8 items for neuroticism. Those items are randomly dispersed throughout the full assessment. A 5-point Likert frequency scale is used to anchor the behavioral statement: 1 = *(Almost) Never*, 2 = *Some of the time*, 3 = *Half of the time*, 4 = *Most of the time*, and 5 = *(Almost) Always*.

The BFI has been evaluated by researchers to be a reliable and valid instrument (Brooke, et al., 2014; Hendi & Greek, 1997; etc.) to measure an individual's normal personality. Previous cross-cultural validation studies also showed that BFI had adequate reliability, validity and a clear factor structure (Alansari, 2016; Denissen et al., 2008; Fossati et al., 2011) among participants with different national backgrounds. For the veteran sample ($N = 101$), Cronbach's alpha for openness, agreeableness, extraversion, conscientiousness and neuroticism scales were .53, .44, .76, .60 and .80 respectively.

Cultural Competence Self-Assessment Checklist (CCS). The CCS focuses on assessing individual awareness, knowledge and skills in cross cultural interaction from the perspective of race, ethnicity and ancestry. The scale consists of three subscales, awareness, knowledge and skills. Awareness dimension assesses self-awareness, culture awareness, openness and acceptance of differences, and ambiguity. Knowledge dimension mainly measures error-learning, cultural knowledge, experience-learning. Skill dimension focuses on a variety of skills such as communication skills, adapting skills, learning skills and culture-oriented behaviors. The whole instrument contains 25 items with a 4-point Likert scale: *1 = Never, 2 = Sometimes/Occasionally, 3 = Fair Often/Pretty Well, and 4 = Always/Very Well*. For the veteran sample (Dataset 4), CCS scale displayed an adequate reliability ($\alpha = .92$).

Data analysis. All the three sets of data were checked and no missing data were found. All the respondents selected the correct point in attention-checking items. However, amount of outliers (6 and 7) were detected in the range from BFI Item 25 to Item 44. Further investigation suggested that a 7-point Likert scale was mistakenly administered to the veteran respondents following an attention-checking item. To correct for the procedural error and standardize the responses, all the BFI raw scores were converted to z-score prior

to analysis.

Confirmatory factor analysis of the 3CN data was firstly performed on Dataset 3 in Mplus 6. Since the present CFA was expected to confirm the internal structure underlying in 3CN, which was based on a set of theoretical findings, the method of maximum likelihood estimation conventionally used for a potential data pattern supported by theories or rationale was adopted to investigate if the data fit the hypothesized five-factor model of 3CN. Items were modeled as testlets which loaded on their respective latent constructs because a large number of indicators per factor decreases the values of the model fit indices (Hall et al., 1999; Little et al., 2002). All items in each subscale were randomly parceled into 3 testlets respectively (see Table 10). In addition, the five latent constructs were modeled as covarying, and freely estimated. The model-fit indices, Chi-square, CFI, RMSEA, SRMR, and CMIN/*df*, were calculated to evaluate the model fit.

Table 10

Testlets and item parceling (randomly formed)

	Testlet 1	Testlet 2	Testlet 3
Mindfulness	M1, M6	M2, M5	M3, M4
Broad Perspective	B1, B6	B2, B3	B4, B5
Rapport	R1, R4	R2, R6	R3, R5
Acceptance	A1, A6	A 2, A4	A3, A5
Perseverance	P1, P3	P2, P6	P4, P5

In the second stage of Study 3, 3CN correlations with the similar measure (CCS) and the external variables (extraversion, neuroticism and openness) were investigated. Dataset 4 and 5 were processed in SPSS 18.0 to obtain the Pearson correlation coefficients of the

respective relationships between the 3CN scores and the CCS scores, and between the 3CN scores and the scores of the BFI-openness scale, the BFI-extraversion scale and the BFI-neuroticism scale. Both the magnitude and the direction of the four correlations were examined.

5.3.3.2 Results and discussion

Dataset 3 was firstly used to replicate Study 1, and Table 11 demonstrated the descriptive statistics, the reliability estimates of both 3CN scale and its five subscales, and the adjusted reliability estimates. The data yielded the similar outcomes and pattern with those found in Study 1 and 2, whereas all the scale reliabilities and most correlation coefficients increased. The inter-item correlation coefficients of the 3CN scale and its subscales were listed in Table 12.

Table 11

Means, standard deviation, the overall reliability of 3CN, the reliabilities and adjusted reliabilities of its five subscales, and the correlations of the subscales based on veteran dataset.

Scale and subscale	M	SD	α	Adjusted α	2	3	4	5
1. Whole scale	3.79	.49	.90					
2. Mindfulness	4.10	.49	.71	.92				
3. Broad Perspective	3.78	.74	.80	.95	.42**			
4. Rapport	3.70	.62	.69	.92	.34**	.45**		
5. Acceptance	4.01	.64	.86	.97	.44**	.51**	.56**	
6. Perseverance	3.36	.92	.91	.98	.20**	.18**	.37**	.53**

Table 12

The inter-item correlations of the whole 3CN scale and its five subscales based on student dataset 3.

Scale and subscale	Inter-item correlation coefficient
1. Whole scale	.25
2. Mindfulness	.31
3. Broad Perspective	.42
4. Rapport	.27
5. Acceptance	.50
6. Perseverance	.62

Item parcels, or testlets, are generated by aggregating items and the parceling method has a potential merit to avoid the decreased values of model fit indices due to the increased item numbers per factor, especially for a small sample (Hall et al., 1999; Little et al., 2002). There are various techniques available for item parceling such as random assignment, correlation-based technique, item-to-construct balance, etc. (Little et al., 2002; Hall et al., 1999). The random parceling was used to aggregate all six items into three testlets for each subscale of 3CN. The five-factor model based on the original scale structure yielded the following fit indices: $\chi^2(95) = 201.26, p < .001$; $CMIN/df = 2.12$; $CFI = .90$; $SRMR = .06$; $RMSEA = .06$; 90% CI on $RMSEA = .05-.08$ (Table 13). The factor loading of each testlet and the factor covariances were demonstrated in Figure 10. Those indices indicated the model-data fit was relatively acceptable. Considering the testlets were randomly parceled, an empirically driven parceling strategy might improve model fit, therefore a post hoc study was conducted on testlets parceled with the correlation method. The new set of testlets was listed in Table 14. With testlets parceled via the correlation method, the model fit indices changed slightly: CFI increased from .90 to .91, SRMR kept constant while

RMSEA increased from .07 to .09. Figure 11 demonstrated the factor loading of each testlet and the factor covariance. Thus, it was difficult to conclude whether the model fit was improved or not with the correlation parceling method. With some exceptions, most model indices met the acceptable level of goodness-of-fit, the data fit the 5-factor 3CN structure, and thus Hypothesis 3 was partially supported.

Table 13

Goodness-of-fit indices of models for 3CN

Model	x^2	<i>df</i>	<i>CMIN/df</i>	CFI	SRMR	RMSEA	90% CI on RMSEA
Model 1	201.26	95	2.12	.90	.06	.07	.05-.08
Model 2	235.42	80	2.94	.91	.06	.09	.07-.10

Notes. In Model 1 items were parceled with random assignment, and in Model 2 items were parceled based on correlation.

Table 14

Testlets and item parceling (with the correlation method)

	Testlet 1	Testlet 2	Testlet 3
Mindfulness	M1, M5 <i>(r = .38, p < .01)</i>	M2, M3 <i>(r = .53, p < .01)</i>	M4, M6 <i>(r = .26, p < .01)</i>
Broad Perspective	B1, B6 <i>(r = .42, p < .01)</i>	B2, B5 <i>(r = .67, p < .01)</i>	B3, B4 <i>(r = .31, p < .01)</i>
Rapport	R1, R4 <i>(r = .41, p < .01)</i>	R2, R6 <i>(r = .46, p < .01)</i>	R3, R5 <i>(r = .22, p < .01)</i>
Acceptance	A1, A2 <i>(r = .64, p < .01)</i>	A 4, A5 <i>(r = .48, p < .01)</i>	A3, A6 <i>(r = .47, p < .01)</i>
Perseverance	P1, P2 <i>(r = .80, p < .01)</i>	P3, P4 <i>(r = .72, p < .01)</i>	P5, P6 <i>(r = .57, p < .01)</i>

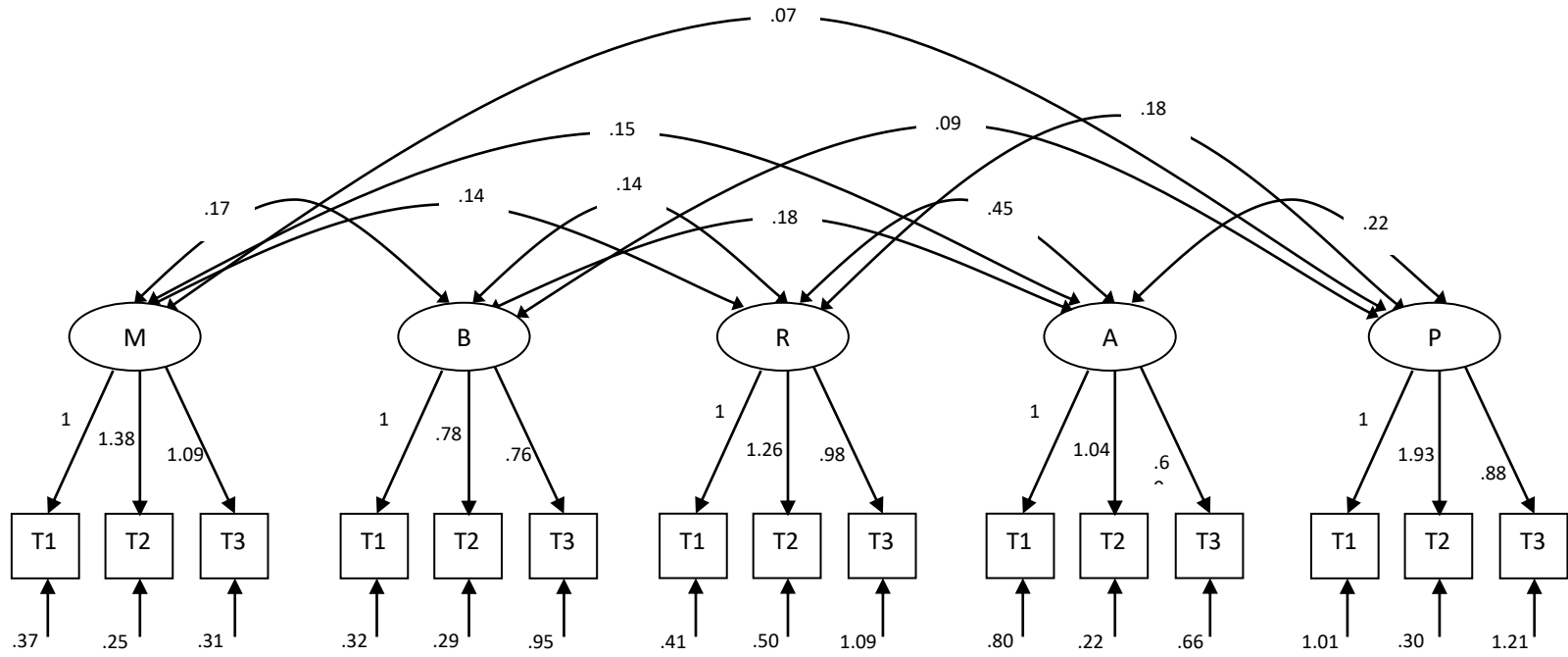


Figure 10. The factor loading and factor covariance in Model 1

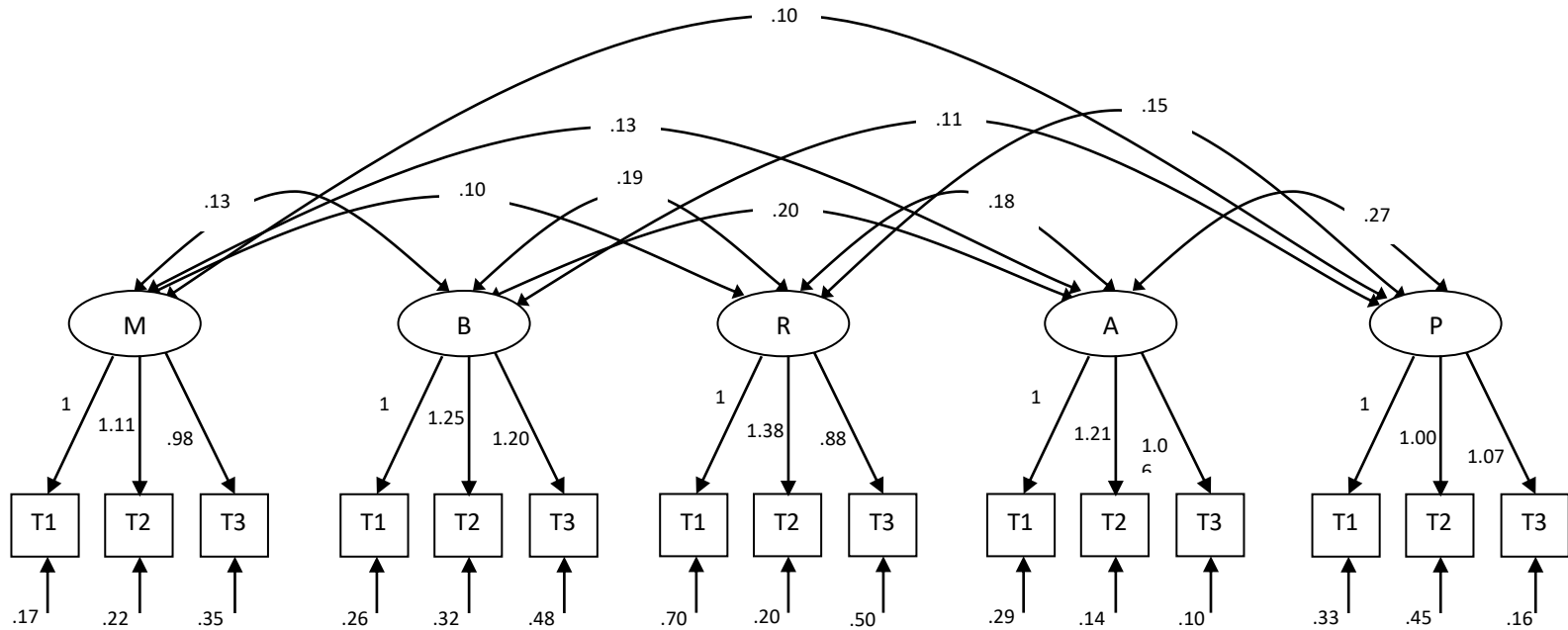


Figure 11. The factor loading and factor covariance in Model 2.

Secondly, in Dataset 4 ($N = 89$), data for both the 3CN and CCS were examined and the Pearson correlation coefficient between the scores of the two scales was $.58$ ($p < .01$). The outcomes of the two scales were convergent and thus Hypothesis 4 was supported (see Table 15). To accumulate more evidence for 3CN validity, correlations with external variables were investigated with Dataset 5 ($N = 101$). Pearson Correlation Coefficients were calculated between 3CN scores and the scores of BFI-extraversion, BFI-neuroticism and BFI-openness scales (see Table 16). As hypothesized, 3CN score was significantly positively correlated with BFI-extraversion score ($r = .43, p < .01$) and BFI-openness score ($r = .49, p < .01$) whereas was significantly negatively correlated with BFI-neuroticism ($r = -.49, p < .01$). Therefore, Hypothesis 5, 6 and 7 were supported. The findings added additional relationship-based validity evidence to 3CN. The correlation between the 3CN subscales and the CCS subscales and the correlation between the 3CN subscales and the BFI subscales were displayed in Table 17.

Table 15

Means, standard deviation, the reliabilities of 3CN and CCS, and the correlation between 3CN scores and CCS scores.

Scales	Mean	SD	1	2
1. 3CN	3.84	.44	(.88)	
2. CCS	4.33	.70	.58**	(.92)

Notes. Scale reliability was listed in the parentheses. ** $p < .01$, * $p < .05$.

Table 16

Means, standard deviation, the reliabilities of 3CN, BFI-extraversion, BFI-neuroticism and BFI-openness, and the correlations between 3CN scores and the scores of the three BFI subscales.

Scales	SD	1	2	3	4
1. 3CN	.56	(.93)			
2. BFI-extraversion	.61	.43**	(.76)		
3. BFI-neuroticism	.64	-.49**	-.49**	(.80)	
4. BFI-openness	.44	.49**	.24*	-.15	(.53)

Notes. All scores were converted into z-scores. Scale reliability was listed in the parentheses. ** $p < .01$, * $p < .05$.

Table 17

The correlations between subscales of 3CN, CCS and BFI and the reliability of each subscale.

Subscale	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.43 ^a /.58 ^b	(.62) ^a /(.78) ^b												
2	.73 ^a /.72 ^b	.26** ^a /.56** ^b	(.79) ^a /(.82) ^b											
3	.69 ^a /.62 ^b	.24** ^a /.44** ^b	.35** ^a /.55** ^b	(.77) ^a /(.68) ^b										
4	.56 ^a /.79 ^b	.29** ^a /.51** ^b	.40** ^a /.57** ^b	.61** ^a /.57** ^b	(.82) ^a /(.88) ^b									
5	.88 ^a /.84 ^b	.19 ^a /.24** ^b	.01 ^a /.28** ^b	.35** ^a /.35** ^b	.42** ^a /.69** ^b	(.89) ^a /(.92) ^b								
6	.75	.40**	.30**	.14	.35**	.18	(.81)							
7	.72	.43**	.38**	.46**	.54**	.22*	.69**	(.81)						
8	.84	.35**	.41**	.47**	.60**	.32**	.67**	.78**	(.88)					
9	.61	.20*	.17	.07	.49**	.60**				(.76)				
10	.64	-.13	-.13	-.18	-.50**	-.80**				-.49**	(.79)			
11	.44	.48**	.51**	.38**	.38**	.19				.24*	-.15	(.53)		
12	.43	.31**	.21*	.35**	.44**	.48**				.30**	-.49**	.33*	(.44)	
13	.49	.37**	.29**	.26**	.37**	.24*				.32**	-.20	.42**	.40**	(.60)

Notes. (1) 1 refers to 3CN-mindfulness scale, 2 3CN-broad perspective scale, 3 3CN-rapport scale, 4 3CN-acceptance scale, 5 3CN-perseverance scale, 6 CCS-awareness scale, 7 CCS-knowledge scale, 8 CCS-skill scale, 9 BFI-extraversion scale, 10 BFI-neuroticism scale, 11 BFI-openness scale, 12 BFI-agreeableness scale, and 13 BFI-conscientiousness scale. (2) Scale reliability was listed in the parentheses. (3) ** $p < .01$, * $p < .05$. (4) a refers to the statistics of dataset 4 (the veteran sample of 3CN and CCS; b refers to the statistics of dataset 5 (the veteran sample of 3CN and BFI).

5.4 General Discussion

In the present chapter five sets of data were used to explore the validity evidence of 3CN scale. Adequate internal structure-based validity evidence and relationship-based validity evidence provided support for the validity of the 3CN. The 3CN scale consistently manifested adequate adjusted internal consistency across the five datasets ($\alpha = .86, .84, .90, .88, \text{ and } .92$ respectively). And the inter-item correlations in each subscale were greater than the item-total correlation of 3CN scale, which indicated the subscale items were specific to the subconstruct to be measured and the subscale score was predicative of its target sub-construct.

The outcomes of the factor analysis yielded a relatively clean factor loading pattern of the items in the Perseverance scale, the Mindful scale and the Acceptance scale. The results for the Broad Perspective scale and the Rapport scale were less clean. Some artifactual variance attributed to negative wording and reverse coding is a possible explanation for these results, but the factor structure of these two sub scales should be further examined in future studies.

The confirmatory factor analysis provided some support for the 5-factor model in accordance with the 3CN scale in that the model-data fit was adequate to support the 5-factor model structure. Thus, both internal consistency analysis and factor analysis provided some internal structure-based validity evidence for the 3CN.

Relationship-based validity evidence of 3CN was also accumulated in the analyses of Dataset 4 and 5. The analysis of Dataset 4 demonstrated that 3CN assessment results appeared convergent to the CCS results ($r = .58, p < .01$). The correlation analysis between 3CN and the three scales of BFI-openness, BFI-extraversion and BFI-neuroticism revealed

that 3CN score was positively correlated with openness ($r = .50, p < .01$) and extraversion ($r = .43, p < .01$) whereas negatively correlated with neuroticism ($r = -.50, p < .01$). A variety of relationship-based evidence supported the validity of 3CN and that the 3CN scale could measure individual cross cultural competency.

Chapter 6 - Conclusion

6.1 Discussion of the findings

Cross cultural competency is a complicated construct to define and conceptualize. There is still considerable debate surrounding the construct in both academic and practical fields, and much is still to be learned about the underlying mechanisms of 3C. The prevailing disagreements in 3C revolve around the issues of categorization, denomination and nomological network, and these disagreements make the design of a reliable and valid measure quite challenging. The two major reviews on existing 3C instruments revealed a pessimistic validity situation regarding most measures of 3C (Gabrenya, et al., 2012; Matsumoto & Hwang, 2013), presenting a challenge to test developers and end-users of those measures.

Based on the exploration on the previous literature, I defined 3C as *an individual's capability to effectively function (measured by external and internal outcomes) in culturally diverse context, which is influenced by a set of antecedents*. This definition categorizes 3C in a capability domain distinguishing it from personality traits, attitudes, skills and knowledge, and also clarifies its function, applicable context and underlying mechanisms. Another merit of the literature exploration presented in this thesis is distinguishing the seven 3C antecedents, i.e., mindfulness, inquisitiveness, emotional stability, interpersonal skills, cultural knowledge, cultural experience and language. Those antecedents reflect potential individual differences, which can influence an individual's potential likelihood of achieving cross cultural effectiveness, in a variety of discriminative aspects: cognitive style, motivation, emotion management, interactive/communication skills, knowledge, experience and language ability. The finding of distinct 3C antecedents

may add clarity to the construct, and may largely eliminate repeated or redundant measurement in 3C instruments. The establishment of 3C antecedent model may provide a good reference framework for examining validity, and ultimately, future measure construction.

The model presented in this thesis was used as a framework to assess the structure and the content of the 3CN scale. Four of the five 3C antecedents in 3CN were successfully mapped to the four psychometrical antecedents of the thesis model (see Table 18). The 3CN predictors Broad perspective, Rapport and Perseverance completely mapped to the proposed 3C antecedents inquisitive motivation, interpersonal skills and emotional stability. The Mindfulness scale of 3CN *is partially mapped* to the proposed mindfulness antecedent in the 3C antecedent model because the 3CN sub-scale focuses on self-awareness which is only one of mindfulness components proposed by Langer (2000). In a close scrutiny on the Acceptance items in the 3CN scale, those items may be dispersedly mapping across the model antecedents from a content perspective. Overall, the item content of the 3CN scale displays relatively good content evidence with reference to the thesis model.

Table 18

The mapping results of 3CN predictors and the proposed antecedents in the thesis

Predictors in 3CN	3C Antecedents in the Model	Mapping Results
MINDFULNESS	Mindful cognitive style	Partial
BROAD PERSPECTIVE	Inquisitive motivation	Complete
RAPPORT	Interpersonal skills	Complete
PERSEVERENCE	Emotional stability	Complete
ACCEPTANCE		

Internal structure-based validity evidence was also examined and statistically tested in the thesis. All the five datasets that were analyzed demonstrated similar adequate internal consistency and larger inter-item correlations in the subscales than item-total correlations for the full measure. Exploratory factor analysis yielded a relatively clear factor loading pattern for the items of the four 3CN subscales, that is, Perseverance, Mindfulness, Acceptance and Broad perspective. Rapport items failure to load to one factor, however examination of the items revealed a potential artifactual explanation. The loadings may have been influenced by the inclusion of reverse-coded items and both positively and negatively wording styles in such a small subscale (6 items in total). Regardless, further examination of this sub-scale is warranted, and if the artifactual variance is problematic further item revision may improve the clarity of interpretation and predictive utility. Confirmatory factor analysis results suggested the data fit the 5-factor model underlying 3CN structure, with the values of the goodness-of-fit indices meeting the acceptable levels.

There were some seemingly contradictory findings worth mentioning. For instance, in terms of content, the Acceptance items were found to map to different antecedent domains proposed by the thesis model, but the factor loading pattern via EFA appeared acceptable (except A3 which loaded on a different factor). The content of item A3 was further examined, “I am open to learning about ideas and behaviors that are different from mine”, and the face validity of the item suggests that more than one construct (e.g. mindfulness) may be accounting for item variance. These inconsistent findings call for a further examination of both the proposed antecedents and the item content of the Acceptance scale: (1) Are there any other critical 3C antecedent(s) ignored by the present thesis (model misspecification)? If yes, what are they? (2) Since the 3CN mindfulness scale primarily focuses on self-awareness, is there exist possibility to get a better model-data fit if some

items are rewritten or adjusted? If yes, how should future test developers best restructure those items?

The relationship-based validity evidence was also tested in the data analysis presented in the results section. The overall 3CN score was positively significantly related to another 3C measure CCS, and the 3CN scores were also significantly correlated to the external variables, openness, extraversion and neuroticism. While improvements can still be made, item content examination, internal structure-based evidence and relationship-based evidence jointly suggest the 3CN scale is a valid measure and can assess individual cross cultural competency.

6.2 Limitations

The thesis research established a theory-based 3CN antecedent model and conducted validation on 3CN, however, limitations still exist which might hinder the generalization of the research findings. First, all the data used for the validity analysis were archival data previously collected by a university and ARI. The data lack accurate demographic information which preclude subsample analysis which may disguise some data characteristics and patterns, particularly in the area of fairness. The data were only collected from student samples and veteran samples, which may not generalize to the business world. Thus, the sample homogeneity might cause bias in the analysis results. In addition some mistakes were made when the original data were collected. The most serious error is mistakenly using 7-point Likert scale for nineteen BFI items, which should have been designed in a 5-point Likert scale format like the rest of the items. Although I used z-score to correct this error, the inconsistency in scale format introduces an unwanted potential source of construct irrelevant variance.

Another limitation of the thesis study is lack of measurement instruments to test discriminant validity evidence, which is suggested as necessary to fully justify and validate the measure (Campbell & Fiske, 1959; SIOP, 2003). However, no qualified data were available in the archival dataset for discriminant evidence examination. While generally supportive, the analysis outcome would be more convincing if discriminant evidence was obtained.

6.3 Future Considerations

The limitations provide some considerations for the future study of 3C and further 3CN validation. First, more validity evidence, especially discriminant, should be accumulated. Measures of 3C-irrelevant construct are suggested to be administered along with the 3CN, and comparison between those measure results and 3CN could provide qualified data for discriminant validity evidence exploration. Furthermore, a longitudinal validation study is necessary to test the predictive capability of 3CN. The performance of 3CN participants could be traced and evaluated for a certain length of time to see if the participants' 3CN score has statistically significant relationship with their performance in the cross cultural context. Second, new data should be collected across a variety of samples involved in cross cultural communication and interactions, especially business and expatriate samples. Demographic data should also be gathered which might provide of researchers new cues on 3CN development and unanticipated 3C insights.

Third, in terms of 3CN development, the internal structure may improve with some revision and adjustment. Rapport items could be reworded with a more consistent writing style and then the factor loading pattern could be examined to see if the data yield a cleaner pattern structure. For instance, Rapport items could be rewritten with a same wording

strategy so as to check if the reworded items can yield consistent factor loading in one component. Measurement may also be improved by authoring items representing more mindful components such as openness to novelty, alertness to distinctions, sensitivity to different context, awareness of others and orientation in the present, in order to make a more robust Mindfulness scale. Future research could then make comparisons with a reliable and valid mindfulness scale, e.g. Langer Mindfulness/Mindlessness Scale (Bodner & Langer, 2001), as reference to explore the relationship between mindfulness and 3C.

Four, the full conceptual thesis model needs further testing. Adequate theoretical and empirical evidence has been provided to verify the antecedent variables to 3C from the individual level, however, the thesis only discussed briefly on the other parts of the model, i.e. objective contributors to individual success in cross cultural communication and interaction and individual-level outcomes which reflect cross cultural effectiveness. The objective contributors, such as cultural distance, organization policy and strategies, organizational and spouse support, are likely to moderate the effects of people's cross cultural competency. Only a few research studies have discussed those moderators on 3C, for example, Johnson et al. proposed institutional ethnocentrism and cultural distance as 3C moderators and Chen et al. investigated the moderating role of subsidiary support and cultural distance on expatriate effectiveness (Chen et al., 2010; Johnson et al., 2006), therefore, more theoretical and empirical studies are in need to explore significant external factors which moderate the relationship of individual 3C and cross cultural effectiveness. In addition, more effort should be devoted to the evaluation of cross cultural effectiveness in terms of individual's performance, behaviors and psychological well-being. Although some researchers and practitioners pointed out that expected performance, adaptive behaviors and psychological adjustment in cross cultural circumstances were related to

individual 3C and indicated success in cross cultural communication and interaction, few researchers have successfully combined the three sources of evaluation. Longitudinal studies are also needed to track the effect of people's 3C on their accomplishments, achievements and mental health in culturally diverse environments.

Cross cultural competency may prove to be a critical variable that predicts success in the 21st century, and more research is needed to fully understand the impact of the construct. However reliable and valid measures of 3C are needed before this research can be conducted. Overall, the thesis established a 3C model and explored seven distinctive 3C antecedents from the consideration on 3C measure development and validation. With content mapping, the 3CN demonstrated fairly good content matching with the four psychometrical antecedents proposed by the thesis model. The investigation on archival data accumulated additional validity evidence for 3CN, indicating its adequate reliability and validity in assess people's cross cultural competency. With continued efforts in the arena of research, we may begin to better understand the construct allowing organizations to select and develop employees for global success.

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Appendix A

The Primary Instruments and the Secondary Instruments in Gabrenya et al.'s Evaluation Research (Gabrenya et al., 2012)

	Primary Instrument	Secondary Instrument
1	MPQ* ¹³	ADS
2	SCAS*	AIC
3	CCAI	ASSIS*
4	ICAPS	BASIC
5	CQ	BEVI
6	GCI	CCSI
7	IDI	CGAIC
8	ISS*	CWQ
9	SEE	EMMIC
10		GAP Test
11		ICC (a)
12		ICC (b)
13		ICSI
14		INCA
15		IRC
16		IRI*
17		ISAS
18		MAKSS*
19		MASQUE
20		MCI
21		MCKAS
22		PCAT
23		PCSI
24		SCS*
25		WDS*

¹³ * indicates the instrument has more or less evidence on its validity.

Appendix B

The Instruments in Matsumoto's Evaluation Research (Matsumoto & Hwang, 2013)

	Instruments
1	CCAI
2	CCSS
3	CQ* ¹⁴
4	IBA/BASIC
5	ICAPS*
6	ICC
7	ICSI
8	IDI
9	ISS
10	MPQ*

¹⁴ * indicates the instrument has sufficient supportive evidence for its validity.