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A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES

WITHIRONG SUTTHIGOON

Burapha University

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AMONG THAI NURSES

WITHIRONG SUTTHIGOON

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The Dissertation of Withirong Sutthigoon has been approved by the examining committee to be partial fulfillment of the requirements for the Doctor of Philosophy in Nursing Science of Burapha University

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WITHIRONG SUTTHIGOON : A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES. ADVISORY COMMITTEE: NUJJAREE CHAIMONGKOL, Ph.D., KHEMARADEE MASINGBOON, Ph.D. 2021.

Cultural competence is essential to the nursing profession. It is the nurses' ability to deliver nursing practice and communication effectively and appropriately with people from different cultural backgrounds. This cross-sectional model-testing design aimed to test a hypothesized model of nurse cultural competence. Multi-stage random sampling was used to recruit 470 participants who had worked as registered nurses for at least 6 months. Participants were from eight hospitals, both private and public, in the four provinces in Thailand most popular with foreign tourists. Data collection was carried out from July to December 2020. Research instruments were the Cultural Competence Scale for Clinical Nurses, the Generalized Ethnocentrism Scale, the Multicultural Experiences Questionnaire, the Subscale of Cultural Competence Assessment Instrument, and the Goal Adjustment Scale. Their Cronbach alpha reliability ranged from 0.80 to 0.92. Descriptive statistics and Structural Equation Modeling were used to analyze the data.

The results revealed that the modification of the hypothesized model fit the data well ($\chi2 = 32.860$, $df = 21$, $p = .048$, CMIN/ $df = 1.565$, GFI = .984, CFI = .988, and RMSEA = .035). Organizational cultural competence support had direct and indirect effects on nurses' cultural competence through adaptation ($\beta = .16$, and $\beta = .15$, $p < .05$). Ethnocentric attitude and multicultural experience had indirect effects through adaptation ($\beta = -.09$, and $\beta = .31$, $p < .05$). Adaptation had a direct effect on nurses' cultural competence ($\beta = .62$, $p < .05$). Ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation accounted for 49.0% of the variance in predicting nurses' cultural competence. These findings suggest that this causal model of nurse cultural competence fits the empirical data. An intervention to promote organizational cultural competence support and adaptation should be developed and implemented among Thai nurses to achieve optimal cultural competence.

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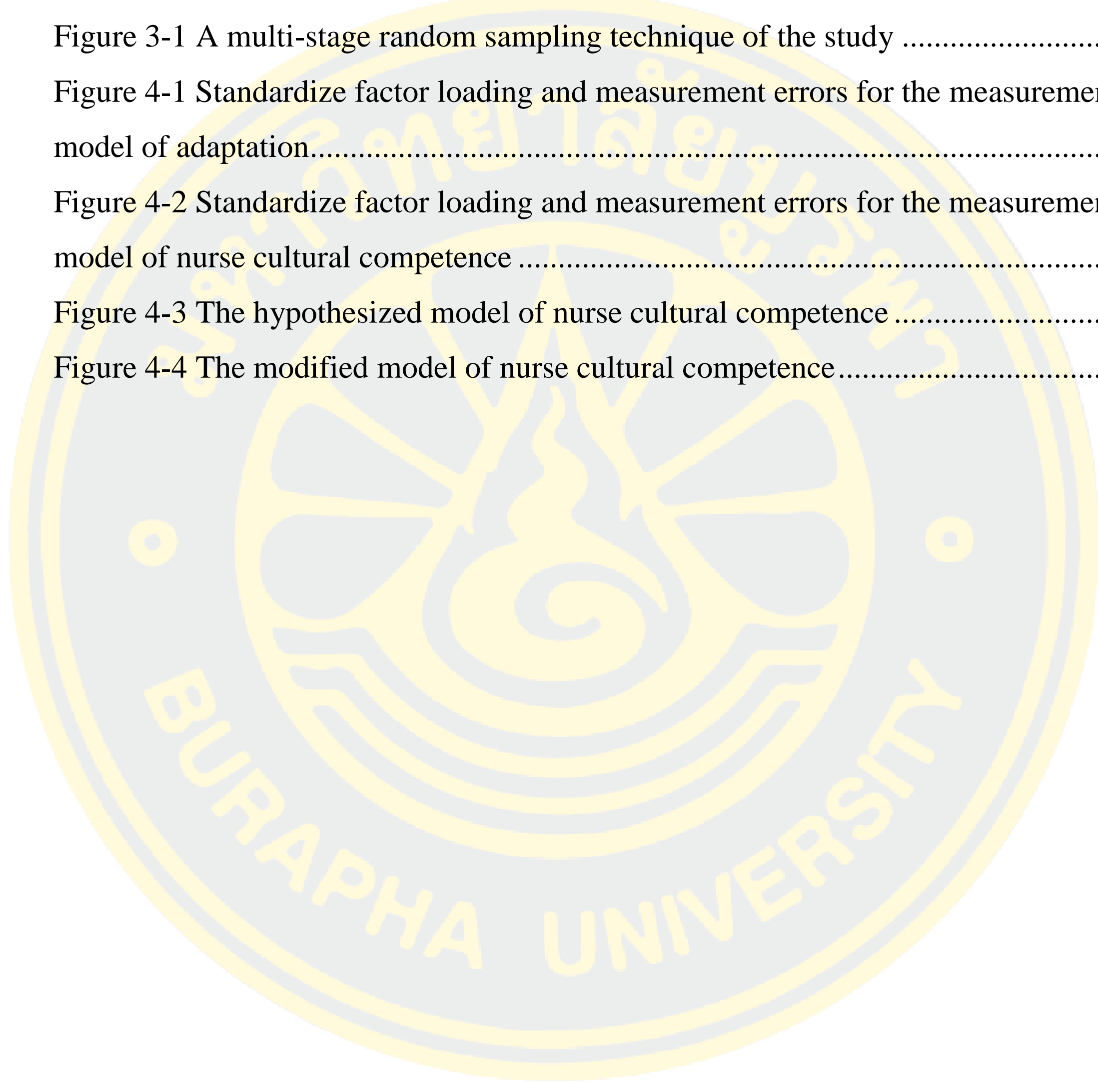


CHAPTER 1
INTRODUCTION

Statements and significance of the problems

Globalization is the originally interaction of economic process and associated about background, cultural and social aspects, particularly in developing countries such as Thailand (Vimolsiri, 2016). Thailand has a different culture from many people around the world and is the opening country of the world economic country element that is similar to the door to an economic center. While Thai policy has been encouraged for the other country in Thai business and a well-known destination for tourist in many decades, it has shown this present decade as a medical tourism (Supakankunti & Herberholz, 2012). It makes many other countries focused to Thailand and became an explicit "Medical hub" for more than past 10 years. The number of foreigner clients was shown 1.4 million in 2009 including foreigners and general tourists who live or work in Thailand and until now the number has still bigger than the past. Thailand also employs alien workers and hosts tourists from around the world with a total of 24,500,616 foreigners in 2017 (The Department of Tourism, 2017; Thai Immigration Bureau, 2017). The groups of foreigners visited to Thailand included tourists (60%), AEC worker (30%), multi- countries worker (5%), and other (5%) (Ministry of Tourism and Sports, 2017). From this number, it was approximately 3,400,000 visits to public hospitals (33.4 % of all) 1,200,0000 visits to private hospitals (22% of all) (Ministry of Public Health, 2017). As such, the biggest group of foreigners was tourists which was the important aspect to remind the health care organization should promote and prepare the resource for service especially nurses who are the biggest health services providers that directly contacted the clients from across culture (Inpalat et al., 2016).

Thailand Nursing and midwifery Council (2019) determined the transcultural nursing undertaken regulation is maintained to control the standards of ethics of the nursing community and nursing quality, which Nursing Council indicated. This reason is for the caring assurance of client's need and respecting the culture of clients, and is the basic lawsuits from people who have been illness.

Therefore, philosophy of quality in nursing profession is included skills, and knowledge. The practical nurses must be follow by nursing professional value and ethical standard, based on the universal health care practice and the wholistic care. In transcultural nursing of Thai nurse aspect revealed the problem that missing communication between the clients and nurses, this issue has influenced on the relationship and nurses' interaction which effect to nursing outcome (Ieamwuthiwattana & Siriphan, 2017). Therefore, Thai nurses need to understand and effectively perform cultural competence to meet the standards for quality of care not only for different Thai clients, but for all clients with a variety of cultures especially the tourists. Cultural competence is comprehension and acceptance that is culturally sensitive to similarities and differences among cultures to provide appropriate consideration of individual values, beliefs and backgrounds (Blue, Thiedke, Chessman, Kern, & Keller, 2005; Duan-Ying, 2016; Purnell & Paulanka, 2003).

Nurses' cultural competence is the personal ability to provide nursing practice and communication effectively and appropriately to people from different backgrounds and culture (Alizadeh & Chavan, 2016). The important components of cultural competence consist of cultural knowledge, cultural sensitivity, cultural awareness, and cultural skills. Cultural awareness is the transformation of the nurse's consciousness of the different norms, beliefs, values and lifestyles of people. Cultural sensitivity is nurses' perception, comfort and respect for the clients from difference culture. Cultural knowledge is an attainment of nurse in the sound of personal educational such as the various cultural background to achieve the understanding the different among beliefs, values, and the manner of clients. Cultural skills are the competence to performing the cultural assessment to collect investigating the clients' data on their present illness (Alizadeh & Chavan, 2016; Leininger & McFarland, 2006). Cultural competence is very important and direct to nursing profession because nurses are the biggest staffs of healthcare servicer who spend the most time caring for clients in both well and ill conditions. Nevertheless, cultural competence has only been constructed in some nursing curriculum. Therefore, registered nurses may have different experiences with clients from diverse contexts. Moreover, nurses should be aware and make sense of different situations to understand nurses' cultural

competence to promote good nursing practice outcomes (Almutairi, McCarthy, & Gardner, 2015).

Nurses' cultural competence is essential as an "ongoing process" of the nursing profession to produce nurses with specific skills, knowledge, and awareness to caring effectively with clients from difference culture. The goal performance of nurses' cultural competence has several aspects. For clients, culturally competent care could improve health disparities among specific of difference groups of clients within the realm of the assessment of concepts and principles of good nursing outcomes (Duan-Ying, 2016; Joseph, Cherie, & Sheila, 2008). For nurses, cultural competence can transform to cultural proficiency which develop from cultural awareness. Nurses gain respect and trust from clients as they serving nursing activities and facilitate a good relationship and successful interactions with clients (Truong, Paradies, & Priest, 2014). For healthcare organizations, performing a specific competent for working staffs that could provide the good quality of standard care services and can control the budgets of care (Betancourt, Carrillo, & Park, 2005; Truong et al., 2014). As a result, nurses should have implicit cultural competence in recognizing complex and diverse client populations.

According to the transcultural nursing immersion experience model and reviewed related literature, several factors have influenced nurses' cultural competence. This model proposes the convergence of a multifactor which continuing to identify the reequipment to educate nurses for performing culturally focused and appropriate care with understanding of diverse and universal cultural-based care factors. This is described as the process of nurses' perception and the process of professional growth and personal through a transcultural immersion experience in the outcomes of nurses' cultural competence. This model has the following four major components: situational predetermining factors; modifying factors; transitional factors and the outcomes of a clinical immersion experience, which is nurses' cultural competence (Ryan & Twibell, 2002).

The situational predetermining factors include the dimensions of personal experience, perception and cognition in a person's culture in comparison to another culture comprising ethnocentric attitude, multicultural experience and organizational cultural competence support. An ethnocentric attitude is a person's belief that one

judges another based on personal cultural standards which are believed to be better than others. Ethnocentric attitude has influence on nurses' cognition and may undermine the nurses’ capability to provide appropriately nursing care (Jung-Won, 2017; Mounsey, 2007). Some of attitude toward a certain cultural culture can relate to a negative effect on the results of nursing intervention. Prejudice against racist attitudes and social minorities can lead to negative effects on one's cultural competence with a negative relationship reported between ethnocentric attitudes and medical experts' cultural competence (Capell, Dean, &Veenstra, 2008; Delgado et al., 2013). Although ethnocentrism is defined as a kind of ethnic or cultural background egocentrism involving a value and believe in the superiority of one’s own group, it includes practices, values and often contempt, hatred, and hostility towards those difference culture, but can also be related to personal adaptation and views about appropriate cultural competence (Bizumic, 2014).

Nurses' multicultural experience is a context-specific interpersonal process characterized by intimate relationships, interpersonal sensitivity, and nursing practice with clients from different cultures (Finfgeld - Connett, 2007). Furthermore, nurses’ multicultural experience has high influence over both indirect and direct effect on nurses' cultural competence. By definition, multicultural experience is defined to the time spent for contacting in the different cultural zones, attitudes toward people who has been in other cultural background and cooperations with them (Ackerman-Barger, 2010; Endicott, Bock, & Narvaez, 2003). The nurses’ experience in care delivery to culturally difference clients is challenging and demanding because it is consisted of constant tension among the ethical responsibility of care, cultural manifestations, and barriers incipiently revealing all of cultural competency (Eliana, Murcia & Lopez, 2016). Ayong and Atanga (2017) found that the experience of cultural differences in practices, values, health beliefs, health literacy level and communication difficulties are major challenges resulting in unequal access to care for minority patients. Nurses’ multicultural experience can make their own essential contribution to a multicultural approach in the delivery of healthcare services and offer the extensive knowledge and skills base of the myriad cultural specifics accumulated in nurses’ means of selecting appropriate nursing interventions (Gebru & Willman, 2010). The cultural responding and understanding in a multicultural environment in healthcare organization are very

important to the clients and nurse relationship, improve the standard of care and can improve the job satisfaction.

Organizational cultural competence support refers to a group of principles and values that associated along with behaviors and demonstrated attitudes. The structures and policies can effect on work with across cultures from organizational service plan. The organization must focus on manage, conduct self-assessment, the trend of difference, institutionalize cultural knowledge, and the diversity acquire that lean and adapt to the difference culture and the value contexts of the organizational value. It must also integrate an above in all issues of administration, service delivery, and policymaking with systematic involvement in clients and families (Rockville, 2014). It is positively associated with cultural competence by supporting the work system for nurses. Nurses need the support from the organizations to which they belong and required to have appropriate knowledge of different cultures and adaptation in order to achieve their cultural competence (Jafari, Mohammadi, Ahmadi, Kazemnejad, & Shorofi, 2014; Jung-Won, 2017). The environment of work can influence to the health care interactions in the workplace, including interactions with peers, clients, managers, subordinates, and multidisciplinary colleagues. It is operationalized in terms of transfer of nursing practice climate and continuous-learning culture. Climate and culture have both indirect and direct as a moderating effect on nurses' cultural competence (Mareno & Hart, 2013). Organizational support can promote nurses' work quality by assuring the relationship between specific strategies and job to enhance nurses' empathy and adaptation. It would also be powerful in improving the nurses' cultural competence. Moreover, regular systematic education on culturally competence care could be associated to enable nurses to provide culturally sensitive care for multicultural clients and their family (Suk, Oh, & Im, 2018)

The modifying factor is a part of the situational predetermining factors (Ryan & Twibell, 2002), which involve an interaction of a person with an immersion experience such as cannot be completely controlled and what happens at the site by the person. Situational predetermining factors contain intercultural uncertainty and intercultural anxiety (Ryan, Hodson-Carlton, & Ali, 2000). However, Ryan and Twibell (2002) suggested that modifying factors are considered that it relevant to the

multicultural experience from situational predetermining factors. Hence, events involving uncertainty and anxiety have some issue can influence to the context of the experience and it was shown the non - direct effect on nurse cultural competence (Jung-Won, 2017). When a situational site is markedly different from own background conditions, comprehension about coping expectations of personal comfortable could enhance situational adaptation to living conditions toward personal cultural competence (Ryan et al., 2000). In addition, nurses are trained to learn to face unplanned situations in order to reduce anxiety and uncertainty such as actively seeking to overcome obstacles in order to yield good results from nursing practice (Jafari et al., 2014). Lastly, transitional factors are an individual's conceptualizations for improving and performing situational predetermining factors in what is known as adaptation.

Adaptation is a set of personal interrelated systems including social factors, psychological, and biological in which an individual adjustment to maintain a balance of all systems. Individuals strive to live within a unique band in which they can adapt and cope appropriately (Roy, Whetsell, & Frederickson, 2009). Nurses' adaptations is depend on *a personal possession of understanding, knowledge, and skills about a difference cultural people that allows the healthcare staff service to provide appropriate cultural care.* It is defined as a specific kind of working environment to a particular accommodation. Nurses' adaptation is described as a principle which performing a nurse to work effectively in a given assignment. It comprises as the nurses' adaptation for professional work as well as his or her working community (Rogala-Pawelczyk, Parkitna, & Panek, 2002). On duty with the foreigner clients, nurses 'adaptation consist of the goal adjustment that including the disengagement adjustment and reengagement adjustment (Wrosch, Scheier, Miller, Schulz, & Carver, 2013). The adjustment was very important for nurses' adaptation in that nurses learn to perform their profession in addition to taking on social duties involving clients with cultural differences, which is positively correlated with nurses' cultural competence (Halperin & Mashiach-Eizenberg, 2014; Rogala-Pawelczyk et al., 2002).

Nurses' cultural competence is particularly important in today's healthcare service where cultural value have an essential impact on caring process, medical treatment choices, quality of nursing care, and other aspects of the clients care

(Bunjitpimol, Somrongthong, & Kumar, 2016). Although nurses' cultural competence has been studied for more than 30 years around the world, previous studies have rarely found evidence in the Thai context that directly contacted with the tourists. Studies of factors including ethnocentric attitude, multicultural experience, organizational cultural competence support and adaptation would show how the factors affect nurses' cultural competence. Moreover, the findings of such studies could be used as a guidance for nursing faculty curriculum in preparing nursing students to work in the nursing field and for healthcare service organizations. In addition, health policy related to nursing practice with appropriate cultural competence could be suggested.

Research objectives

To test a hypothesized model of cultural competence among Thai nurses.

Research hypotheses

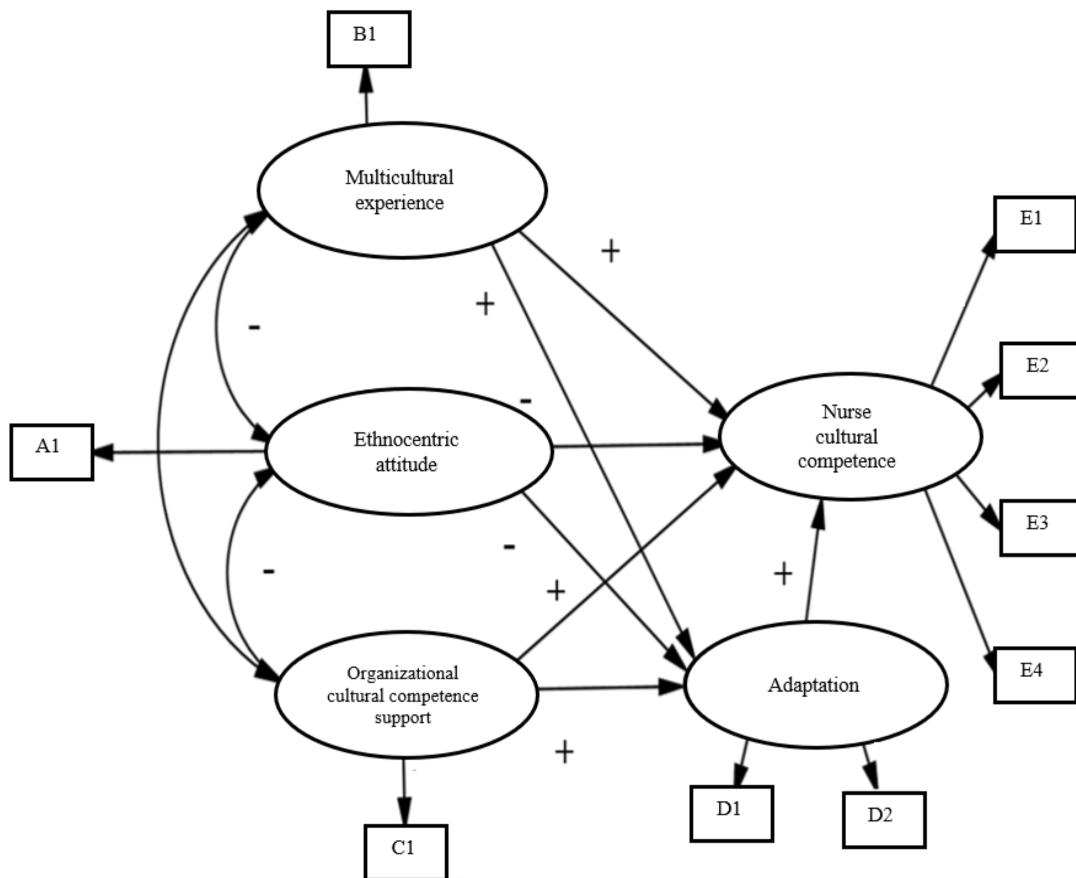
1. Ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation have influenced on cultural competence among Thai nurses.
2. Ethnocentric attitude has a negative direct, and indirect effect on cultural competence among Thai nurses through multicultural experience, organizational cultural competence, and adaptation.
3. Multicultural experience has a positive direct, and indirect effect on cultural competence among Thai nurses through adaptation.
4. Organizational cultural competence support has a positive direct, and indirect effect on cultural competence among Thai nurses through adaptation.
5. Adaptation has a positive direct effect on cultural competence among Thai nurses.

Conceptual framework of the study

A causal model of nurses' cultural competence in this study is the conceptual framework developed based on the transcultural nursing immersion

experience model (Ryan & Twibell, 2000) and reviewed related literature. Ryan and Twibell described the process by which adaptation during the immersive experience of nursing overseas can affect both of professional growth and personal of nurses. The factors affecting the conditions related to nurses' cultural competence in this model include ethnocentric attitude, multicultural experience, organizational cultural competence support and adaptation.

Each component of the above factors can be explained in that situational predetermining factors include ethnocentric attitude, multicultural experience and organizational cultural competence support. Ethnocentric attitude is an individual's belief that a person is better than other individuals for reasons based solely on the person's heritage and belief of superiority in the person's ethnic group (Neuliep & McCroskey, 2013). Multicultural experience is the time spent in different cultural zones, attitudes toward people from different cultural backgrounds and interactions with them. Examples include long-term and short-term overseas stays, fluency in the number of foreign friends or foreign acquaintances a person has, foreign languages, experiences in receiving related training and knowledge about clients, and the number of foreign patients they have cared (Endicott et al., 2003; Almutairi et al., 2015). Organizational cultural competence support refers to a group of congruent policies, attitudes, and behaviors that enable an agency, or group of professionals to work effectively in multicultural environments, and the system of service (Balcazar, Suarez-Balcazar, & Taylor-Ritzler, 2009). Transitional factors can be explained by adaptation, which is personal adjustment and improvement on duty situation which as a process that prepares nurses to work effectively with cultural diversity (Rogala-Pawelczyk et al., 2002; Burgess, Irvine, & Wallymahmed, 2010; Wrosch et al., 2013). The conceptual framework for the study is presented as the hypothesized model in Figure 1-1.



Note; A1 = Generalized Ethnocentrism, B1 = Multicultural Experience Questionnaire, C1 = Subscale of Cultural Competence Assessment Instrument, D1 = Disengagement, D2 = Reengagement, E1 = Cultural Awareness, E2 = Cultural Sensitivity, E3 = Cultural Knowledge, and E4 = Cultural Skills

Figure 1-1 The hypothesized model of cultural competence among Thai nurses

Scope of the research

The study of Thai nurses' cultural competence used a model-testing design aimed at testing the hypothesize model. The data were collected from nurses working in tertiary hospitals under the public health of Thailand and the private hospitals in Thailand in 2020.

Definition of terms

Nurses' cultural competence refers to Thai nurses' ability to deliver nursing practice and communication effectively and appropriately with people from culturally different backgrounds. Nurses' cultural competence can be measured based on the following four elements: cultural awareness, cultural sensitivity, cultural knowledge and cultural skills. In this study, cultural competence was measured by using the cultural competence scale for clinical nurses (Chae & Lee, 2014).

Ethnocentric attitude refers to the Thai nurses believe their culture based on preconceptions originating and using for evaluation and comparation that being better than other culture. In this study, ethnocentric attitude was measured by using the generalized ethnocentrism scale (Neuliep & McCroskey, 2013).

Multicultural experience refers to the nurses' working or interactions that incorporate including place, language, and people from different countries and cultural backgrounds. It is a specific cognitive specialty in nursing that focuses on health and nursing phenomena, comparative cultural caring, and global cultures. In this study, multicultural experience was measured by using the multicultural experiences questionnaire [MEQ] (Narvaez & Hill, 2010).

Organizational cultural competence support refers to a policy or a set of congruent attitudes and behaviors that enable a system, agency or group of nurses to work effectively in multicultural environments**.** In this study, organizational cultural competence support was measured by using the organizational cultural support scale, which is a subscale of the cultural competence assessment instrument (Balcazar et al., 2009).

Adaptation refers to Thai nurses' adjustment while approaching the clients from difference country to improve and balance among environment, health, and the goals of nursing outcome. These adjustments are included the disengagement adjustment and reengagement adjustment, it was measured by using the adjustment scale (Wrosch et al., 2013).

CHAPTER 2
LITERATURE REVIEWS

This chapter presents the review of related literature on cultural competence among nurses, the model of transcultural nursing immersion experience and factors related to nurses' cultural competence.

Cultural competence among nurses

The world situation with increased global interactions has resulted in the growth of international trade, ideas and background. Therefore, people around the world prioritize cultural competence, particularly in healthcare services (Duan-Ying, 2016). Almost countries are opening that focused on the diversity of each culture apparel with the globalization. From the opening countries, prepare their healthcare providers for inside and understand the different culture and the linguistic populations needs. This linguistic context requires the providing service to be aware of their customers' cultural needs and provide them with culturally appropriate services (Sharma, Tam, & Kim, 2009; Stauss & Mang 1999). Cultural competence is the understanding and acceptance of cultural value based on the similarities and differences among cultures to congruent provide for individual values, beliefs and culture (Blue et al., 2005; Duan-Ying, 2016; Purnell & Paulanka, 2003). The responsive of culturally skills can influence to client adherence in services, therapeutic relationships between clients and health care staffs, and the whole of medical outcomes. It is very important to ingredient in releasing a disparity in personal health activities (Acevedo-Polakovich et al., 2007; Wearne, Dornan, Teunissen, & Skinner, 2012).

The evolution of cultural competence might be effect on many issues that not only for clients, but for healthcare staff service and social affected also. The improvement of cultural competence can link to the organizational policy by beneficial the of different value, responsiveness and flexibility in an appropriate the changing of clients' needs, the resource of healthcare and social (Abbott et al., 2014; Acevedo et al., 2012). Culturally responsive organizational strategies and healthcare

services can promote and monitor the organizational risks, so that organization can provide cost-effective in service. Thus, culturally responsive organizational regulate and procedures should support the health care providers for their purpose in responsive of culturally care by conducting program to training, supervision and appropriate policies and working guideline that encourage staff to focus on a culturally standard in service to clients' psychological, diversity and organic problems (Watt, Abbott, & Reath, 2015). The concept of diversity as a way of life has demonstrated the need for nursing and healthcare to educate providers and develop systems that value diversity while striving to provide the culturally competent service. Although the philosophy of cultural competence has been still developed to nursing over the past 20 years, this evolution has produced as a body of the studies that concerned from the clients' cultural background. In addition, the theories of nursing have been developed to answer and placing the phenomena of cultural diversity and commonality (Campinha-Bacote, & Padgett, 1995; Campinha-Bacote, 2002; Purnell, 2000; Leininger, 2001). Healthcare organization are inevitably affected by this opening trend and some have established some of strategies for informing and instructing nurses on how to more effectively and appropriately care for people.

Cultural competence be not acquired in only box of framework or by inciting a component of truth about diversity of people; background are different and continuously evolving. It has been the running process that depend upon cultural awareness and a social to contribute the role which culture changes in that healthcare system (Acevedo-Polakovich et al., 2007; Ahmad & Bhugra, 2010). The evolution of cultural competence is a fluid and specific process which ongoing self-assessment and continuous diffusion of personal cultural knowledge. It has changed over time, originating with a comprehension of a personal value, continuing through contacted with individuals from difference background, and extending through one's own experience of learning, especially in the nursing profession (Abe, 2012; Abbott et al., 2014). The important point is to provide the culturally competent care for nurses, who active in high-acuity, high-pressure healthcare service. Nurses must adapt their cultural competency to be effective in caring with clients, and to accurately assess, develop and implement nursing interventions appropriate with a patients' needs (Browne et al., 2009; Flowers, 2004).

Definition of nurses' cultural competence

The cultural competence and transcultural nursing concept was proposed in the United States in the 1950s in focus on the awareness of a difference culture arising from diversity people (Andrews & Boyle, 2002). The definitions exist for the term cultural competence. Nurses' cultural competence is determined by the U.S. Office of Minority Health [OMH] (2001) as "a set of congruent behaviors, attitudes and policies that come together in a system, agency, or among professionals that enables effective work in cross-cultural situations". The California Endowment (2003), a private grant-endowing health foundation, states that nurses' cultural competence proposed the set of knowledge, skills, and attitudes to standard of service and appropriate nursing practice to each client. "An ongoing process in which nursing continuously strives to achieve the ability of effective work within the cultural context of the client (individual, family, community)," was proposed the attributon by Campinha-Bacote (2002).

The nurse cultural competence is apprised as a nurse ability including self-exploration through self-awareness; participation skills enabling the nurse to appropriately approach with client from difference culture; and the competency of excellent service and plan for them (Calvillo et al., 2009). Some experts in the field use the terminology "CLAS" or Culturally and Linguistically Appropriate Services (Medscape Today, 2005) defined that, by being culturally competent, nurses should gain their awareness in nursing diagnostic and its inyervention racially and different background of people. Hence, nurses' cultural competence refers to the ability of nurses in providing multicultural care, including knowledge, attitude and skills to serve nursing activities and participation effectively and appropriately with people from culturally different background in holistic care (Alizadeh & Chavan, 2016).

The five components characteristic of cultural competence are described by nurses who active in a healthcare system. These characteristics are cultural skills, cultural knowledge, cultural sensitivity, cultural awareness and dynamic processes.

Cultural skills refer to the nurse competence to prepare cultural investigation to collect and related to cultural context on a client's important health problem in addition to solving incorporating the direct data for nursing planning and implementation in an appropriate behavior (Leininger & McFarland, 2006; Matteliano

& Street, 2012). These skills are assured with an effective participation, that includes in the verbal and the nonverbal language which could be run together by people of diverse cultures (Campinha-Bacote, 2007). The best way using of perception is sometimes nurse must get a good understanding for interpreting data from foreigner clients (Berger, Conroy, Peerson, & Brazil, 2014). Moreover, factually reliable, value of potential resources, available, and should be included to shape and interact satisfaction, beneficial and safety of care for the difference of people context (Karmali, Grobovsky, Levy, & Keatings, 2010). Lastly, a cultural skill component is one part of the important characteristics of culturally competent, that is obviously showed in the literature (Dudas, 2012; Campinha-Bacote, 2010). The cultural competence process is "becoming culturally competent rather than being culturally competent," (Campinha-Bacote, 2010) with consistent encounters for the client's context. Culture, that is contributed by any factors, has a fluid nature; since, cultural competence could not be a fixed pattern. Client can express their feeling about their pain and concluded their problems and remind variably from the difference background. Nurses could not be achieved to get cultural skills and knowledge to earn a practice which is culturally consistent to every people (Purnell, 2012; Zander, 2006). Moreover, cultural competence could be gradually approved through running process to serving care based on clients' believe and their contexts.

Cultural knowledge is defined to nurses' attainment of the education base on an area cultural zone to keep in mind about the diversity of beliefs, values and behavior of customers. The appropriate understanding usually involves "the rule should do" and "the rule should not do" in participating with people from different background (Campinha-Bacote, 2007), and these life style are included to eating, language and some behavior. For these concepts, the different of life activities should be respect and trust from people can be avoid (Musolino et al., 2009). Nevertheless, the knowledge that nurse could be prepared them-self before start the service with clients is focused to that culture (Campinha-Bacote, 2007). The characteristic of subcultures in the different value could help remind the conflicts of that culture and served the appropriately care for each people, which should be obtained through actual encounters. Nurses should be make the understanding to the principles, models, or theories associated with the mission of caring for clients who has a different culture

(Campinha-Bacote, 2010), that could the health care staff invest and identify clients and their relative needs for appropriate service intervention.

Cultural sensitivity is described to nurses' acceptance, and convince with clients who have a difference believe. The people culture and background cannot be constrained to be the same, and the difference of each culture is a logical flow. The diversity of culture should be respected to achieve mutual learning for the basic role. In addition, the perception from personal background is important to an individual should be suggest (Dudas, 2012). Respect for differences of background is always important to providing the excellence service of caring for people (Campinha-Bacote, 2007; Starr & Wallace, 2011). The appreciation and respect are depend upon a good feeling with cultural diversity change to the false flattery to particular context (Ingram, 2012; Purnell & Paulanka, 2003).

Cultural awareness is described about the development of the nurse's responsibility about the diversity of context, norms, beliefs, and lifestyles of patients (Leininger & McFarland, 2006). The similarities of culture and its differences among clients should be respected, and the affect of culture over health should be apprised in the mission of nursing procedure (Campinha-Bacote, 2007). The cultural and individual background, biases, or engagement of nurses toward other cultures recognized to be different should be investigated (Ingram, 2012; Purnell & Paulanka, 2003). Nurses should increase their understand about the difference of values, beliefs and served the appropriate care to the other cultural of area. It could be express to their awareness, their own cultural background, value and behaviors.

Importance of nurses' cultural competence

Cultural competence for healthcare providers, particularly for nurses, has been demonstrated through practice and in the literature for many years. The changes in the complexion of the population have created an increase in cultural diversity across the country and necessitated formal recognition of the urgency for healthcare and nursing to develop a culturally competent method of providing culturally congruent and appropriate care. The nursing profession must encourage necessary curriculum changes to incorporate cultural care as a consistent component of the educational process and field training. Thus far, the content of nurse cultural competence in the unique of healthcare system has been raised a fairly broad assess,

considering the whole of healthcare service. However, cultural competency is especially focused to the nursing profession because the nurses work always contacted and caring clients more time than any other healthcare staffs (Waite & Calmaro, 2010).

Nursing practice is a client-centered; therefore, preparing nurses 'cultural competence for caring is a standard if that care is to be appropriate and effectiveness (Green-Hernandez, Quinn, Denman-Vitale, Falkenstern, & Judge-Ellis, 2004). It follows then which inciting that people culture willing, or should, ultimately serve to direct nursing practice. Nurses providing culturally competent should have the potential to increase access, achieve the quality of nursing, and retained the patient satisfaction, thereby leading to the good outcomes for foreigner clients (Ervin, Bickes, & Schim, 2006; Waite & Calmaro, 2010). Nurses should be able to integrate their skill for appropriate nursing care services that congruent with the clients' cultural values, life style and needs in order to achieve a positive nursing outcome (Clark et al., 2011). According to Green-Hernandez et al. (2004), nurse cultural competency includes respecting the uniqueness of different clients, accepting the human rights as a personal need to interact in appropriate care, acknowledging personal attitude and preventing the perception of this bias that should be considered in nursing procedure. Therefore, nurse should aware and make the sense to understand the clients cultural context and act with cultural sensitivity when dealing with clients (Green-Hernandez et al. 2004).

The effect of nurses' cultural competence indicates the following three aspects: clients from different culture, nurses and the organizations of healthcare. For clients, culturally competent care can be improved health disparities among people from different culture (Brusin, 2012; Betancourt, Corbett, & Bondaryk, 2014). Positive approaching between nurses and clients can be obtained. Thus, every planning and a set of treatment must be appropriate with clients' background. Positive communication leads to the increase of the impression with standard of care and the client's adherence (Brusin, 2012). Moreover, the most benefit goals for clients have been reported as biochemical, symptoms, physiological, and indices have improved (Campinha-Bacote, 2010). The aspect of cultural encounters, nurses also must focus on cultural competence care for additional knowledge and skill for caring with a

difference client's context. Nurses could adapt from perceiving cultural awareness to achieve the proficiency of culture. Nurses also gain respect and trust from people as they deliver nursing services to clients, from facilitating of cooperative participation and adherence interactions from clients (Truong et al., 2014). For healthcare institutes, achieving a culturally competence for the team work that can deliver appropriate services in order to determine the budgets of service (Betancourt et al., 2005; Truong et al., 2014). Providing nurses' cultural competence care may avoid the under standard care claims. It is a crucial recommend for the organizations of healthcare service (Truong et al., 2014).

Nurses' cultural competence in Thai context

Thai nurses context, nurses focused the importance and the goal of caring procedure in their work and cultural competence. Their guideline of nursing is directed from the morality and ethics of Thai culture. The aspect of Thai nurses in transcultural nursing, nurses work with the clients from different culture by learning from doing. Recently, a nursing curriculum has more established on nurses' cultural competence that integrated from the global changed (Ieamwuthiwattana & Siriphan, 2017). Nursing organizations are including the Thailand Nursing and Midwifery Council, Thai Nursing Association, and International Council of Nursing (International Nursing Council, 2002) contributed the practice of nursing role, has established and controlled nurses and nurse midwives for Thai nursing standard care appropriately with the clients' context. In addition to these institutes, healthcare organizations are also encouraged and supported for promoting the nurses' practice under taken a code of nursing ethics and standard of care (Chanthrapha, 2002). Nevertheless, the quality regarding nurses' caring behaviors and cultural competence have been developed which need to be placing in a nursing care that can be run together by nurses, the public community, and clients (Udomluck, Tonmukayakul, Tiansawad, & Srisuphan, 2010). Thus, a culturally sensitive in nurses' cultural competence means of Thai nurses' context is needed.

The summarized of committee, Thailand nursing and midwifery council developed in the fourth convention in April, 2009 (Nursing and Midwifery Council,

2009). The council announced the nurse competency overall 8 competencies 1) Moral Ethic and Law competency 2) Nursing operation and midwifery 3) Vocational competency 4) Leadership competency 5) Academic and Research competency 6) Communication and relation competency 7) Technology and information competency and 8) Socialization competency. In April, 2009, the overall approved the nurse competence in 3 categories as nursing organization, nursing practices and nursing outcome. According to AEC preparing, Thai nurses' cultural competence was defined by Srisupan, Luang-amornlert, and Sawaengdee (2013) Thai nurses' competency is described to nurse's characteristics must be from attitude, skills, and knowledge. The other characteristics desired to allow nurse to achieve organization duty, mission, and vision. Nursing Profession Competency was announced about core competency, focused 5 competencies as 1) achievement motivation, work environment require professional competent nurses not only shaped well but containing a creative, have a desire to achieve success, be able to work under stress situation, and complete the organizational and personal goals 2) service mind, is a nurse comprehension of service with the clients from difference culture by keep clients' background in her mind 3) expertise, is special skill or knowledge that is adapt by training, study, or practice that depend upon a nurse experience 4) integrity, is the nurse practice from the honest and uncompromising adherence to strong moral and ethical principles and values with showing a consistent 5) teamwork, is the effort collaboration of an organization to achieve a setting goal or to complete a task in the most effective and efficient way in nursing community. Working competency comprises 4 components of competency 1) caring and developing others 2) proactiveness 3) analytic thinking 4) conceptual thinking (Public Health Nursing Division, 2011; Thailand Nursing and Midwifery Council, 1997; Nursing and Midwifery Council, 2009).

Bunjitpimol1 et al. (2016) evaluated the effect of case based cultural competency level and its factors affecting on nurse job in two private hospitals of Bangkok. The total 166 nurses were examined in this study. The post intervention aims to test cultural attitude, knowledge, and practice. The findings among competency score levels were shown increased among the nurses in the intervention group as compared to control group ($p < .05$). However, the study showed that

nurses‘cultural competence were considered as low to moderate. The nurses' cultural competence has been clarified the component of nursing practice. The culturally competent nurses can achieve in the best caring outcome for clients and it could transform to the better healthcare service goal. As the finding, while knowledge competency level can fluid as increase and decrease in a short time of period, the levels of attitude and practice competency might need to improve from a longer duration. Therefore, nurses' cultural competence attitude and behaviors could be improved through adopting that influenced on professional cultural practice as well as the advancement of career and the career satisfaction (Rerkrujipimol & Assenov (2011). The level of person in cultural confidence is showed significantly directed to the cultural sensitivity which under-confidence of a person may introduce cultural pain in a person or overconfidence (Beck, Scheel, Oliveira, & Hopp, 2014; Dauvrin & Lorant, 2015).

Songwathana and Siriphan (2015) examined the level of Thai nurses' cultural competency in caring for clients living in a multicultural area with 126 RNs who work at the southern of Thai-Malaysian border region from local health centers, community hospitals, and tertiary hospitals. The finding revealed that the nurses' overall cultural competency was a moderate level shown. Cultural encounters, cultural desire and cultural awareness were at a high level, but cultural skill and cultural knowledge were at a moderate level. No significant differences were found according to training experience about multicultural care, or a period of working, health-care setting but differences were found across religion. Moreover, the development of particular competence about different cultural care is very important for the new graduated who work in all setting of health care organization in the area in order to adapt the development of services training to achieve the cultural needs and value of equality. In addition, this information is benefit for planning in the nursing curriculum to training nursing student for preparation the significant competency in cultural skills to be ready for caring in the diversity of cultures, to gain awareness with the difference of cultures and can integrate their knowledge into their practice (Songwathana & Siriphan, 2015). The cultural competence in Thai nurses has developed for a long time, the goal of quality in nursing outcome should focus

originated in the curriculums all of nursing profession and must be refresh the cultural competence appropriately with the world trend.

Model of transcultural nursing immersion experience

1. Model development

The model of transcultural nursing immersion experience was proposed by Ryan and Twibell (2000). It was developed based on the following three main theories: 1) universality theory and the culture care diversity; 2) the cultural competence process in the delivery of healthcare services and 3) the Purnell model for cultural competence.

Madeleine Leininger is apprised with proposing the theory of transcultural nursing (Leininger, 2002). She mentioned the competence of cultural awareness and as a nurse's obligation. The way to excellent of cultural competence would contain a path by which a nurse' s knowledge and excepted the different of culture in a planning to service all cover care (Leininger, 2002). This theory was the early emphasize the original for a nurse cultural competence force and the holistic defining of service procedure that the nurse should keep on all of the needs of each the difference clients in an effort to service culturally appropriate care for 29 difference patient populations (Leininger, 2002). She explained the interwoven nature of culturally competent care and the factors that influence its delivery. The significant factors obtained language, economics, religion, environment, cultural values, politics, history, gender, and worldview. This concept focus on nurses with an identification of the different factors that influence on personal health in a manner that highlights the need for culturally congruent, meaningful caring practice and safe to all clients (Leininger, 2002).

The philosophy of content is to explain differences and similarities in value care through the basic need for the nursing community (Ryan & Twibell, 2002). The important point of Leininger's theory is human caring and credited for the factors that effected to the caring. The aspects of social structure and culture which leaded to nursing care are obtained economic and educational factors, social, religious and philosophical technological, and kinship. Leininger developed this theory for

improvement that is the specific of culturally component and corrected to ensure that potential care could be suggest. Nurses should have the responsibility to adaptation about the client's background for whom they approach (Boyle, 2000). Leininger mention to described the culturally proficiency care in nursing process of care. The area of caring immersion experiences provides an opportunity to achieve culturally sensitive service and could be find and empower if provide from organizational staffs (Ryan & Twibell (2002).

Campinha-Bacote and Padgett (1995) developed a factor related to cultural competence for healthcare staffs. It is a conscious of culturally model of care which described cultural competence as "the process in which the healthcare professional continually strives to achieve the ability and availability to effectively work within the cultural context of a client" (individual, community, or family). This framework of cultural competence included cultural desire, cultural awareness, cultural encounters, cultural knowledge, and cultural skills as the five of cultural competence structures. Cultural awareness refers to the process of establishing the in-depth exploration of one's cultural and professional value and self-examination of personal negative attitude toward difference cultures. It also involves being aim to the existence of specific racism and other "isms" in healthcare service center (Campinha-Bacote, 2007). Cultural knowledge refer to the process in that the healthcare staff service reach and contained the education focus on the culturally diverse background. In the content of this concept, healthcare staffs must retain and formulate the three specific aspect including disease incidence and prevalence, practices and cultural values, and health-related beliefs (Campinha-Bacote, 2007). Cultural skills are defined as an ability to emphasize a cultural investigation to collect data regarding relevant culture which the client's shift complain as well as appropriately planning a culturally based problems investigation (Campinha-Bacote, 2007). Cultural encounters are the development of promoting the healthcare staff service to directly provide care in face-to-face cultural participation and other approaching with clients from difference culture believe for adapting and modify existing value about clients' culture and protect some stereotyping (Campinha-Bacote, 2007). Lastly, cultural desire refer to the activation of the healthcare staff service to "want" to willing in the path of transforming a culturally knowledgeable, culturally aware, and culturally skillful in

addition to achieve cultural encounters (Campinha-Bacote, 2007). From the five constructs intersect, it clearly showed the process of cultural competence becomes. This model was developed and adapted to serves as a framework for nursing practice in such settings as planning of care organizations and a means of cultural competence measurement (Ryan & Twibell, 2002).

Purnell and Paulanka (1998) established a holistic model of cultural competence which directly assess cultural context, behaviors and healthcare practices of personal. This model explained a large circle which originated from a global view which very broad and ends with the personal life experiences in multiculturally setting. Purnell recommended about the influence of personal values, family, the individual's global society, and the community in the healthcare organization as well as participation with difference culture. In short, the foundation of the Purnell model is integrating an understanding of self awareness and of these complex factors, healthcare providers must understand and respect the clients from difference culture (Purnell, 2000). The essence of the model is composed of the following 12 elements: healthcare practitioner concepts, health-care practice, death rituals, spirituality, childbearing practices, nutrition, pregnancy, high-risk behaviors, overview or heritage, bio-cultural ecology, communication, family roles, workforce issues, and organization (Purnell & Paulanka, 2003). Ryan and Twibell (2002) transformed the factors related to worldviews and add the cultural identification explained as primary and secondary attribution of diversity; the broad focus of the model was to produce the nurses' cultural competence.

Core content of the model

The model of transcultural nursing immersion experience was described about the process of adaptation that related to the immersive experience of nursing perception could be influent on the professional growth of nurses and personal. The essence of the model was interacted between situational predetermining factors, modifying factors, transitional factors, and outcomes of the experience (Ryan, et al., 2000).

The situational predetermining factors were described as the construct of the educational adequacy, demographic characteristics and personal characteristics. The content of the educational adequacy refer to knowledge and the curricular information

about the particular background. The situational predetermining factors focused on the personal characteristics of attitudes and values as factors can be affected on their competence to achieve an immersive experience. The demographic factors of commitment to family and financial constraints emerged as barriers to growth during an off-site immersion experience and employment (Ryan et al., 2000). This factor is described by multicultural experience as the time inciting in the different cultural areas, attitudes can be influenced to people from other group of area and participated with them such as in short-term and long-term of living and contacted, fluency in difference languages, numbers of friends from different countries, numbers of foreign clients, experiences of the training and knowledge gained for caring for the clients (Almutairi et al., 2015; Endicott et al., 2003).This factor characteristic , the reviewed related to previous studies can describe and specific defining about ethnocentric attitude, organizational cultural competence support and the duration of nursing experience. Ethnocentric attitude is an individual's belief of being better than other people for validating based solely on culture and background. Ethnocentric attitude can directly affected on personality and personal manner (Neuliep & McCroskey, 2013). Organizational cultural competence support refers to a set of policies, attitudes, and service manner that enable an agency, service, or group of healthcare staffs service to deliver effectively service in the difference culture group (Balcazar et al., 2009). The duration of nursing experience is a direct factor affect in nurses' cultural competence, because appropriate adjudgment is depend upon personal experience leading to good nursing outcome (Benner, 2007; Rafic, Bronwyn, Lucie, Hu, & Yenna, 2017).

Modifying factors are the participation of an individual with immersion experiences such as what happens at a field and what a cause that cannot be a good controlled, including intercultural uncertainty and anxiety (Ryan et al., 2000). Ryan and Twibell (2002) examined the transcultural nursing immersion experience outcomes through the confirmation of a dimensional matrix from two samples of nursing students following interaction with an immersion experience. The reasonable of the character of the experience which was a dimension was examined by 10 items. The living conditions of the site and location were verified as relevant the experience dimensions by 80 percent of the both samples. A strong point of responses revealed

that respondents felt immersed (96%, 79%) in the context and stuck there (88%, 79%). One-third to one-half of the respondents reported missing personal conveniences of daily living (56%, 35%). The participants verified that they had emotional ups and downs (66% to 34%), and 59 and 14 percent confirmed that they felt as if they were been in a difference area. Approximately half (52%, 48%) of the respondents reported feeling like strangers. The negative emotions of feeling frightened (69%, 10%), isolated (45%, 3%), or distressed (11%, 68%) were not confirmed as relevant by the two samples. Wide variation in responses to the situation might have been due to a variety of factors at the site. As a result, the modifying factors were recommended for related to the experience were having emotional ups and downs, feeling dependent and encountering conflicts. Ranked least important were feelings of being "stuck there" and feeling isolated, frightened or homesick. Some nurses explained about personal responses to the experience. Some notes revealed that they experienced none of the feeling effected. The finding recommended in a wide range of personal sensitivity to the characteristic of the experience should be focus, and the full range of emotional responses may not have been fully tapped in the questions. However, the uncertainty situation and anxiety or stress had some aspects effected on the context of the experience in terms of being investigated, negotiated and changed. The individual responses were effected by predetermining factors and in turn influenced strategies for adapt to coping in learning and transition. The modifying factors are part of situational predetermining factors, which can be indicated by multicultural experiences (Ryan & Twibell, 2002).

Transitional factors was mentioned to the multiple operational categorized as the use of preparatory the contents, need for social support, personal coping responses strategy, potential of the communication contacted and adaptation of personal activities. Social support comes from organizational staffs and friends who closely contacted with a host persons or respondents which met on site of work. The basic of coping responses are nature of self-reliant, creative, and confrontive. Transitional factors is the direct effect on the outcomes of the experience (Ryan & Twibell, 2002). By definition, coping activities are ways of perception and behaving adapted the situation to get rid of the uncomfortable experienced was kept in memory, whether this difficulty is external or internal (Martins, Chaves, & Campos 2014). Coping

strategies have been categorized into the following two main types: problem-focused coping and emotion-focused coping. Problem-focused coping is a personal ability to change undesirable circumstances, while emotion-focused coping is solely concerned with managing one's "emotional distress". In terms of coping, the strategy of coping is on relief of feeling uncomfortable with the variety of residing in the way of relieving that make them get a stress. Unlike problem-focused coping strategies, emotion-focused coping strategies would not have as their aim any selecting the different area and context. The problem-focused coping strategy would be used to release a stress situation, an emotion-focused coping strategy would be used to calm down one's response from each stimulus (Folkman, 2010).

In addition, adaptation is a predictor of nurses' cultural competence. Nurses' adaptation is a set of interreacted systems (social, psychological, and biological) in which the personal strives to hold for balance between the systems and the stimuli from the outside as situational predetermining factors. The personal strive to live within a unique band in which they can cope adequately with appropriate adaptation (Roy et al., 2009). Adaptation is dependent on having the skills for interacting with a diverse cultural site, understanding, and knowledge that allows the healthcare provider to provide acceptable cultural care. It is focused as a kind of working accommodation to a difference environment. Furthermore, nurses' adaptation is described as a process that prepares the healthcare staffs to work from standard in order to give a position and comprise an employee's adaptation to professional work as well as his or her working environment (Rogala-Pawelczyk et al., 2002).

The outcomes of the immersion experience refer to the dimensional analysis as the professional growth and personal. The development in professional and personal contexts has been focused on the expected outcomes of the transcultural experience and a development of values through the additional sensitivity to the difference cultural. From the qualitative approach which work appropriately refer to the positive outcome for changing nursing intervention, thus, the operation of caring with an increased recognition of clients from difference culture. The changing for accurately care in practice not only occur during the immersion experience, yet after work and returning the private area. Changes are instead as the illustration by memory

about years after the immersion experience and culturally sensitive care in practice even months (Ryan et al., 2000; Ryan, & Twibell, 2002).

Factor related to nurses' cultural competence

From model of transcultural nursing immersion experience and reviewed related literatures, the factors related to nurses' cultural competence are ethnocentric attitude, organizational cultural competence support, multicultural experience, and adaptation.

Ethnocentric attitude

Ethnocentric attitude is an individual's belief that one judges others based on his/ her own cultural standards as being better than others. Ethnocentric attitude has indirect and direct influences on nurses' cultural competence and may undermine the capability of nursing staff to provide culturally potential nursing care (Mounsey, 2007; Jung-Won, 2017).

Capell et al. (2008) studied the factors between ethnocentrism and cultural competence among healthcare staffs. Nurses, occupational therapists, and physical therapists (N = 71) from three hospitals in British Columbia, Vancouver, and Canada, participated in the survey research project in which ethnocentrism scores and cultural competence scores were found to be inversely related ($r = -.28$, $p = .017$). The finding recommended that cultural competence may not be directly affected from ethnocentrism. The elements of cultural competence were described from many studies vis-à-vis its correlate and can predict to the clinical outcomes. Moreover, the study of Jung-Won (2017) revealed that ethnocentric attitude has both indirect and direct effects on nurses' cultural competence. Ethnocentric attitudes can be the important factor as the capability of healthcare staff to achieve culturally accurately care services (Campinha-Bacote, 1999, 2007), and a negative attitude can be a certain cultural context that related to a negative effect on the medical program outcomes. Prejudice against the community watch and racism attitudes can related to negative effects on personal cultural competence (Jeffreys & Dogan, 2010; Kim, Choi, Ahn, Jung, & Kim, 2015) with a negative attitude, it was confirmed between personal cultural competence and ethnocentric attitudes (Capell et al., 2008).

Multicultural experience

Multicultural experience is a context of interpersonal process that is attributed by practice of nursing, intimate relationships, and interpersonal sensitivity with clients from difference cultures (Finfgeld-Connett, 2007).

Endicott et al. (2003) examined the relationship of multicultural experiences with mindsets and moral judgment by using an undergraduate sample of 164 subjects. The multicultural experiences questionnaire [MEQ] was developed to test the relationship of fixed mindsets, growth, closed mindedness, and multicultural experience to moral judgment. The results showed that greater multicultural experience was related to lower levels of closed-mindedness and higher levels of moral judgment and growth mindsets. Higher MEQ scores were found to be directed with decreased higher moral judgment scores and closed-mindedness. In regression analyses controlling for age and gender, higher MEQ scores positively predicted participant scores on growth mindsets and post-conventional moral judgment, but negatively predicted fixed mindsets and the use of less developed moral judgment. Therefore, these findings can explain the validity of the MEQ and recommended that multicultural experiences are positively related to test of growth mindsets and the moral judgment. Moreover, multicultural experiences can positively predict nursing competency and its outcomes. This paper investigated nurses' multicultural experiences about long-term and short-term time of living, has been contacted in foreign languages, numbers of friends from difference countries, numbers of foreign clients cared for, experiences in a training course for gaining a knowledge of foreigner clients care. Nurses adapted their multicultural experiences by earn the training in transcultural nursing, overseas visits, foreign language training, and multicultural immersion experiences because the high of multicultural experiences have been influenced and related to higher cultural competence (Endicott et al., 2003; Choi, 2011).

Meanwhile, a report by Choi (2011) revealed that, while a visit to a foreign communities, a one-off training course, and short-term stays overseas have little to do with repetitive education, personal cultural competence more than three visits to a foreign communities and long-term of time stays of more than a year are directly effect on improvements in cultural skills and cultural awareness. These results implied

that an overseas experience program purposed to contributing personal multicultural experiences could be offered repeatedly for avoid becoming an ineffective one-off event. The program of cultural competence training could be adapted beyond one-time courses that linked to specific knowledge. Rather, they should be a steady and long-term course that could heighten trainees' cultural sensitivity and awareness enabling trainees to embrace and respect the difference background. Through indirect and direct multicultural experiences such as studying, eating, visiting and making a friends from difference countries, these experience should be increased promoting their cultural awareness and cultural skill.

Ayong and Atanga (2017) examined the overcoming of nursing care challenges in a multicultural healthcare setting. The study was purposed to investigating the nurses face and their feedback when providing service for people of diverse cultural backgrounds and the impact of multiculturalism on nursing care intervention. It also tested the strategies that can be linked to prepare nurses in particular caring. The study was a literature review of 18 articles. According to the findings, cultural differences in background, personal beliefs and practices, health literacy level and participation difficulties were major challenges resulting in unequal access to care for minority clients. Moreover, nurses needed for supporting the resource such as the training appropriately care for foreigner clients aim to promoting the nurse cultural competence. In conclusion, multicultural experiences, cultural accommodations and understanding about a multicultural healthcare resource are all beneficial to encouraged the relationship between the patient and nurse, improves the quality of care and increases job happiness.

Multicultural nursing experience in the year of working also directly influences experience for development about nursing practice in that the long period of working in nursing can predict good nursing care outcomes. Transforming experienced as a nurse is described as frequency of interaction between experience, understanding about the lived world trending in a personal and unique inside of practice (Rafic et al., 2017; Jafari et al., 2014). Almutairi, Adlan, and Nasim (2017) investigated the perceptions of critical cultural competence [CCC] of nurses working in many hospitals across the province of British Columbia, Canada, with a sample of 170 nurses. The findings showed that the nurses' perceptions of CCC were positive

with a mean score of 5.22 out of 7.00 for the total number of items ($n = 43$) and a standard deviation of 0.54. The mean scores for the CCC subscales ranged from 4.76 (for critical skills) to 5.42 (for critical empowerment). The results showed a statistical difference in CCC perceptions based on participants' age and country of birth with $p = 0.05 < 0.05$ and $0.029 < 0.05$, respectively. Nurses' age (experience) and country of birth may influence their perceptions of CCC as gaining cultural competence requires exposure to caring for patients from various cultures and countries, and nurses are related to cultural awareness and knowledge. However, the recommendation of this findings was about healthcare centers must encouraged

the cultural training programs to promote their nursing staff's level of cultural competence, so they are better able to participate with potential difficulties arising during the cross-cultural contacts.

Organizational cultural competence support

Organizational cultural competence support is a group of principles and values along with demonstrated structures, policies, attitudes, and behaviors that enable influence on working with cultural diversity. The organization should focus a adapt to diversity and the cultural contexts of the community's service, skill, acquire and institutionalize cultural knowledge, and culturally diversity, operate the self-assessment, monitor the trend of difference. It must also relate to the planning of policymaking, and administration and service quality as well as systematically involving clients and it relatives as well as nurses cultural competence (Dewi & Riantoputra, 2019).

Anderson, Scrimshaw, Fullilove, Fielding, and Normand (2003) examined the cultural competence in healthcare service system with a systematic review. The review showed that organizational cultural competence support has both indirect and direct impacts on cultural competence by releasing the uncertainty situation and encouraged the good coping process, the study recommended that nurses needs an assistance from the organizations to which they belong in an appropriate knowledge of difference cultures and effectively coping the pressure to promote their cultural proficiency. The main context of organizational cultural competence has been stressed well known from the United States presenting "Culturally and Linguistically Appropriate Services Standards" in 2001, which has been adhered to by medical

provider of service. The US has also established a cultural competence in the curriculum that list of mandatory subjects for the under graduate level. Organizations can promote their cultural competence by hiring professional interpreters and recruiting bilingual staffs to giving training for all level of health care provider, self-evaluating the related services they provide, and innovated educational tools (Anderson et al., 2003; Jung-Won, 2017).

Adaptation

Adaptation is a predictor of nurse cultural competence and a set of interrelated systems (social, psychological, and biological). It is dependent on having knowledge, attitude and practice about a culture of difference group that allow the nurses to provide potential caring (Roy et al., 2009). It is determined as a specific type of working accommodation in a particular situation and describes a nurses' adaptation as a process that prepares nurse to work effectively in an assignment position and comprises about nurses' adaptation to professional worker for working with foreigner clients (Rogala-Pawelczyk et al., 2002).

Rogala-Pawelczyk et al. (2002) examined the nurses' adaptation of as a factor effecting the efficiency of medical program for hospitalized clients. The studies included 120 section nursing staffs for the first time in maintenance departments of different settings (clinical hospitals were not including). The investigated nurses positively assessed a course of professional adaptation they had undergone at the beginning of their professional careers. From those the factors were directly affected on the course of professional adaptation were the following: adaptation programs, choice of adaptation tutors, organization of allocation of tasks during adaptation and the working process, group relations and available equipment in departments. According to the results, properly prepared and recognized professional adaptation programs can decreased professional obstacles and are conductive to improvement in the quality and effectiveness of caring for clients. Therefore, nurses' adaptation is directly related and effected on nursing competency.

Halperin and Mashiach-Eizenberg (2014) tested a study of professional adaptation and career choices among Israeli Jewish and nursing students in Arab. This research covered only Arab citizens of Israel and not those in the occupied territories in the Gaza and West Bank. The trend of the profession lies in the ability to retain and

recruit the next generation of nurses who work with different background. They examined career choices and professional adaptation among Israeli Arab nursing students and Israeli Jews by professional adaptation, addressing materialistic, and factors motivation after work from 395 students, which comprised the all of students in the first five years of the nursing program's existence, in the nursing faculty at an academic college in Israel. The findings revealed that altruistic motivation such as the experience for helping others was the important factor that effected the students for choosing nursing as a profession followed by professional impression. Materialistic factors, such as good salary and social status, had less influence. A significant positive direct effect was shown between all three dimensions of role perception and professional adaptation, namely treatment skills, teamwork, and professional knowledge. The male students perceived those components as less important than the female students and the Jewish students perceived themselves as more suitable for nursing than the Arab students. From nurses' working with the clients from different culture, Wrosch et al. (2013) explained the nurses' adaptation from their adjustment to solving the duty situation. Nurses' adjustment that depend upon personal maturity and the professional training. Therefore, nurses' adaptation is influenced by multiple factors and controlled by professional standards.

Summary

Nurses' cultural competence is the personal ability to deliver nursing practice and communication effectively and appropriately with people from culturally different contexts (Alizadeh & Chavan, 2016). The important domains of cultural competence consist of cultural sensitivity, cultural awareness, cultural knowledge and cultural skills. The literature reviewed revealed several studies from around the world. Although Thailand is a country with awareness on this point, some studies designed for cross sectional analysis aimed at examining the factors related to nurses' cultural competence were found. As a result of the related literature reviewed, the cultural competence of Thai nurses is associated with many factors. Among those factors are ethnocentric attitude, organizational cultural competence support, multicultural experience, and adaptation. This study will be designed based on this gap to explore and examine the hypothesized model of nurses' cultural competence among Thai

nurses and use the transcultural nursing immersion experience model as a conceptual framework for the study. The results of the research will show how the above factors may affect nurses' cultural competence. Moreover, the findings can be used as a guideline for nursing faculty curriculum to develop activities as appropriate for the undergraduate level in order to prepare future nursing staff and improve nursing practice for promoting and enhancing cultural competence. Moreover, the relation from each factor can serve as information for healthcare service organizations to conduct policy for nurses in the aspect of cultural competence support convergent to excellent nursing service delivery by Thai nurses.

CHAPTER 3
RESEARCH METHODS

This chapter focuses on the research methods of the study. It includes research design, participants and sampling, research instruments, protection of human rights, data collection procedures and data analysis.

Research design

A cross-sectional model - testing design was used. The structural equation modeling [SEM] was used to test the hypothesized model of cultural competence among Thai nurses. This research design is considered the most suitable for this study for two reasons. Firstly, a model testing design is appropriate for testing the accuracy of the hypothesized causal model (Burns & Grove, 2005). Secondly, the model being tested clearly points to the appropriate research design by clearly demonstrating the relationships between the components.

Population and sampling

Population

The target population for this study was registered nurses in Thailand who had work experienced as nurses for at least six months and currently working in a hospital under the Ministry of Public Health or a private sector in Thailand. The government hospitals are located in a provincial capital. It has capacity of at least 350 - 500 beds and a comprehensive set of specialists on staff and medical equipment. Its organization makes up a complex structure for treating severe and complicated patients with high technology for investigations. Therefore, patients and relatives expect the best treatment from the staff, which includes the provision of high quality of nursing care. The private hospitals were selected from the most visited from foreigners that have capacities of at least 100 beds and a comprehensive set of specialists on staff or specialty services.

The settings of data collection are provided to 4 places as Bangkok, Phuket, Pattaya, and Chiangmai. In 2017, there were the most first to forth ranking of the

favorited place and had the greatest number of visiting at the provinces in Thailand. The southern region was shown that Phuket had 13,080,000 tourists, the central region was Bangkok with 19,970,000 tourists, the eastern region was Pattaya with 5,260,000 tourists, and the northern region was Chiangmai with 2,360, 000 tourists (The Department of Tourism, 2017). They are as a result of a convenience sampling technique. Theses specific setting are mainly sites for tourist attractions of Thailand and has a result of visiting to the hospitals also. These four places were selected each for 1 government hospital and 1 private hospital and each hospital was determined for 3 fields as Emergency Department [ED], Out Patient Department [OPD], or In Patient Department [IPD].

Sample

The sample was recruited through the target population with inclusion criteria as:

1. Being a registered nurse including administrator nurses and practice nurses in a hospital belongs to Thai government hospital under the Ministry of Public Health or a Private sector, Thailand.

2. Work experience as a nurse for at least six months at Emergency department [ED], Out-patient department [OPD] (Adult patient), or In-patient department [IPD] and contacted the adult patient who can directly participated with nurses).

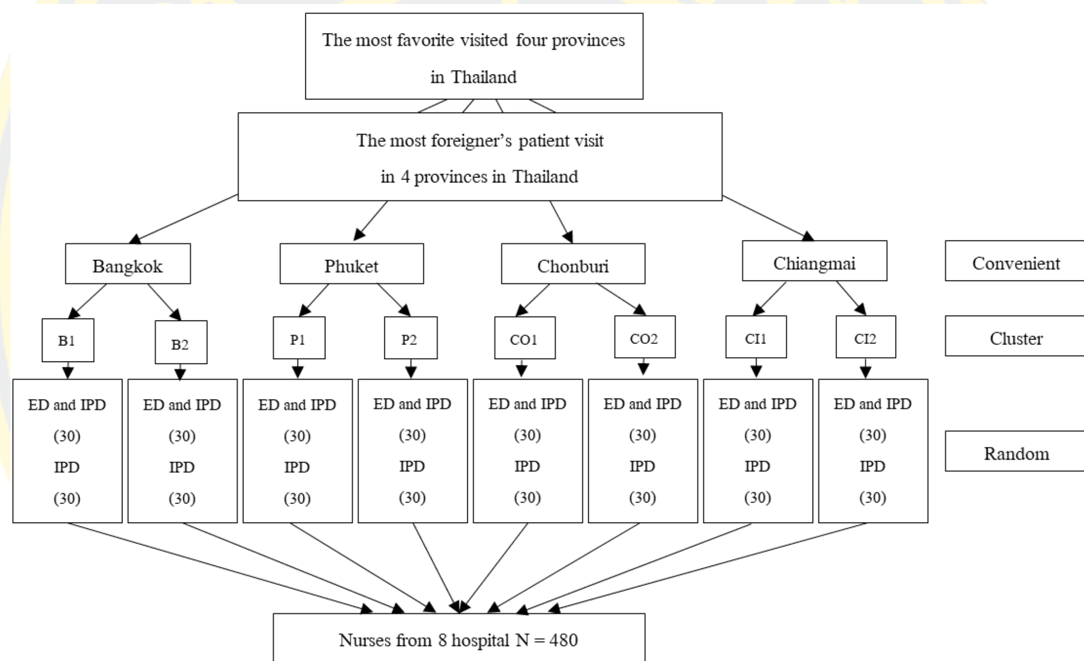
Sample size

A structural equation modeling, the most specific analyses used in this study, often requires a sample size of 30 cases per estimate parameter (Schumacker & Lomax, 2010). This study recruited a sample of 13x30 = 390 nurses with an additional 20 percent to account for data attrition (Hair, Black, Babin, & Anderson, 2010). Therefore, this study conducted with 468 participants rounded up to 480 participants for the minimum number for using structural equation modeling.

Sampling

This study employs a multi-stage random sampling technique to select the participants. First step, convenience select for four places of Bangkog, Phuket, Pattaya, and Chiangmai. Second step, each of four settings of Bangkog, Phuket, Pattaya, and Chiangmai was a cluster randomly selected for 1 government hospital

and 1 private hospital. Therefore, a total of eight tertiary hospitals (4 government hospitals and 4 private hospitals) was selected. Third step, each hospital was randomly selected a quota of sixty nurses meeting the inclusion criteria to determine the field of data collecting as Emergency department [ED] and Out-patient department [OPD] (30 nurses), and In-patient department [IPD] (30 nurses). Lastly, the researcher asked for cooperation with data collection procedures from the head nurses of each hospital selected. Details of the multi-stage random sampling technique are shown in Figure 3-1.



Remark

B1= Government hospital in Bangkok
B2= Private hospital in Bangkok
P1= Government hospital in Phuket
P2= Private hospital in Phuket
CO1= Government hospital in Chonburi
CO2= Private hospital in Chonburi
CI1= Government hospital in Chiangmai
CI2= Private hospital in Chiangmai

Figure 3-1 A multi-stage random sampling technique of the study

Research instruments

Permission to translated and used of all five instruments were obtained from the developers. The components of research instruments in this study were as follow:

1. **Participants' characteristics** were obtained by using a demographic questionnaire to be developed by the researcher for collecting data on gender, age, marital status, education, monthly income, ward, general work experience and experience working with clients from different cultures.

2. **Cultural competence** was measured by the Cultural Competence Scale for Clinical Nurses (Leininger & McFarland, 2006). The questionnaire contains 33 items measuring cultural awareness (6 items), cultural knowledge (7 items), cultural skills (8 items) and cultural sensitivity (12 items). The participants were asked to rate on a 1- to 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Each statement is scored, and its total score is calculated by simple addition of the scores for individual items. The total score ranges from 33-231 points with a high score representing high cultural competence. This original scale had Cronbach's alpha coefficient of 0.88 (Chae & Lee, 2014). In this study, the scale has Cronbach's alpha coefficient was 0.92.

3. **Ethnocentric attitude** was measured by the Generalized Ethnocentrism Scale (Neuliep & McCroskey, 2013), which contains 22 items. It was used for data collection operating receipt the permission of author. The participants were asked to rate on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) (e.g., "I have little respect for the values and customs of other cultures"). Each statement was scored, and the total scores was calculated by simple addition of the scores on individual items. The scores range from 22-110 points with a higher score indicating high ethnocentrism. This instrument had Cronbach's alpha coefficient of 0.80 for the 22 items (Neuliep & McCroskey, 2013). In this study, Cronbach's alpha coefficient was 0.89.

4. **Multicultural experience** was measured by the Multicultural Experiences Questionnaire [MEQ] (Narvaez & Hill, 2010). The MEQ has comprised fifteen items rated on a 6- point rating scale with responses ranging from 1 (never used) to 6 (used a lot). Total scores range from 15-90 points with a high score indicating a high multicultural experience (e.g., "I work with people with cultural/

racial/ ethnic backgrounds different from my own”). This instrument had Cronbach’s alpha coefficient of 0.80 (Narvaez & Hill, 2010). In this study, Cronbach’s alpha coefficient was 0.84.

5. **Organizational cultural competence support** was measured by a subscale of the Cultural Competence Assessment (Balcazar et al., 2009). Both other subscales of this scale were excluded as the measuring about cultural awareness/ knowledge and skills rather than organizational support for multicultural practice. This subscale contains eight items with a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Each statement is scored, and its total score is calculated by simple addition of the scores on individual items. The total scores range from 8-32 with a high score indicating high organizational cultural competence support. The total of 8 items had Cronbach’s alpha coefficient of 0.80 (Balcazar et al., 2009). In this study, Cronbach’s alpha coefficient was 0.82.

6. **Adaptation** was measured by the Goal Adjustment Scale that directly measured for nurse adaptation in culturally adjustment (Wrosch et al., 2013), which contains two subscales. This scale contains 10 items measuring the Goal Disengagement Scale (4 items, sum items from #1, #3, #6, and #8 and the items from #6 and #8 need to reversed score prior to scale computation), and measuring the Goal Reengagement Scale (6 items, sum items from #2, #4, #5, #7, #9, and #10). The participants were asked to rate on a 1- to 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each statement is scored, and its total score is calculated by simple addition of the scores for individual items. The total score ranges from 10 - 50 points with a high score representing high goal adjustment. This original scale had Cronbach’s alpha coefficient of 0.80 (Wrosch et al., 2013). In this study, the scale has Cronbach’s alpha coefficient was 0.80.

A summary of the study research instruments is described in the Table 3-1.

Table 3-1 Summary of the study's research instruments

Variable	Measure	Item	Rating scale	Cronbach's alpha
Nurses' cultural competence	Cultural competence scale for clinical nurses	33	1-7	0.92
Ethnocentric attitude	Generalized Ethnocentrism scale	22	1-5	0.89
Multicultural experience	Multicultural experiences questionnaire	15	1-6	0.84
Organizational cultural competence support	Subscale of cultural competence assessment instrument	8	1-4	0.82
Adaptation	Goal adjustment scale	10	1-5	0.80
	Total items	88		

Psychometric properties of the research instruments

Validity

The five research instruments, namely the Generalized Ethnocentrism Scale, the Multicultural Experiences Questionnaire [MEQ], the Cultural Competence Assessment Instrument, the Adjustment Scale and the Cultural Competence Scale for Clinical Nurses were original in English, and they, then, were translated into Thai. The process of back translation was used to ensure content and cultural validity. The construct validity was tested by using SEM.

Reliability

All the five Thai translated questionnaires were tried out with 30 nurses who have similar characteristics to the samples of the study. The data obtained were used to calculate reliability by using Cronbach's alpha coefficient. The acceptable reliability value of overall questionnaires should not be less than 0.70 (Polit & Beck, 2004). Total two reported reliability of the study's research instruments.

Translation of instruments

After the permission of research instrument procedure, five instruments including the Multicultural Experiences Questionnaire, Generalized Ethnocentrism Scale, Cultural Competence Assessment Instrument, Goal Adjustment Scale, and Cultural Competence Scale for Clinical Nurses were translated from the original English version into the Thai language for this study by using the back-translation technique (Brislin, 1970; Cha, Kim, & Erlen, 2007). They were translated into the Thai language by two bilingual translators who are Thai natives. Each translator performed a separate initial translation after that the two Thai versions were compared and the differences in the translation were resolved. Next, the Thai translated questionnaires were given to another bilingual translator who back-translated the scales into English without access to the original items. Then the major advisor and the researcher compared the original English version with the back-translated version. This process would detect noteworthy discrepancies in the translation process.

Protection of human participants

The proposal of this study was approved by the Institutional Review Board [IRB] of Burapha University before the data collection procedure. The study was also approved by the institutional review boards of each hospital. Permission to conduct the study was obtained from each hospital before data collection. The participants were assured that the rights of human subjects was protected. They were informed that participation is on a voluntary basis and asked to sign inform consent forms. They were also informed that they had the right to refuse to participate in the study or withdraw from the study at any time if they wish without any effect on their work or promotion opportunities. They were given the opportunity to discuss the purposes of the study and assured of the confidentiality of their answers. Participants were assured that their anonymous responses were kept confidential and their identities were not revealed on research reports or publications. The questionnaires were completed by the participants during their private time. All data obtained were completely destroyed after publication of the study findings.

Data collection procedures

After this study was approved by the Institutional Review Board [IRB] of Burapha University and the institutional review boards of each hospital, before data collection. The data collection procedures were as follows:

1. The researcher contacted the nurse directors, head nurses of the regional hospitals and coordinator nurses of all of the hospitals who work in the area. (as the researcher coordinators) to describe the objective of this study by the researcher. The participants were randomly selected from a list of names of nurses who met the study inclusion criteria.

The research coordinators were responsible to collect data from the selected participants. The researcher asked them to notify the participants that they voluntarily filled all questionnaires by themselves without coercion. Confidentiality and others were informed in the information sheet which enclosed in the same envelop of the questionnaires.

2. The package of data collection composed of information sheets, informed consent forms, questionnaires and return envelopes distributed to the potential selected participants by requesting for cooperation to complete the questionnaires in their private time. The information sheets explained the objective of the study, the method for assurance of confidentially and anonymity, and time frame for completion of the questionnaires.

3. The research assistant or the data collector is a nurse of each selected hospital who work at the department of hospital assurance and is available to assist in the collecting data and not a participant. They were trained for understanding about the data collection procedure by the researcher. The training of data collectors by explain how to use and rate each questionnaire by using written information which prepare by the researcher to ensure that all data collectors had the same understanding.

4. The data collectors who work in the areas of each hospital were provided the questionnaires and then sent to the participants.

5. The participants were asked to return the completed questionnaires within the next two weeks using the scales envelopes provided. All questionnaires from the

participants were gathered by the data collectors then returned all of questionnaires to the researcher.

6. Once the researcher had received all questionnaires from the data collectors, the researcher screened for completeness before analyzing the data.

Data analyses

A statistical software program was used to analyze the data. The level of significance was set at $p < .05$. The researcher checked the data for accuracy of the data entry, and the missing data, outliers of each variable, and tested of statistical assumptions. The details were as follows:

1. The demographic data were analyzed by using descriptive statistics including frequency, percentage, mean and standard deviation.

2. Structural equation modeling [SEM] was used to determine the relationships of the study variables in the model and examine the magnitude of causal effects, both direct and indirect.

CHAPTER 4
RESULTS

This chapter presents the findings of the study. The first part describes characteristic of the participants. The second part describes the testing of assumption for the structural equation modeling. The third part describes the description of study variables among nurse cultural competence, ethnocentric attitude, multicultural experience, organizational cultural support, and adaptation. The final part describes the hypothesize model testing and research hypothesize.

Part 1: Characteristic of the participants

Table 4-1 presented the demographic characteristic of the participants. There were 50 participants in a private hospital in the southern region that met the study inclusion criteria. Thus, a total of participants were 470 where recruited from seven hospitals with 60 for each, and 50 for the southern private hospital. Most of them were female (96.6%). Their age ranged from 22-60 years old with a mean of 34.68 (*SD* = 9.52) The majority of their marital status was single (61.1%) Most participants were practice nurse (80.4%), had salary from 20,001-30,000 Thai Baht (39.8%), and had educational level of Bachelor of nursing (93.0%). Average years in nursing experience were 11.53 years (*SD* = 9.43) with a range from 1-35 years. About one half of them were working in the in-patient department [IPD] (48.5%), followed by the out-patient department [OPD] (31.3%) and emergency department (20.2%).

Table 4-1 The demographic characteristic of the participants (*n* = 470)

Characteristic	***n***	**%**
Hospital located		
Bangkok		
Government hospital	60	12.8
Private hospital	60	12.8
Phuket		
Government hospital	60	12.8
Private hospital	50	10.6
Chonburi		
Government hospital	60	12.8
Private hospital	60	12.8
Chiangmai		
Government hospital	60	12.8
Private hospital	60	12.8
Gender		
Female	454	96.6
Male	16	3.4
Age (years) (*M* = 34.6, *SD* = 9.52, range = 22-60)		
20-30	207	44.0
31-40	143	30.4
41-50	77	16.4
51-60	43	9.2
Marital status		
Single	287	61.1
Living together with spouse	164	34.9
Divorce or separate	19	4.0

Table 4-1 Continued

Characteristic	*n*	%
Position		
Practice nurse	378	80.4
Administrator nurse	92	19.6
Salary (Thai Baht)		
< 20,000	18	3.8
20,001-30,000	187	39.8
30,001-40,000	136	28.9
40,001-50,000	73	15.5
> 50,001	56	11.9
Education		
Bachelor of nursing science	437	93.0
Master of nursing science	27	5.7
Master degree in others	6	1.3
Number of years in nursing experience (M = 11.53, SD = 9.43, range = 1-35)		
1-2	66	14.0
3-10	218	46.4
11-20	103	21.9
21-30	53	11.3
31-37	30	6.4
Department of work		
Emergency department	95	20.2
Out patient department [OPD]	147	31.3
Medical	33	7.0
Surgical	29	6.2
General patient	22	4.7

Table 4-1 Continued

Characteristic	*n*	%
Eye Nose Throat	22	4.7
Gynae	10	2.1
Orthopedic	7	1.5
Oncology	5	1.0
Cardiology	5	1.0
Counselling	5	1.0
Nephrology	4	0.9
Endoscopic center	4	0.9
Refer center	2	0.4
In-patient department [IPD]	228	48.5
Medical	80	16.9
Surgical	48	10.2
Medical ICU	18	3.8
Surgical ICU	18	3.8
Postpartum and Gynae	18	3.8
Cardiological Care Unit	16	3.4
Orthopedic	16	3.4
Burn center	4	0.9
Operating room and Anesthesia	4	0.8
Ear Nose Throat	3	0.6
Labor room	3	0.6

Part 2: The testing of assumptions for the structural equation modeling

The data analysis was performed for all variables in the model. The general assumption testing of multivariate analysis as SEM include outlier, normality of distribution, multicollinearity, and linearity (Schumacker & Lowmax, 2010; Tabachnic & Fidell, 2007). The appropriate of assumptions must meet for

determining statistics to utilize, get rid of the bias and potential distortion of the result, and investigated interpretation or an estimation process of the result (Hair, Ringle, & Sarstedt, 2014; Schumacker & Lowmax, 2010; Tabachnic & Fidell, 2007). The testing of assumption for SEM were described as follow:

Prior for testing the all assumptions, missing data were first checked. All of the participants in this study were 470. The results revealed that the missing data were not found. Therefore, a total of 470 was then use to perform the assumption testing and further statistical analyses.

A univariate outlier was examined for each variable to confirm free of data outlier and test by using standard scored. The multivariate outlier was a case with an extreme value or large standardize score on one or more variables that standardize score should more or less than 3.29 standard deviation (Tabachnic & Fidell, 2007). The results revealed that there were 12 multivariate outliers (ID 21, 48, 76, 90, 102, 104, 154, 155, 170, 191, 340, and 375; Appendix D - 1). Therefore, these cases were removed before performing further data analyses.

A multivariate outlier was also examined by using Mahalanobis distance which indicates the distance of case from the centroid of the mean of all variables. The results can be evaluated by using X^2 distribution. A case of $X^2 \leq 0.001$ had a reported as a showed that multivariate outlier (Tabachnic & Fidell, 2007). Consequently, the test results revealed that there were 10 multivariate outliers (ID 1,76, 90, 102, 104, 154, 155, 170, 385, and 433 (In Appendix D - 2). However, there were 7 cases repeating with the univariate outliers (ID 76, 90, 102, 104, 154, 155, 170). Therefore, a total of 15 outliers were then deleted, and a final total of sample was 455 for subsequently data analyses.

Next, the normal distribution was tested from all variables in the model by examining the statistic and using the graphical methods (Hair et al., 2014; Tabachnic & Fidell, 2007). For the multivariate, all variables must have a normal distribution. Skewness and Kurtosis are indicated the multivariate normal distribution. The normal distribution assumption of Skewness and Kurtosis for these variables were between + 1.96 (Tabachnic & Fidell, 2007) but generally the value between -2.0 to 3.5 are acceptable for the research (Lei & Lomax, 2005). The results revealed that only three variables met the criteria of multivariate normality including cultural skill (Skewness

-.237/ 0.113 = -2.097; Kurtosis .200/ .225 = 0.888), multicultural experience (Skewness 0.167/ 0.113 = 1.477; Kurtosis -0.450/ 0.225 = - 2.000), and organizational cultural competence support (Skewness .186/ .113 = 1.646; Kurtosis .813/ .225 = 3.413). However, the other five variables including cultural awareness (Skewness -.494/ .113 = -4.371; Kurtosis 1.178/ .225 = 5.235), cultural knowledge (Skewness -.714/ 0.113 = -6.318; Kurtosis .926/ .225 = 4.115), cultural sensitivity (Skewness -.821/ 0.113 = -7.265; Kurtosis 2.200/ .225 = 9.777), ethnocentric attitude (Skewness 0.844/ .113 = 7.469; Kurtosis 1.422/ 0.225 = 6.32), and adaptation (Skewness -.611/ 0.113 = 5.407 ; Kurtosis 3.933/ .225 = 17.48) did not met criteria of multivariate normality. The result indicated that the multivariate normality assumption in this study had somewhat violated.

Nevertheless, the AMOS program, the method option for analysis is bootstrapping which for continuous variables that failed to meet the assumption of normal distribution (Hair et al., 2014; Kline, 2015). This method uses the resampling technique that operates the pseudo-multiple cases.

Linearity assumption was assessed by using Pearson correlation coefficients (Hair et al., 2014; Schumacker & Lowmax, 2010; Tabachnic & Fidell, 2007). The relationships between continuous independent variables were assessed. The result of linearity between pairs variables was found.

Lastly, multicollinearity assumption was tested by using three indicators including Pearson correlation coefficients between variables, tolerance value, and variance inflation factor [VIF]. Multicollinearity is highly correlated among independent variables ($r \geq 9.0$). The tolerance value should be less than .20 ($< .2$) and variance inflation factor [VIF] should be less than 10 (< 10) (Hair et al., 2014; Tabachnic & Fidell, 2007). The multicollinearity assumption among independent variables in this study was not found.

Part 3: Description of the study variables

There were five variables including ethnocentric attitude, multicultural experience, organizational cultural competence support, adaptation, and nurse cultural competence. The descriptive statistic among variables were shown below.

Ethnocentric attitude had the total score of ethnocentric attitude ranged from 29-110 (*M* = 55.57, *SD* = 12.16, Min = 29, Max = 110), Multicultural experience had the total score of multicultural experience range from 21-65 (*M* = 42.79, *SD* = 8.57, Min = 21, Max = 65), and Organizational cultural competence support had the total score of organizational cultural competence support range from 11-28 (*M* = 18.23, *SD* = 2.54, Min = 11, Max = 28).

Adaptation was represented by a total and its subscales' scores of goal adjustment. The total score ranged from 10-48 (*M* = 36.32, *SD* = 4.18, Min = 10, Max = 48). There were 2 subscales. The subscale's score of goal disengagement ranged from 4-17 (*M* = 10.68, *SD* = 2.17, Min = 4, Max = 17), and that of goal reengagement ranged from 9-28 (*M* = 18.44, *SD* = 3.14, Min = 9, Max = 28). Nurse cultural competence contained four subscales of cultural skill, cultural knowledge, cultural awareness, and cultural sensitivity. The result showed that the total score of the nurse cultural competence range from 99-231 (*M* = 188.67, *SD* = 17.99, Min = 99, Max = 231). The subscales' scores of cultural skill ranged from 31-56 (*M* = 45.78, *SD* = 4.72, Min = 31, Max = 56), cultural knowledge ranged from 13-49 (M = 38.15, *SD* = 6.17, Min = 13, Max = 49), cultural awareness ranged from 12-42 (*M* = 33.80, *SD* = 4.46, Min = 12, Max = 42), and cultural sensitivity ranged from 33-84 (*M* = 70.94, *SD* = 7.39, Min = 33, Max = 84). The details of all variables were presented in Table 4-2.

Table 4-2 Descriptive statistics of the all variables (*n* = 455)

Variable	Possible range	Actual range	*M*	*SD*
Ethnocentric attitude	22-110	29-110	55.58	12.16
Multicultural experience	15-90	21-65	42.79	8.57
Organizational cultural competence support	8-32	11-28	18.23	2.54
Goal adjustment	10-50	10-48	36.32	4.18
Subscale				
Goal disengagement	4-20	4-17	10.68	2.17
Goal reengagement	6-30	9-28	18.44	3.14
Nurse cultural competence	33-231	99-231	188.67	17.99
Subscale				
Cultural sensitivity	12-84	33-84	70.94	7.39
Cultural skill	8-56	31-56	45.78	4.72
Cultural knowledge	7-49	13-49	38.15	6.17
Cultural awareness	6-42	12-42	33.80	4.46

Part 4: Testing of hypothesized model and research hypothesize

Structural equation modeling

SEM is a multivariate statistical analysis technique that is used to explained structural relationships. This statistic design is the integration between factor analysis and multiple regression analysis, and it is used to examine the structural relationship among factors variables and latent constructs. This method is focused for estimating the multiple and interrelated dependence in a single analysis (Hair et al., 2014).
A graphical language provides a convenient and powerful way to present complex relationships in SEM. Model specification involves formulating statements about a set of variables. A diagram, a pictorial representation of a model, is transformed into a set of equations. The set of equations are solved simultaneously to test model fit and estimate parameters (Suhr, 2006).

For SEM analysis, AMOS is a visual program for SEM, it is also known as analysis of covariance or causal modeling and is specially used for model measurement and structural model measurement (Kline, 2015).

The measurement model assessment

The measurement model is the symbolic of the theory that specifies how measured variables come together to represent the theory and it is also called Confirmatory factor analysis [CFA]. About CFA, the researcher interpreted the theoretical measurement against the reality model. The result of the CFA could be related with the constructs' validity (Hair et al., 2014).

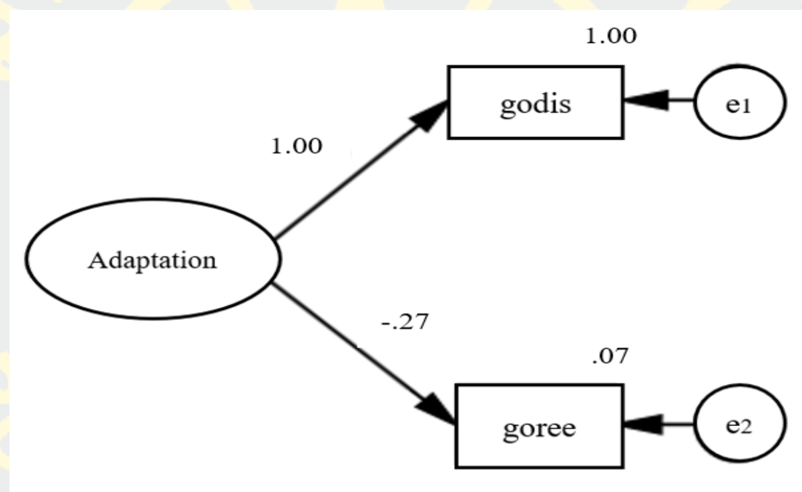
In this study, the construction among five factors including ethnocentric attitude, multicultural experience, organizational cultural competence support, adaptation, and nurse cultural competence. CFA was used to measurement model assessment and Chi-square (χ^2) was the statistic value that used to assess the fit of measurement model.

In order to assess goodness of fit of the measurement models, six indicators were used to measure the model fit. There was minimum Relative Chi-square value [CMIN], CMIN/ degree of freedom [*df*], the goodness of fit index [GFI], adjust goodness of fit index [AGFI], normal fit index [NFI], root mean square error of approximation [RMSEA] (Schumacker & Lowmax, 2010; Tabachnic & Fidell, 2007). The indicator of criteria of goodness of model fit were from non-significant value of χ^2 ($p > 0.5$), value ranging from less than 2.0 for CMIN/ *df*, value below 0.05 for RMSEA and greater than 0.95 for CFI, GFI, and AGFI (Hair et al., 2014; Schumacker & Lowmax, 2010). The factor loading between construct and each indicator were concerned, which standardized factor loading were accepted. Firstly, *t* value greater than 1.96 indicates the significant of 0.05 ($p < 0.05$). Secondly, *t* level greater than 2.58 indicates the significance of 0.01 ($p < 0.01$). Finally, *t* value greater than 3.29 indicates the significant of 0.001 ($p < 0.001$) (Hair et al., 2014).

According to ethnocentric attitude, multicultural competence, and organizational cultural competence support have one observed variable, therefore theses variables have not need to examine the measurement model, but adaptation and nurse cultural competence needed to investigate the measurement model. The details were presented below.

Adaptation

Adaptation was indicated by the goal adjustment scale, goal adjustment had two subscales including the goal disengagement scale and the reengagement scale. The model of adaptation construct validity and fit to the empirical data at $\chi^2 = 0.059$, $p = .807$, $df = 1$, CMIN/ $df = .059$, GFI = 1, NFI = .998, RMSEA = .000, RMR = .002. Two factors loading were statistically significant at $p < 0.001$and the value of standard loading from -.27-.73, the goal disengagement scale had value of standard factor as .73, and the goal reengagement scale had negative value of standard factor as -.27. Therefore, two indicators were indicated for adaptation. (Figure 4-1)



$\chi^2 = .059$, $p = .807$, $df = 1$. CMIN/ $df = .059$, GFI = 1, NFI = .998, RMSEA = .000, RMR = .002

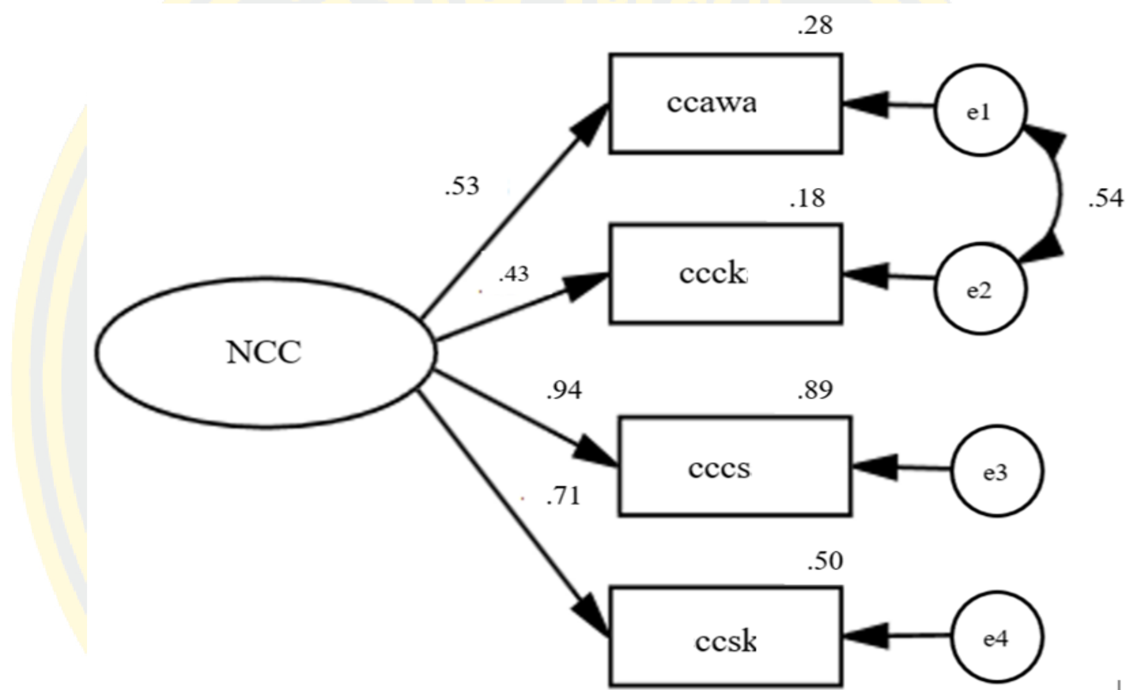
Note: godis = the goal disengagement scale, goree = the goal reengagement scale

Figure 4-1 Standardize factor loading and measurement errors for the measurement model of adaptation

Nurse cultural competence

Nurse cultural competence was indicated by four subscale including cultural awareness, cultural knowledge, cultural sensitivity, and cultural skill. The model of nurse cultural competence construct validity and fit to the empirical data at $\chi^2 = 0.001$, $p = 0.832$, $df = 1$, CMIN/ $df = 0.000$, GFI = 1.000, NFI = 1.000, RMSEA = 0.000,

RMR = 0.001. Four factors loading were statistically significant at $p < 0.001$ and the value of standard loading from 0.43-0.94, cultural sensitivity had maximum value of standard factor as 0.94, and cultural knowledge had minimum value of standard factor as 0.43. All indicators of adaptation had positive value of standard factor loading and greater than 0.30 which indicated acceptable model measurement (Schumacker & Lowmax, 2010). Therefore, four indicators were indicated for adaptation. (Figure 4-2)



$\chi^2 = 0.001$, $p = 0.832$, $df = 1$, CMIN/ $df = 0.000$, GFI = 1.000, NFI = 1.000, RMSEA = 0.000, RMR = 0.001

Note: NCC = Nurse cultural competence, ccawa = cultural awareness, ccck = cultural knowledge, cccs = cultural sensitivity, and ccsk = cultural skill

Figure 4-2 Standardize factor loading and measurement errors for the measurement model of nurse cultural competence

The hypothesized model

The analysis of moment structure [AMOS] was used to examine the model. AMOS was originally established as a measurement for teaching this powerful and fundamentally simple method. In this validation, every effort was conducted to find that it is a basic to using this technic. AMOS integrates a basic to use graphical interface with an advanced computing engine for SEM (Hair et al., 2014). The analytic publication quality of the path diagrams of AMOS provide a clear relationship of the factors in the models for researchers. The numeric methods implemented in AMOS were among the most effective and reliable available. AMOS accepts a path diagram as a model specification and displays parameter estimates graphically on a path diagram (Hair et al., 2014). Path diagrams used for model specification and those that display parameter estimates are of presentation quality and can be printed directly or imported into other applications such as word processors, desktop publishing programs, and general-purpose graphics programs (Byrne, 2010; Fabrigar, Porter, & Norris, 2010). Therefore, Amos program was used to test how well hypothesized model fit with empirical data.

Model fit indices

For the model in SEM, the major indices in this study composed of minimum Chi-square value [CMIN], CMIN/ *df*, the goodness- of- fit of index [GFI], adjust goodness of fit of index [AGFI], comparative fit index [CFI], and root mean square error of approximation [RMSEA] (Fabrigar et al., 2010; Hair et ai.,2014). Moreover, the most common approximately fit in SEM are including $\chi 2$ and $\chi 2/ v$ ratio, standard root mean square residual [SRMR] index, root mean square error of approximation [RMSEA] index, Tucker-Lewis index [TLI], and comparative fit index [CFI] index (Hair et al, 2014; Tabachnic & Fidell, 2007).

Chi-square was the statistically based measure of goodness- of- fit of the model in SEM. The acceptance value of goodness- of- fit indices suggest that the minimum of chi-square value [CMIN] should not be significant ($p > 0.05$) with CMIN/ *df* less than 2.0 (Hair et al, 2014; Tabachnic & Fidell, 2007). In addition, the acceptance value of CMIN/ *df* was varied. The acceptance value less than 2.0 and reasonable fit was less than 5.0 (Fabrigar et al., 2010; Hair et al., 2014). In addition, the indicator of goodness- of- fit of the model indicates with the GFI should be

between 0.90 to 1.00, the AGFI should be between 0.90 to 1.00, NFI should be greater than 0.90, and CFI should be greater than 0.90 (Byrne, 2010; Fabrigar et al., 2010; Hair et al., 2014). Lastly, the RMSEA should be less than 0.05 that shown close to fit, 0 indicated perfect fit, 0.05 to 0.08 indicating fair, 0.08 to 0.10 showing moderate fit, and > 0.10 suggest poor fit (Byrne, 2010; Fabrigar et al., 2010; Blunch, 2013).

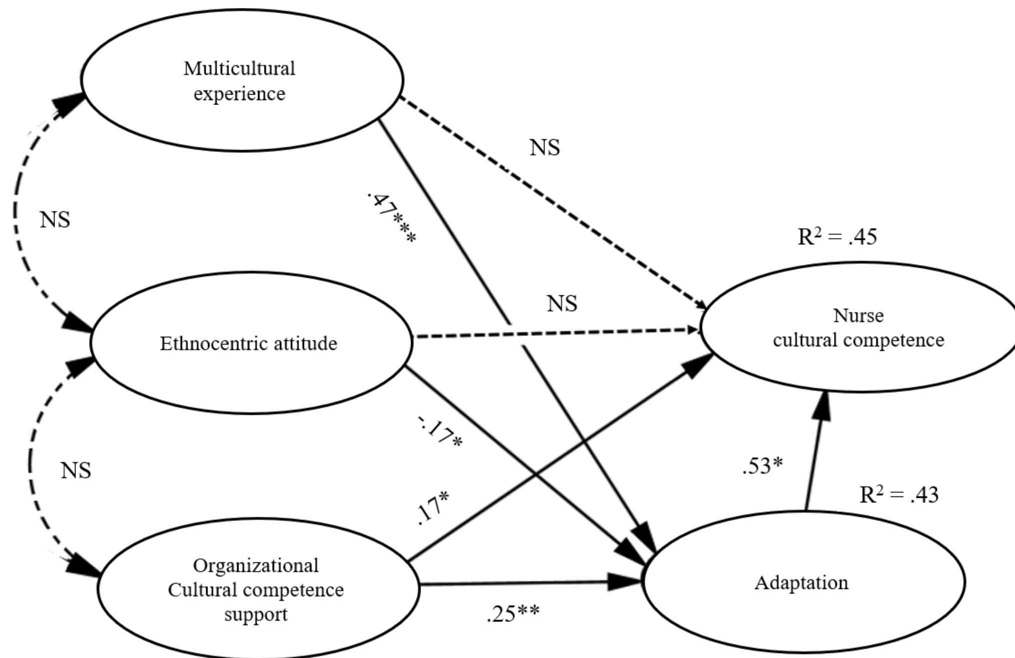
The structural equation modeling assessment

As the result of structural model testing was the second step after testing the measurement model. There were two steps as the structural model fit assessment and validating parameter estimates against the research hypotheses.

The hypothesized model testing

The hypothesized model was contained three exogenous latent variables among ethnocentric attitude, multicultural experience, and organizational cultural competence support. The mediator was adaptation latent variable and endogenous was nurse cultural competence latent variable.

The results of overall of the model fit were shown that χ^2 = 31.641, CMIN = 31.641, *df* = 19, *p* = .034, CMIN/ *df* = 1.665, GFI = .985, NFI = .970, TLI = .977, CFI = .988, RMSEA = .038, RMR = .134. As the result, the hypothesize model was shown model not fit with the empirical data (Figure 4-3).



χ^2 = 31.641, *df* = 19, *p* = .034, CMIN/ *df* = 1.665, GFI = .985, NFI = .970, TLI = .977, CFI = .988, RMSEA = .038, RMR = .134

Note; ——▸ = Significant,--------▸ = Non significant, NS = Non significant

Figure 4-3 The hypothesized model of nurse cultural competence

Path analyses of the hypothesized model

The path diagram of hypothesized causal model of nurse cultural competence between ethnocentric attitude, multicultural experience, and adaptation was tested by using parameter estimated and presented in figure and table. The analyzed path diagram of the hypothesized causal model indicated that parameter estimates, and direction were significant at probability level less than 0.05.

For the relationship between exogenous and mediator, the results showed positive and negative significant parameter estimates. The positive direction was the path from multicultural competence to adaptation (β = .09, p < .01), the path diagram from organizational cultural competence support to adaptation (β = .25, p < .001),

and the negative direction was path diagram from ethnocentric attitude to adaptation (β = -.17, p <.05), and for the relationship between exogenous and

endogenous variables were shown positive direction. The positive significant parameter estimates were shown the path diagram from ethnocentric attitude to nurse cultural competence (β = .02, p = .741), the path diagram from multicultural experience to nurse cultural competence (β = .09, p = .340), the path diagram from organizational cultural competence support to nurse cultural competence (β = .17, $p < .05$), and the path diagram from adaptation to nurse cultural competence (β = .53, $p < .05$). The results of the significantly path diagram were presented in Table 4-3.

A summary of the direct, indirect, and total effect of the hypothesized causal model of nurse cultural competence was presented in Table 4-4.

Table 4-3 The path diagram from exogenous to mediator and the path diagram from exogenous to endogenous

Path	Estimate	S.E.	C.R.	***p***
Adaptation ← Ethnocentric attitude	-.007	.002	-2.719	.007
Adaptation ← Multicultural experience	.263	.038	6.976	***
Adaptation ← Organizational cultural competence support	.239	.062	3.837	***
Nurse cultural competence ← Ethnocentric attitude	.001	.003	.330	.741
Nurse cultural competence ← Multicultural experience	.057	.060	.955	.340
Nurse cultural competence ← Organizational cultural competence support	.197	.074	2.657	.008
Nurse cultural competence ← Adaptation	.627	.201	3.129	.002

Note: *** = $p < .001$

Table 4-4 Parameter estimates of direct, indirect, and total effect of hypothesized model (*n* = 455)

Variables	**ADAP**			**NCC**		
	DE	**IE**	**TE**	**DE**	**IE**	**TE**
ETHNO	-.167*	-	-.070*	.018	-.088*	-.167
MUC	.469***	-	.469***	.086	.165	.334*
ORC	.249***	-	.249***	.173*	.132*	.305*
ADAP	-	-	-	.529*	-	.529*
	R^2 = .454			R^2 = .427		

Note: * = $p < .05$, *** = $p < .001$,

ETHNO = Ethnocentric attitude, MUC = Multicultural experience,

ORC = Organizational cultural competence support, ADAP = Adaptation,

NCC = Nurse cultural competence

DE = Direct effect, IE = Indirect effect, TE = Total effect

Summary of the hypothesized causal model

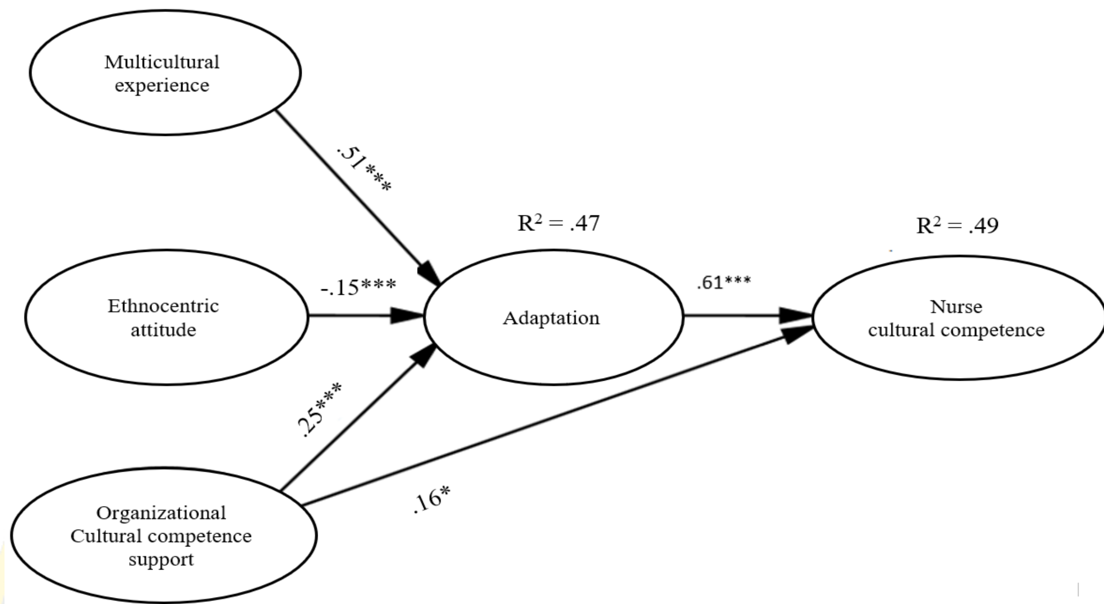
Although the hypothesized model was shown the parameter estimates of goodness of fit of this model but it was not all indicators. The both of path diagram from ethnocentric attitude to nurse cultural competence and the path diagram from multicultural experience to nurse cultural competence were not showed the significant. Therefore, this hypothesized causal model should be modified.

The model modification

According to the hypothesized causal model was not fit for the empirical data from above analysis, the model modification was subsequently prioritized. The model modification was the way to improve the model fit that included examining the modification indices from the result of analysis, considering recommendation to adjust the path diagram and parameter in the model, and considering the index model from the data analysis (Schumacker & Lowmax, 2010; Suksawang, 2014). The model

trimming was use by deleting for two parameters estimates with non - significant path in the hypothesized causal model. The two parameters estimates were deleted one at time. The two paths were deleted before the model was modified including a path from ethnocentric attitude to nurse cultural competence (*p* = .741), and a path from multicultural experience to nurse cultural competence (*p* = .340). Therefore, the hypothesized causal model was modified by the modification indices until achieving the indicators of goodness of fit of the model (Ringle, & Sarstedt, 2013).

Consequently, the model modification was tested until the model performed significantly goodness - of - fit of the model which specified parameters was shown in Figure 4-4. The overall indicators for model fit from the modified model indicated that χ^2 = 32.860, *df* = 21, *p* = .048. CMIN/ *df* = 1.565, GFI = .984, NFI = .969, TLI = .980, CFI = .988, RMSEA = .035, RMR = .113. Although *p* = .048 was shown the violate of indicator (*p* > .05), yet the first priority of goodness - of - fit of the model should less than 3 (Hair et al., 2014; Suksawang, 2014). Therefore, the modified model had a validation value of adequacy acceptable level for the goodness - of - fit of the causal model.



χ^2 = 32.860, *df* = 21, *p* = .048, CMIN/ *df* = 1.565, GFI = .984, NFI = .969,
TLI = .980, CFI = .988, RMSEA = .035, RMR = .113

Figure 4-4 The modified model of nurse cultural competence

The path analysis of modified model

For the modified model, the exogenous latent variables were ethnocentric attitude, multicultural experience, and organizational cultural competence support. The mediator was adaptation and endogenous was nurse cultural competence. The relationships among variables were as follows.

A path from exogenous to mediator, a path from ethnocentric attitude to adaptation was shown negative direct effect ($\beta = -.15$, $p < .01$), a path from multicultural experience to adaptation was shown a positive direct effect ($\beta = .51$, $p < .001$), and a path from organizational cultural competence support to adaptation was shown a positive direct effect ($\beta = .25$, $p < .001$). The path from exogenous to endogenous was only shown a path from organizational cultural competence support to nurse cultural competence that showed a positive direct effect ($\beta = .16$, $p < .05$). The path from mediator to endogenous was shown a path from adaptation to nurse cultural competence that showed a positive direct effect ($\beta = .47$, $p < .001$). Therefore, ethnocentric attitude, multicultural experience, organizational cultural competence

support, and adaptation were explained 49 % of the variance of nurse cultural competence (R^2 = .49).

A summary of the direct, indirect, and total effect of modified model of nurse cultural competence was presented in Table 4-5.

Table 4-5 Parameter estimates of the direct, indirect, and total effects of modified model of nurse cultural competence

Variables	**ADAP**			**NCC**		
	DE	**IE**	**TE**	**DE**	**IE**	**TE**
ETHNO	-.151*	-	-.151*	-	-.093*	-.093
MUC	.509***	-	.509***	-	.312*	.312*
ORC	.249***	-	.24***	.158*	.153*	.310*
ADAP	-	-	-	.614***	-	.614***
	R^2 = .47			R^2 = .49		

Note: * = $p < .05$, *** = $p < .001$,

ETHNO = Ethnocentric attitude, MUC = Multicultural experience,

ORC = Organizational cultural competence support, ADAP = Adaptation,

NCC = Nurse cultural competence

DE = Direct effect, IE = Indirect effect, TE = Total effect

The summary of study result

The modification indices were used to modifying the modification model. The modified model was the final model that had a perfected fit to the empirical data than hypothesized model. The comparison of the indicator between hypothesized model and modified model was present in Table 4-6.

Table 4-6 Statistic of model fit index between the hypothesized model and modified model (n = 455)

Model fit criteria	Acceptable value	Hypothesized model	Modified model
CMIN	$p > .05$	$\chi^2 = 31.641$, $p = .034$ ($df = 19$)	$\chi^2 = 32.860$, $p = .048$ ($df = 21$)
CMIN/ df	< 2	1.665	1.565
GFI	.95 - 1.00	.985	.984
CFI	.95 - 1.00	.988	.988
RMSEA	< .03	.134	.035

The study findings in responding to research hypotheses

In this study, five hypotheses were tested as follow:

Hypothesis 1: Ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation have influence over cultural competence among Thai nurses.

The results were shown that two variables had direct and indirect effect on nurse cultural competence from organizational cultural competence support and adaptation. The organizational cultural competence support had a direct effect on nurse cultural competence ($\beta = .253$, $p = .011$), and had an indirect effect on nurse cultural competence through adaptation ($\beta = .132$, $p < .001$). The adaptation showed significant on nurse cultural competence ($\beta = .614$, $p < .001$). Moreover, ethnocentric attitude and multicultural experience were not shown direct effect on nurse cultural competence but ethnocentric attitude showed negative indirect on nurse cultural competence through adaptation ($\beta = -.093$, $p = .005$) and organizational cultural competence support ($\beta = -.080$, $p = .008$), and multicultural experience showed positive indirect effect on nurse cultural competence through adaptation ($\beta = .312$, $p < .001$). Finally, ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation explained 49% of the variance of Thai nurse cultural competence ($R^2 = .49$).

Hypothesis 2: Ethnocentric attitude has negative direct, and indirect effects on cultural competence among Thai nurses through multicultural experience, organizational cultural competence, and adaptation.

The path coefficient between ethnocentric attitude and nurse cultural competence was not shown significant in the hypothesized model (β = .02, p = .741) and the path diagram from multicultural experience to nurse cultural competence was not shown significant in the hypothesized model (β = .09, p = .340) both paths were excluded in the modified model. But the indirect effect of ethnocentric attitude on nurse cultural competence through organizational cultural competence support showed significant that the hypothesized model showed negative indirect effect on nurse cultural competence (β = -.085, p = .008), and the modified model showed negative indirect effect on nurse cultural competence (β = -.080, p = .008) and the indirect effect of ethnocentric attitude on nurse cultural competence through adaptation showed significant that the hypothesized model showed negative indirect effect on nurse cultural competence (β = -.88, p = .007), and the modified model showed negative indirect effect on nurse cultural competence through adaptation (β = -.093, p = .005). Therefore, the result partially supported this hypothesis.

Hypothesis 3: Multicultural experience has positive direct, and indirect effects on cultural competence among Thai nurses through adaptation

The path coefficient between multicultural experience and nurse cultural competence was not shown significant in the hypothesized model (β = .09, p = .340), this path was excluded in the modified model. But the indirect effect of multicultural experience on nurse cultural competence through adaptation showed significant that the hypothesized model showed positive indirect effect on nurse cultural competence (β = .248, p < .001), and the modified model showed positive indirect effect on nurse cultural competence through adaptation (β = .312, p < .001). Therefore, the result partially supported this hypothesis.

Hypothesis 4: Organizational cultural competence support has positive direct, and indirect effects on cultural competence among Thai nurses through adaptation.

The path coefficient between organizational cultural competence support and nurse cultural competence showed positive significant in the hypothesized model

($\beta = .197$, $p = .007$) and the modified model showed positive significant ($\beta = .253$, $p = .011$). The indirect effect of organizational cultural competence support on nurse cultural competence through adaptation showed positive significant that the hypothesized model was shown positive indirect effect on nurse cultural competence ($\beta = .132$, $p < .001$), and the modified model showed positive indirect effect on nurse cultural competence ($\beta = .153$, $p = .011$). Therefore, the result totally supported this hypothesis.

Hypothesis 5: Adaptation has a positive direct effect on cultural competence among Thai nurses

The path coefficient between adaptation on nurse cultural competence showed positive significant in the hypothesized model ($\beta = .627$, $p = .002$) and the modified model showed positive significant ($\beta = .614$, $p < .001$). Therefore, the result totally supported this hypothesis.

Summary

This model was tested the causal relationships among exogenous variables as ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation, and endogenous variable as nurse cultural competence. The bootstrap was performed to test the hypothesized model and found that it did not fit for the empirical data. Therefore, the modification of model was done until achieved goodness of fit by modification indices. As the result of modified model, the perfect fit of the model demonstrated fit with empirical data ($\chi^2 = 32.860$, $df = 21$, $p = .048$, CMIN/ $df = 1.565$, GFI = .984, NFI = .969, TLI = .980, CFI = .988, RMSEA = .035, RMR = .113).

CHAPTER 5
CONCLUSION AND DISCUSSION

This chapter presented three parts. First, summary of the study was presented. Second, discussion of study finding related to research hypotheses and the results of the final model were described. Lastly, limitation, implication, and recommendation were presented.

Summary of the study

The important point of this study was to develop and test a causal model of nurse cultural competence. The indirect and direct relationships between all predictors and nurse cultural competence were tested. There were four predictors including ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation. A multi-stage random sampling technique was used to recruit the participants of 470 nurses who met the inclusion criteria. The research instruments consisted of six questionnaires. There were, the demographic questionnaire, the Cultural Competence Scale for Clinical Nurses [CCSCN], the Generalized Ethnocentrism Scale [GES], the Multicultural Experiences Questionnaire [MEQ], A subscale of the Cultural Competence Assessment Instrument [CCAI], and the Goal Adjustment Scale [GAS]. Their reliability of Cronbach' s alpha coefficients were 0.92, 0.89, 0.84, 0.82, and 0.80 respectively.

The most of participants were female (96.6%) and single (61.1%). Their age ranged from 22-60 years old with a mean of 34.68 (*SD* = 9.52). Their position mainly was practice nurse (80.4%), and about 70% had salary between 20,001-40,000 Thai Baht. Almost all of them (93.0%) had highest education of Bachelor degree of nursing science. The number of years in nursing experience were from 1-37 years with a mean of 11.53 (*SD* = 9.43). They were from 45% from In-patient department, 31.3% from outpatient department, and 20.2% from emergency department.

The hypothesized model did not fit for the empirical data. Modification of the model was then performed until the final model achieved the goodness of fit criterion using the bootstrap method.

The modified model showed the direct and indirect effects on nurse cultural competence. Firstly, ethnocentric attitude had a negative indirect effect on nurse cultural competence through adaptation (β = -.093, p = .005) and organizational cultural competence support (β = -.080, p = .008). Multicultural experience had a positive indirect effect on nurse cultural competence through adaptation (β = .312, $p < .001$). Organizational cultural competence support had a positive direct effect on nurse cultural competence (β = .253, p = .011), and a positive indirect effect on nurse cultural competence through adaptation (β = .153, p = .011). Lastly, adaptation had a positive direct effect on nurse cultural competence (β = .614, $p < .001$). Finally, ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation explained 49% of the variance of nurse cultural competence (R^2 = .49).

Discussion of the study findings

The findings of the study are discussed following:

Hypothesis 1: Ethnocentric attitude, organizational cultural competence support, multicultural experience, and adaptation have influence over cultural competence among Thai nurses.

From the modified model, the organizational cultural competence support had a direct effect on Thai nurse cultural competence (β = .253, p = .011), and had an indirect effect on Thai nurse's cultural competence through adaptation (β = .132, $p < .001$) and adaptation showed positively significant on Thai nurses' cultural competence (β = .614, $p < .001$). Therefore, these hypotheses were totally supported. This finding revealed organizational cultural competence support and adaptation were the predictors that effected on Thai nurse cultural competence.

Moreover, ethnocentric attitude and multicultural experience were not shown direct effect on Thai nurses cultural competence but ethnocentric attitude showed negative indirect on Thai nurses cultural competence through adaptation (β = -.093, p = .005), and multicultural experience showed positive indirect effect on Thai nurses cultural competence through adaptation (β = .312, $p < .001$). however, this hypothesis was partially supported.

According to Thai nurse cultural competence, Khongsamai and Intarakamhang (2020) identified the causal variables affecting the cultural competence and examined the causal model of cultural care behavior of practice nurses who working in the international hospitals level of Bangkok, Thailand. The finding revealed that factors effecting on cultural attitudes and the nurses' cross-cultural experience had a direct effect on nurses' cultural competence, ($\beta = 0.22, 0.88$, $p < .05$). Moreover, cultural competence and the promotion of organizational support had a direct effect on nurses' cultural care service ($\beta = 0.11, 0.63$, $p < .05$). This finding was implied that an adaptation and appropriate cultural care service can be developed by from having perceived organizational support and increasing cultural competence. The recommends of this study revealed that the health care organizations should promote and support the training courses to enhance the attitudes and their experience regarding their cultural care service and cultural competence.

One of the Thai nurses' cultural competence is an adaptation that focus on the personal understanding and awareness of the background to serving an appropriate efficiency and standard of nursing outcome to respond to the quality of care from clients' needs (Songwathana & Siriphan, 2015). Although some Thai nurses had the duration of working was not long, Thai nurses could adapt their competency with a sense of commitment for the transcultural nursing care (Hirunchunha, Sangchan, Songwathana, & Petpichetchian, 2009; Phugkaew & Wattanapradith, 2016). Thai nurses' culture recognizes that nurses should have kindness, patience, compassion, and a desire to help people from different countries. Therefore, these characteristics would help nurses adapted to their working and learn the different culture for the standard care (Klunklin, Subpaiboongid, Keitlertnapha, Viseskul, & Turale, 2011).

In conclusion, ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation could predict as 49% of the variance of Thai nurse cultural competence ($R^2 = .49$). The finding confirms with the previous studies that have determined between ethnocentric attitude, multicultural experience, organizational cultural competence support, adaptation, and Thai nurse cultural competence (Jung-Won, 2017; Khongsamai & Intarakamhang, 2020).

As the result of the final model, this study finding indicated that adaptation was a mediator which had influenced on Thai nurse cultural competence but this

study showed organizational cultural competence support also directly influenced on Thai nurse cultural competence. It could be explained that adaptation is the cultural adjustment of nurse that was controlled by Thai nursing standard and quality that shaped for nurses' awareness. The organizational cultural competence support is an important factor because the policy of cultural competence staffing enhancing for nurse work. Moreover, the supporting from organization including technology resources and cultural competence training were directly influenced on Thai nurse cultural competence.

Finally, the finding provided the Thai nurse cultural competence context of causal relationship between ethnocentric attitude, multicultural experience, organizational cultural competence support, and adaptation. The positive direct effect on Thai nurse cultural competence were organizational cultural competence support and adaptation that congruent with the previous studies. But ethnocentric attitude and multicultural experience were not direct effect on Thai nurse cultural competence, they can be indirect effect on Thai nurse cultural competence through adaptation that not corrected with the previous studies due to Thai nurse context has worked under taken Thailand nursing standard and quality.

Hypothesis 2: Ethnocentric attitude has a negative direct, and indirect effects on cultural competence among Thai nurses through multicultural experience, organizational cultural competence support, and adaptation.

The result showed that there was no direct effect of ethnocentric attitude on nurse cultural competence. However, there was a significant negative indirect effect of ethnocentric attitude on nurse cultural competence through adaptation ($\beta = -.093$, $p = .005$). Therefore, the finding partially supported this hypothesis.

Ethnocentric attitude is a primary attitude expressing that one's cultural standards can be applied in a universal manner and the value of one's own culture is superior to other ethnic groups or cultures or one's own ethnic group. It is closely related to prejudice, an authoritarian personality structure, more generally, mental closure, xenophobia, and other attitudinal indicators for racism (Jung-Won, 2017; Mounsey, 2007). In the study finding, it had no direct effect on nurse cultural competence. Although there is evidence supported that ethnocentric attitude has influence on nurse cultural competence and could undermine the capability of nurse to

serving culturally appropriate care behaviors (Jung-Won, 2017; Mounsey, 2007) but it was not showed directly effect on Thai nurse cultural competence. This could be that the differentiated of Thai nurses context and the place of data collecting. The Thai nurses context are congruent with at a present of the world opening, a trend of equity among diversity is globally accepted. In addition, the participants' age of 20-30 year were 44%, which is in the age group of new generation that seems to respect on equity. Moreover, this study focused on nurses who worked in a hospital located in tourist cities, including Bangkok, Chiang Mai, Chon Buri and Phuket. The data collecting cities contained clients or tourists mostly came from developed countries, like, US, UK, EU, Australia, and Japan. It is also possible that the nurses may not have negative attitude to them and care for them as other clients. Thai nurses may equally practice and care for clients with different cultural background without any attitude or perception that their own culture is superior than others Thus, we did not find direct negative effect of ethnocentric attitude on nurse cultural competence.

The finding revealed that ethnocentric attitude had indirect effect on nurse cultural competence through adaptation. This was supported the hypothesis. Evidence showed that ethnocentrism was related to personal adaptation and views about appropriate cultural competence (Bizumic, 2014). It is possible that Thai nurses have appropriate adaptation and they are polite. Although in their mind may feel there are some different about cultures of the clients but their culture and profession adaptation could solving the services responsibilities for effective goal of work safety, coping, moral, and happy with serving for the foreigner clients (Chaleoykitti, 2014). These could lead to have proper cultural competence among Thai nurses.

Hypothesis 3: Multicultural experience has positive direct, and indirect effects on cultural competence among Thai nurses through adaptation

The results showed that there was no direct effect of multicultural experience on nurse cultural competence, but had indirect effect of multicultural experience on nurses cultural competence through adaptation ($\beta = .248$, $p < .001$).

The result of this study indicated that multiculturalism associates to ethical aspect of professionals and thus depend upon educational ethic (Stables, 2005). Multicultural experiences of nurse allow a personal view to interact the cognition that oposite with the value of each culture and can influence to individual adaptation and a

good adjustment in thinking, greater cognitive flexibility, and a broadening of perspective. Cognitive similar and flexibility capacities of ethical sensitivity are critical for nursing profession about lay alike and ethical behavior (Narvaez & Endicott, 2009). In this study showed that it was not statistically significant directed to nurse cultural competence because multicultural experience is an individual experience that has been living in difference environment and culture but it was indirect effect on Thai cultural competence through adaptation. This result might from Thai nurses self-learning. The context of generation that their age were between 20-30 years old (44%) that the same reason from hypothesis 1. Moreover, Thai nurse new generation need to adjust their interpretation, delegation plan, and provide a supervision. The development of Thai nurses generation is for applied the environment and appropriate working systems by adapt the suitable technology in order to achieve their cultural competence in the workplace and full potential happiness (Khunthar, Kedcham, Sawaengdee, & Theerawit, 2013).

Although some of Thai nurses had a less direction of multicultural experience but they can reach the difference culture content as a self-learning about clients who has a difference culture from the medias that related to the view of participation among people in which they create, contact and exchange information and cognition in virtual communities and networks including their work. The technology of the media depends upon mobile phone and up to date in website to create highly interactive platforms through which discuss, co-create, and modify user-generated content, and individuals and communities share. It introduces substantial and pervasive changes to individuals, communities and communication between organizations (Jirathummakoon, 2016). Thai nurses and their self-learning by using social media showed that the frequent channels of social media exposure through TV, Instagram, Line, and Facebook. Thai nurses reported of using the social media connection through mobile phone at home and dormitory. The most motivation of media use was for internet surfing and entertainment. The majority of nurses spent time for each connecting including 1-2 hours for using in online communication and less than 1 hour for online study/ homework assignment and online entertainment (Kheokao, Yingrengreung, Siriwanij, Krirkgulthorn, & Panidchakult, 2015). Moreover, the multicultural experience and their skill from using social media would

promote their good competency which influence on Thai nursing standard for cultural adjustment for a quality of nursing care with foreigner clients. These reasons were congruent with the previous study below.

Multicultural experience has and indirect effect on nurse cultural competence. Endicott et al. (2003) examined multicultural experiences of nursing to cognitive underpinning. The multicultural experiences of nursing students are related to both types of describe and development the cognitive processes through which multicultural experiences philosophical facilitate directly to the empirical data supporting the development and the association. Moreover, nurses' multicultural experiences could effect on their cultural competence. This experience has both indirect and direct influence to nurses' cultural competence. Multicultural experiences was defined to the time spent in different cultural area, participation with this group, and attitudes toward people from different cultural value. Choi (2011) conducted an exploratory study on experience in multiculturism and cultural competence of service providers in multicultural settings revealed that, while a one-off training course, repetitive education, an interaction with a difference country, and short-term stays overseas have little to do with medical experts' cultural competence more than three visits to a foreign country, and long-term overseas stays of more than a year are linked to improvements in cultural skill and cultural awareness. This information indicate that an overseas experience program intended to expand participants' multicultural experience should be provided repeatedly so that it will not end up as an ineffective one-off event.

However, nurse who have a direct experience with the different culture could be a direct effect on their cultural competence that corrected with some study. The multicultural experiences such as traveling, making foreign friends, reading, and eating, the health care staffs service should be suggest with expanding the cultural awareness. Chae and Lee (2014) assessed nurses' multicultural experiences, such as their long-term overseas stays and short-term, their fluency in difference languages, foreign acquaintances they have or the number of foreign friends, the number of their knowledge of foreigners, experiences of receiving related training, and foreign patients they have cared. The result showed that nurses had a high competence for caring the foreigner group.

In conclusion, the multicultural experience was indirect effect on nurse cultural competence through adaptation that also is a cultural adjustment for the quality of nursing care. Nurses can gain their multicultural experiences from foreign language education, multicultural immersion experience, the social media, the training of intercultural nursing, and overseas visits. The increasing of multicultural experiences was found positive direct effect on higher cultural competence. Thai nurses are also more willing to share their experience knowledge at work by using technologies like mobile apps or more resources that make them easy to work with the foreigner clients.

Hypothesis 4: Organizational cultural competence support has positive direct, and indirect effects on cultural competence among Thai nurses through adaptation.

From the modified model, the findings showed that there was a positive significant direct effect on nurse cultural competence ($\beta = .253$, $p = .011$), and a positive indirect effect on nurse cultural competence through adaptation ($\beta = .153$, $p = .011$). Therefore, the finding totally supported this hypothesis.

The result of this study indicated that organizational cultural competence support has a direct and indirect impact on nurse cultural competence by reducing intercultural uncertainty and enhancing adaptation for cultural adjustment.

According to the policy of world medical hub of Thailand, the organizational cultural competence support is generally thought to be the organization's contribution to the policy that lead to a positive reciprocity dynamic with nurse, as nurse tend to perform better to reciprocate received benefit and favorable treatment of cultural competence (Levy, 2013). Jung-Won (2017) suggested that nurses need an assistance from the organizations they belong to coping strategies to build their cultural capabilities and need to have adequate knowledge of other cultures. Therefore, organizations can solve the cultural competence by recruiting bilingual staffs, self-evaluating the related services they provide, developing educational materials hiring professional interpreters, and giving training to medical workers.

The organizational cultural competence support can lead some positive results to loyalty to the organization, nurse cultural competence such as mutuality, and

some other positive outcomes. Nurses who are encouraged by increase their efforts for realizing the organizational goals that can shape the nursing competence and the organization display emotional loyalty on a high level in return for this support (Eisenberger, 2002). The other positive results of organizational cultural competence support are also suggested. These findings are decrease in work related stress and increase in psychological health, decrease in absence, increase in job satisfaction, the increase in performance, and increase in work commitment (Domeyer, 2004 cited in Altinoz, Cop, Cakiroglu, & Altinoz, 2016). To confirm enhancing the cultural competence, service organizations must ensure supplies necessary to the community or the availability of assets. These include technology, linkages, staffing, and financial supports (Griner & Smith, 2006). Kumra et al. (2020) determined whether an association exists between teamwork climate among employees in a health system and perceptions of organizational cultural competence, revealed that senior leaders of organization should consider investment in cultural competence as a mentor toward team effectiveness. Moreover, organizations may provide for supporting cultural competence by developing a comprehensive plan and committing resources to the following that directly response to providing adequate diversity training, clients' cultural needs, recognizing and rewarding care that meets patients' cultural needs, collaborating with the community, retaining a diverse staff and leadership, and recruiting. Therefore, the organization's own culture and context must be considered to identify challenges and inform more effective change strategies in its application to facilitate an organization's transformation towards cultural competence.

In summary, organizational cultural competence support has direct and indirect effect on Thai nurse cultural competence. This hypothesis was congruent with the previous studies that showed whether an association exists between teamwork climate and perceptions of organizational cultural competence support among Thai nurses in a health care system.

Hypothesis 5: Adaptation has a positive direct effect on cultural competence among Thai nurses

From the modified model showed the direct positive effect between adaptation on Thai nurses cultural competence ($\beta = .614$, $p < .001$). Therefore, the finding totally supported this hypothesis.

The result of this study implied that adaptation of nurse working is a cultural adjustment competency. Thai nurse adaptation can range from changing the way one procedure is done for one patient who have a difference culture, up to changing how healthcare system works. Nurses adapt their work for lots of reasons, it may be from their learning from social media by themselves. Therefore, nurses use their knowledge, cultural skill, and judgement to adapt practice and provide patient center care (Kim et al., 2018). Thai nurse adaptation has a direct positive effect on nurse cultural competence which congruent with the previous study as below.

Thai nurse context also secures the developing educational systems by adapting nursing scholars around the world to achieve the positive changes in its caring zone. While the claim has been made that caring, it is the most important point to focusing in nursing of Thai context that the meaning of caring presence in Thailand nursing was deeply embedded in their cultural practices. Burnard and Naiyapatana (2004) examined the ethnographic study on communication and culture in Thai nursing focused on cultural aspects influencing interpersonal communication patterns in nursing profession. It was espoused that understanding and valuing culture influences the domain of their adaptation for practice. Moreover, it was recomended that having a lens on various contexts of culture is imperative to all Thai nurses. It reflects that research communications and Thailand possesses an indispensable governmental which refine the progress of nursing profession with plausibly attainable milestones which promotes reflective practice anchored on cultural preservation (Renosa, 2016). Songwathana and Siriphan (2015) examined the level of Thai nurses cultural competency in caring for clients living in a multicultural setting. The study revealed that the overall of nurses ‘cultural competence was at a moderate level. Cultural desire, cultural encounters, and cultural awareness were at a high level, but cultural skill and cultural knowledge were at a moderate level. No significant differences were found according to health-care setting or training experience about multicultural care, period of working but differences were found across religion ($p < .05$). The findings highlight the importance of cultural competency development among Thai nurses aimed at reducing conflicts and stress, and promoting nurses' adaptation when working in the multicultural settings of the Thai-Malaysian border

region. Therefore, Thai nurse adaptation was a key word of direct effect on Thai nurse cultural competence.

Thai nurses' adaptation has been cultivated since their undergraduate that is the strong point of nursing quality and it is a cause of direction to nurse cultural competence. Garneau and Pepin (2015) found that when nurses and student nurses were confronted with cultural differences, they adapted appropriate nursing care for such patients so that they could receive effective, quality care. Nurses' positive cultural attitude had effects on their cultural competence because they were willing to care for culturally diverse patients. The study of Tavallali, Kabir, and Jirwe (2014) showed the perception and experience of nurses' cultural competence was important, whereby if a nurse lacked cultural competence, then their patient was more likely to feel frustrated and insecure, which would be different from a patient who has experience with a nurse who has cultural competence, such that they felt respect, understanding, and satisfaction. This study can help anyone develop interventions on how to help nurses improve adaptation in cultural adjustment, awareness, communication, and encounters with patients by sharing previous experiences and adjusting their attitudes for improving the outcome of nursing care and patient satisfaction. Somsap and Varee (2019) determined the nursing brands in the twenty first century that correct of trending in health care of the customers and nursing brands in the twenty first century and. The development performance in nursing and determination that consists of development in skill of internet technology in nursing, development in foreign language for alternative or complementary care, skills of alternative medicine, understanding in cultural diversity, and knowledge. The over all of factors can lead Thai nurses for their strengthen in nursing profession and making their own brands and maintain identity the unique of Thai nurse. Including presentation of the development sample of these potency in nursing curriculum. Thai nurse adaptation has determined originated since the under graduated and can fluid depend upon the social trend.

In summary, Thai nurse adaptation can be conceptually defined as a referent to an individual who demonstrates cultural skill, knowledge, and awareness that applies these components as Thai nurse interacts with clients, customers, and co-workers. Further, Thai nurse continuously adjusts adaptation and self-assesses to

the dynamic and challenging opportunities in remaining culturally aware and effective.

Limitation

This study has some limitations that should be mentioned. Firstly, a cross-sectional study with four settings of the fourth ranking popular provinces in Thailand, may limit generalizability to other settings. Second, participants were focused mainly on tourist clients that may not cover other muli- countries workers or AEC workers, or CLMV (Cambodia, Laos, Myanmar, and Vietnam) workers. Lastly, all of the measurements were originally developed from western culture that translated into Thai. Therefore, some item - meaning may not appropriate with Thai culture.

Implication

1. Implication for nursing practice

This significant from the final model can contribute the new knowledges to understand the influence of significant factors on nurse cultural competence that included organizational cultural competence support, and adaptation. Cultural competence can influence not only health practices but also how nurse and the patient perceive illness and need. Becoming aware of how culture influences individual behavior and thinking allows nurse to plan the best care for patients. Awareness of the rules of interactions within a specific cultural group, such as communication patterns and customs, division of roles in the family unit, and spirituality, will help nurse better understand the attitudes of patients from difference culture. Finally, nurse can develop a skill set that increases cultural competency. Learn ways of communicating that best allow the patient to understand the plan of care. It also involves learning to adapt to new and different situations in a flexible way.

The finding suggests that promoting positive significant factors among organizational cultural competence support, and adaptation should be increased and negative factor as should be decreased that can improve nurse cultural competence in Thailand. The strong points of this finding are organizational cultural competence

support and adaptation can be shown a good predictors of Thai nurse context. Therefore, both factors should be promoted in Thailand nursing society.

2. Implication for public health policy

The solutions to increase Thai nurse cultural competence should be required the health policy that consist with this study. The results of this study from final model can be used to considerate as an evidence – based in determine the health policy and promoting Thai nurse cultural competence. For Thai nurse context, the policy for training of under graduated nurse and graduated nurse should be focused on transcultural nursing curriculum. The determination of cultural caring skill from nursing faculty is very important that can awareness the goal of adaptation in Thai nursing standard.

The organizational cultural competence support is a significant factor that directly influenced on Thai nurse cultural competence. The health care center service in Thailand should determine the policy for enhancing Thai nursing skill for caring foreigner patient including policy for training a short course for transcultural nursing and provided technology resources such as computer translation, signs, and document for many languages appropriated for patient. Therefore, Thai nurse cultural competence should be continued promoted knowledge and skill for difference group of patients. The policy from each organization for helping Thai nurse working should be considerate for maintaining the Thai nursing quality.

Recommendation for future research

This research finding implied a guide for future research as follows.

1. The future studies should be replicated in focusing one group of patients such as American patient or Chinese patient, etc.

2. The population of CLMV workers, or the diversity of cultures in Thailand should be focused.

3. A longitudinal study with a more variety of settings and cultural background of clients should be further conducted in fulfill understanding of Thai nurse cultural competence.

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APPENDICES

APPENDIX A

Permission instruments

Re: The permission to use tool

withirong sutthigoon <withirong1818@hotmail.com>
พฤ 28/11/2019 13:41

ถึง: Duck Hee Chae <dheechae@gmail.com>
สำเนาถึง: Nujjaree Chaimongkol <nujjaree@buu.ac.th>

Thank you very much for your kindness to let me use your tool.

ส่งจาก iPhone ของฉัน

เมื่อ 28 พ.ย. 2562 เวลา 13:35 เขียนโดย Duck Hee Chae <dheechae@gmail.com>:

Dear Sutthigoon,

Thank you for your email. I am pleased to learn of your interest in the Cultural Competence Scale for Nurses. Recently, a short-form of the CCSN was developed and published in Asian Nursing Research. Depending on your research, you may choose to use either the 33-item CCSN or the 14-item CCSN-Short Form. The CCSN was originally developed in Korean, but was translated into English upon request from international researchers. Enclosed, please find the English translated instrument and two articles, and I hope these help you conduct your research.

I am currently working on a research project to develop a cultural competence simulation training program with the support of the National Research Foundation of Korea. I will attend EAFONS in Chiang Mai, Thailand next January and plan to stay in Bangkok for 1 day. Thailand's medical tourism business is well known around the world. Could you please help me meet with the institutions or experts who provide Thai nurses with cultural competency training programs while I am in Bangkok?

If you need further assistance, please do not hesitate to contact me.

Regards,
Duckhee Chae
Duckhee Chae, PhD, RN
Associate Professor, Community Health Nursing
Chonnam National University College of Nursing
160 Baekseo-ro, Dong-gu, Gwangju, 501-840, South Korea
TEL: +82-62-530-4942
E-mail: dheechae@jnu.ac.kr, dheechae@gmail.com

On Thu, Nov 28, 2019 at 3:20 PM withirong sutthigoon <withirong1818@hotmail.com> wrote:

> To Doctor Duck-Hee Chae

Firstly, let me introduce myself. I am Mr.Withirong Sutthigoon, I have worked at Emergency department Nopparatrajathani hospital, Bangkok Thailand. Now I am a Ph.D. in candidate (My code 60810011) in Philosophy in Nursing Science (International Program) at Faculty of nursing of Burapha University, Thailand. My topic of dissertation is "A Structural Equation Modeling of Cultural Competence among Thai Nurses" and its design is a model testing design, with the objective of the project is to examine the factors effecting the Thai nurses' cultural competence. Your tool is very good and important to my project.

Therefore, I would like to kindly request the assistance of you to let me use your tool (Development and Psychometric Evaluation of the Korean Version of the Cultural Competence Scale for Clinical Nurses, Evaluation of the psychometric properties of the Korean version of the Cultural Competence Assessment) and provide information on this project. Your cooperation would be most appreciated and would greatly benefit for Thai nurses to develop the cultural competence in the aspect of transcultural nursing. Your tool will be translated to Thai version.

Thank you for your kind consideration of my request and I look forward to get your permission document from you soon.

Your sincerely

Mr Withirong Sutthigoon

0914147903

Sent from Mail for Windows 10

<CCSN_English translation.pdf>
<CCSN_SF(2018).pdf>
<Development & Psychometric KCCSN(2014).pdf>

Fwd: The permission for use tool

withirong sutthigoon <withirong1818@hotmail.com>
จ. 2/12/2019 21:32
ถึง: Nujjaree Chaimongkol <nujjaree@buu.ac.th>

ส่งจาก iPhone ของฉัน

จุดเริ่มต้นข้อความที่ส่งต่อ:

จาก: Jim Neuliep <jim.neuliep@snc.edu>
วันที่: 2 ธันวาคม 2562 21 นาฬิกา 30 นาที 09 วินาที GMT+7
ถึง: withirong sutthigoon <withirong1818@hotmail.com>
ชื่อเรื่อง: ตอบ: The permission for use tool

Hello Mr. Sutthigoon,

Thank you for your email. You have my permission to use the Generalized Ethnocentrism Scale (GENE) is your research. Please include the following citation in your research:

Neuliep, J.W., (2002). Assessing the reliability and validity of the generalized ethnocentrism scale. *Journal of Intercultural Communication Research, 31, (4),* 201-216.

Best wishes for a successful research project.

Jim Neuliep

On Fri, Nov 29, 2019 at 10:26 PM withirong sutthigoon <withirong1818@hotmail.com> wrote:

To Doctor James W.Neuliep, St Norbert College

Firstly, let me introduce myself. I am Mr.Withirong Sutthigoon, I have worked at Emergency department Nopparatrajathani hospital, Bangkok Thailand. Now I am a Ph.D. in candidate (My code 60810011) in Philosophy in Nursing Science (International Program) at Faculty of nursing of Burapha University, Thailand. My topic of dissertation is “A Structural Equation Modeling of Cultural Competence among Thai Nurses” and its design is a model testing design, with the objective of the project is to examine the factors effecting the Thai nurses’ cultural competence. Your tool is very good and important to my project.

Therefore, I would like to kindly request the assistance of you to let me use your tool (General Ethnocentric Scale) and provide information on this project. Your cooperation would be most appreciated and would greatly benefit for Thai nurses to develop the cultural competence in the aspect of transcultural nursing. Your tool will be translated to Thai version.

Thank you for your kind consideration of my request and I look forward to get your permission document from you soon.

Your sincerely

Mr Withirong Sutthigoon

0914147903

Sent from Mail for Windows 10

Fwd: the permission to using the measurement

withirong sutthigoon <withirong1818@hotmail.com>
พฤ 20/2/2020 7:09
ถึง: Nujjaree Chaimongkol <nujjaree@buu.ac.th>
เครื่องมือที่ได้รับอนุญาตใช้และแปลครับ

ส่งจาก iPhone ของฉัน

จุดเริ่มต้นข้อความที่ส่งต่อ:

จาก: "Balcazar, Fabricio E" <fabricio@uic.edu>
วันที่: 24 พฤศจิกายน 2562 22 นาฬิกา 01 นาที 00 วินาที GMT+7
ชื่อเรื่อง: ตอบ: the permission to using the measurement

Hi Withirong. Thanks for contacting me. You have my permission to use the scale.
Good luck with the project.

Fabricio Balcazar
Sent from my iPhone

On Nov 23, 2019, at 10:10 PM, withirong sutthigoon <withirong1818@hotmail.com> wrote:

To Doctor Fabricio E Balcazar

Firstly, let me introduce myself. I am Mr.Withirong Sutthigoon, I have worked at Emergency department Nopparatrajathani hospital, Bangkok Thailand. Now I am a Ph.D. in candidate (My code 60810011) in Philosophy in Nursing Science (International Program) at Faculty of nursing of Burapha University, Thailand. My topic of dissertation is "A Structural Equation Modeling of Cultural Competence among Thai Nurses" and its design is a model testing design, with the objective of the project is to examine the factors effecting the Thai nurses' cultural competence. Your tool is very good and important to my project.

Therefore, I would like to kindly request the assistance of you to let me use your tool (the Cultural Competence Assessment Instrument) and provide information on this project. Your cooperation would be most appreciated and would greatly benefit for Thai nurses to develop the cultural competence in the aspect of transcultural nursing. Your tool will be translated to Thai version.

Thank you for your kind consideration of my request and I look forward to get your permission document from you soon.

Your sincerely
Mr Withirong Sutthigoon
0914147903

Sent from Mail for Windows 10

Fwd: permission to using the measurement

withirong sutthigoon <withirong1818@hotmail.com>
อ 26/11/2019 23:00
ถึง: Nujjaree Chaimongkol <nujjaree@buu.ac.th>

ส่งจาก iPhone ของฉัน

จุดเริ่มต้นข้อความที่ส่งต่อ:

จาก: Darcia Narvaez <dnarvaez@nd.edu>
วันที่: 25 พฤศจิกายน 2562 0 นาฬิกา 22 นาที 01 วินาที GMT+7
ถึง: withirong sutthigoon <withirong1818@hotmail.com>
ชื่อเรื่อง: ตอบ: permission to using the measurement

Dear Mr Withirong Sutthigoon,

You have permission to use the Multicultural Experience Questionnaire. Good luck with your project!

D Narvaez

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Darcia Narvaez (DAR-sha narv-EYES)
Professor of Psychology, Psychology Department,
362 Corbett, University of Notre Dame, Notre Dame IN 46556 USA

dnarvaez@nd.edu, 574-631-7835
My University Website

The Evolved Nest (*Evolved Developmental Niche*) (academic papers)
EvolvedNest.Org (podcasts, info, and monthly newsletter)

Also see DarciaNarvaez.com

Blog at Psychology Today: Moral Landscapes

Interviews and Podcasts

Sustainable Wisdom Conference website (videos of speakers, more)

BOOKS:
Indigenous Sustainable Wisdom: First Nation Know-How for Global Flourishing (Peter Lang)
Basic Needs, Wellbeing and Morality: Fulfilling Human Potential (Palgrave-Macmillan)
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Embodied Morality: Protectionism, Engagement and Imagination (Palgrave-Macmillan)
Neurobiology and the Development of Human Morality: Evolution, Culture and Wisdom (winner of the 2017 Expanded Reason Award and the 2015 APA William James Book Award)
Evolution, Early Experience and Human Development (OUP)
Ancestral Landscapes in Human Evolution (OUP)
Young Child Flourishing: Evolution, Family & Society (OUP)

amazon.com/author/darcianarvaez

Kindred World

I acknowledge my presence at the University of Notre Dame on the traditional homeland of the Pokégnek Bodéwadmik / Pokagon Potawatomi, who have been using this land for education for thousands of years, and continue to do so.

On Sat, Nov 23, 2019 at 11:01 PM withirong sutthigoon <withirong1818@hotmail.com> wrote:

To Doctor Narvaez, Darcia

Firstly, let me introduce myself. I am Mr.Withirong Sutthigoon, I have worked at Emergency department Nopparatrajathani hospital, Bangkok Thailand. Now I am a Ph.D. in candidate (My code 60810011) in Philosophy in Nursing Science (International Program) at Faculty of nursing of Burapha University, Thailand. My topic of dissertation is "A Structural Equation Modeling of Cultural Competence among Thai Nurses" and its design is a model testing design, with the objective of the project is to examine the factors effecting the Thai nurses' cultural competence. Your tool is very good and important to my project.

Therefore, I would like to kindly request the assistance of you to let me use your tool (Multicultural Experiences Questionnaire (MEQ)) and provide information on this project. Your cooperation would be most appreciated and would greatly benefit for Thai nurses to develop the cultural competence in the aspect of transcultural nursing. Your tool will be translated to Thai version.

Thank you for your kind consideration of my request and I look forward to get your permission document from you soon.

Your sincerely

Mr Withirong Sutthigoon

0914147903

Fwd: The permission for use tool

withirong sutthigoon <withirong1818@hotmail.com>
ส 30/11/2019 8:32
ถึง: Nujjaree Chaimongkol <nujjaree@buu.ac.th>

ส่งจาก iPhone ของฉัน

จุดเริ่มต้นข้อความที่ส่งต่อ:

> **จาก:** Carsten Wrosch <Carsten.Wrosch@concordia.ca>
> **วันที่:** 30 พฤศจิกายน 2562 8 นาฬิกา 32 นาที 07 วินาที GMT+7
> **ถึง:** withirong sutthigoon <withirong1818@hotmail.com>
> **ชื่อเรื่อง: ตอบ: The permission for use tool**
>
> HI,
>
> Everybody can use the scale — good luck with your research!
>
> Carsten
>
> ---
>
> Carsten Wrosch, Ph.D.
> Professor
> Department of Psychology
> Concordia University
> 7141 Sherbrooke St. West
> Montreal, QC, H4B 1R6
> Canada
>
> email: carsten.wrosch@concordia.ca
> phone: (514) 848-2424 ext. 2231
>
> ---
>
> On Nov 29, 2019, at 7:57 PM, withirong sutthigoon <withirong1818@hotmail.com> wrote:
>
> To Doctor Carsten Wrosch

APPENDIX B

Instruments Thai version

แบบสอบถามงานวิจัย

เรื่อง: แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย
(A Structural Equation Modeling of Cultural Competence among Thai Nurses)
ผู้วิจัย: นายวิธิรงค์ สุทธิกุล นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิตสาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา

คำชี้แจง

สมรรถนะทางวัฒนธรรมของพยาบาล หมายถึง ความสามารถในการให้บริการหรือปฏิบัติกิจกรรมการพยาบาลของพยาบาลที่มีต่อผู้รับบริการหรือหรือผู้ป่วยชาวต่างชาติ ที่มีความเชื่อ วัฒนธรรม และประเพณีแตกต่างกับตนเอง การวิจัยนี้มีวัตถุประสงค์เพื่อทดสอบแบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย ซึ่งจะมีประโยชน์คือ ได้องค์ความรู้ใหม่ที่จะใช้เป็นข้อมูลสำคัญสำหรับการนำไปพัฒนารูปแบบ วางแผน และกำหนดนโยบายในการส่งเสริมสมรรถนะทางวัฒนธรรมของพยาบาลไทยให้เป็นไปอย่างมีมาตรฐานและมีประสิทธิภาพมากยิ่งขึ้น กลุ่มตัวอย่างได้แก่พยาบาลวิชาชีพที่ปฏิบัติงานทางคลินิกที่หน่วยงานอุบัติเหตุและฉุกเฉิน งานผู้ป่วยนอกและงานผู้ป่วยใน ของโรงพยาบาลระดับตติยภูมิของรัฐบาลและเอกชน
แบบสอบถามประกอบด้วย 6 ส่วนดังนี้

ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
ส่วนที่ 2 แบบสอบถามเรื่องสมรรถนะทางวัฒนธรรมสำหรับพยาบาลปฏิบัติการทางคลินิก
ส่วนที่ 3 แบบประเมินด้านอคติชาติพันธุ์นิยมทางวัฒนธรรม
ส่วนที่ 4 แบบสอบถามเกี่ยวกับประสบการณ์ด้านพหุวัฒนธรรม
ส่วนที่ 5 แบบสอบถามเกี่ยวกับการสนับสนุนสมรรถนะทางวัฒนธรรมขององค์กร
ส่วนที่ 6 แบบประเมินการปรับตัวตามเป้าประสงค์

ส่วนที่ 1

ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม

กรุณาทำเครื่องหมาย √ ในช่อง☐หรือเติมข้อมูลในช่องว่าง

1. เพศ ☐ ชาย ☐ หญิง
2. อายุ...................... ปี
3. สำเร็จการศึกษาสูงสุด
   - ☐ ปริญญาตรีหรือเทียบเท่า สาขาวิชาพยาบาศาสตร์
   - ☐ ปริญญาโท สาขาวิชาพยาบาศาสตร์
   - ☐ ปริญญาโท สาขาวิชาอื่น (โปรดระบุ)..
   - ☐ ปริญญาเอก สาขาวิชาพยาบาศาสตร์
   - ☐ อื่น (โปรดระบุ)..
4. หอผู้ป่วยที่ปฏิบัติงานประจำ
   - ☐ อุบัติเหตุและฉุกเฉิน
   - ☐ ผู้ป่วยนอก แผนก..
   - ☐ ผู้ป่วยใน แผนก...
   - ☐ อื่น (โปรดระบุ)..
5. ระยะเวลา (ปี) ที่ทำงานพยาบาล ระบุ..............................
6. สถานภาพสมรส
   - ☐ โสด ☐ มีคู่อยู่ด้วยกัน ☐ หย่า/ แยกกันอยู่
7. รายรับรวมต่อเดือน (บาท)
   - ☐ < 20,000 ☐ 21,000-30,000 ☐ 31,000-40,000
   - ☐ 41,000-50,000 ☐ > 50,000
8. ตำแหน่งงานปัจจุบัน...

ส่วนที่ 2

แบบสอบถามเรื่องสมรรถนะทางวัฒนธรรมสำหรับพยาบาลปฏิบัติการทางคลินิก

(The Cultural Competence Scale for Clinical Nurses)

คำชี้แจง

สมรรถนะทางวัฒนธรรมสำหรับพยาบาลปฏิบัติการทางคลินิก หมายถึงสมรรถนะที่บ่งบอกถึงความสามารถของพยาบาลในการปฏิบัติติการพยาบาลแก่ผู้ใช้บริการชาวต่างชาติ ต่างวัฒนธรรม โดยที่พยาบาลแสดงออกถึงการให้เกียรติ การยอมรับ การตอบสนอง ความเชื่อ ทัศนคติ และพฤติกรรมของผู้ใช้บริการ ตามกระบวนการดูแลภายใต้มาตรฐานของวิชาชีพ สมรรถนะทางวัฒนธรรมของพยาบาลประกอบด้วย การตระหนักรู้ทางวัฒนธรรม (Cultural awareness) ความไวทางวัฒนธรรม (Cultural sensitivity) ความรู้ทางวัฒนธรรม (Cultural knowledge) และทักษะทางวัฒนธรรม (Cultural skills)

โปรดอ่านข้อความและทำเครื่องหมาย √ ลงในช่องคะแนนที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงช่องเดียว (33 ข้อ)

ข้อความ	คะแนน						
	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	ไม่เห็นด้วยบางส่วน (3)	ไม่แน่ใจ (4)	เห็นด้วยบางส่วน (5)	เห็นด้วย (6)	เห็นด้วยอย่างยิ่ง (7)
การตระหนักรู้เกี่ยวกับวัฒนธรรม (Cultural awareness)							
1. ฉันตระหนักดีว่าวัฒนธรรมมีผลต่อการรับรู้เกี่ยวกับสุขภาพและโรคของบุคคล							
2. ฉันตระหนักดีว่าพฤติกรรมการดูแลสุขภาพของบุคคลอาจแตกต่างกันไปตามวัฒนธรรม							

ข้อความ	คะแนน						
	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	ไม่เห็นด้วยบางส่วน (3)	ไม่แน่ใจ (4)	เห็นด้วยบางส่วน (5)	เห็นด้วย (6)	เห็นด้วยอย่างยิ่ง (7)
3. ฉันตระหนักดีว่าอาการของโรคอาจแสดงออกตามความแตกต่างกันไปตามวัฒนธรรม							
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33. เมื่อไม่สามารถรับความช่วยเหลือจากล่ามแปลได้ ฉันใช้ประโยชน์จากอุปกรณ์ที่จำเป็น สำหรับการสื่อสารกับผู้ป่วยชาวต่างชาติ เช่นเครื่องมือแปลภาษา หรือเครื่องมือในการประเมินความเจ็บปวด							

มหาวิทยาลัยบูรพา BURAPHA UNIVERSITY

ส่วนที่ 3
แบบประเมินด้านอคติชาติพันธุ์นิยมทางวัฒนธรรม (Ethnocentric Scale)

คำชี้แจง

อคติชาติพันธุ์นิยมทางวัฒนธรรม (Ethnocentrism) หมายถึง การที่บุคคลใช้มาตรฐานการมีรากเหง้ามาจากวัฒนธรรมของตนมาใช้ในการตัดสินและสร้างข้อสรุปเพื่อประเมินบุคคลที่มาจากวัฒนธรรมอื่นๆ

โปรดอ่านข้อความและทำเครื่องหมาย √ ลงในช่องที่คะแนนตรงกับความคิดเห็นของท่านมากที่สุดเพียงช่องเดียว (22 ข้อ)

ข้อความ	คะแนน				
	เห็นด้วยน้อยที่สุด (1)	เห็นด้วยน้อย (2)	เฉยๆ (3)	เห็นด้วยมาก (4)	เห็นด้วยมากที่สุด (5)
1. ส่วนใหญ่วัฒนธรรมของคนอื่น จะล้าหลังเมื่อเทียบกับวัฒนธรรมของฉัน					
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22. ฉันให้ความเคารพคุณค่าและวัฒนธรรมอื่น เพียงเล็กน้อย					

ส่วนที่ 4

แบบสอบถามเกี่ยวกับประสบการณ์ด้านพหุวัฒนธรรม

(Multicultural Experience Questionnaire)

คำชี้แจง

ประสบการณ์ด้านพหุวัฒนธรรม(Multicultural Experience) หมายถึง ประสบการณ์ส่วนบุคคลในการทำกิจกรรมร่วมกับบุคคลอื่นหรือสังคมอื่นที่มีความแตกต่างจากวัฒนธรรมหรือความเป็นอยู่ของตนเอง

โปรดอ่านข้อความและทำเครื่องหมายวงกลม ◯ ตัวเลขที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงตัวเดียว (15 ข้อ)

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1. ฉันเดินทางไปต่างประเทศ

1) ไม่เคย 2) 1-2 ครั้งในชีวิต 3) 3 ครั้งขึ้นไป 4) เป็นประจำ

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15. ฉันเพลิดเพลินกับสื่อและศิลปะที่มาจากวัฒนธรรมต่างๆ

1) ไม่เคย 2) นาน ๆ ครั้ง 3) บางครั้ง 4) บ่อย ๆ 5) เป็นประจำ

ส่วนที่ 5

แบบสอบถามเกี่ยวกับการสนับสนุนสมรรถนะทางวัฒนธรรมขององค์กร

(Organizational cultural competence support questionnaire)

คำชี้แจง

การสนับสนุนสมรรถนะทางวัฒนธรรมขององค์กร (Organizational cultural competence support) หมายถึง แนวทางการประเมิน วางแผน และกำหนดนโยบายขององค์กรในการสนับสนุนและส่งเสริมให้บุคลากรในองค์กรมีสมรรถนะและความสามารถในการดูแลผู้ใช้บริการที่มีความแตกต่างทางวัฒนธรรมตลอดจนการติดตามประเมินผลเพื่อให้เกิดคุณภาพของการบริการ

โปรดอ่านข้อความและทำเครื่องหมาย √ ลงในช่องคะแนนที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงช่องเดียว (8 ข้อ)

ข้อความ	คะแนน			
	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	เห็นด้วย (3)	เห็นด้วยอย่างยิ่ง (4)
1. สมรรถนะทางวัฒนธรรมรวมอยู่ในคำแถลงพันธกิจ นโยบาย และขั้นตอนการปฏิบัติงานในสถานที่ทำงานของฉัน				
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8. ในที่ทำงานของฉันได้กำหนดแนวปฏิบัติการให้บริการไว้ ซึ่งเมื่อนำไปปฏิบัติจริงทำให้แยกแยะค่านิยมทางวัฒนธรรมของผู้รับบริการได้ยาก				

ส่วนที่ 6
แบบประเมินการปรับตัวตามเป้าประสงค์
(The Goal Adjustment Scale)

คำชี้แจง

การปรับตัวตามเป้าประสงค์ (The Goal Adjustment) หมายถึง การตัดสินใจของบุคคลเพื่อปรับตัวให้เข้ากับสถานการณ์ สถานการณ์ในที่นี้หมายถึง สถานการณ์ที่พยาบาลให้การดูแลผู้ใช้บริการชาวต่างชาติ **นอกจากนี้เป้าประสงค์ในแบบสอบถามหมายถึง เป้าหมายที่จะได้มาซึ่งสมรรถนะทางวัฒนธรรมเพื่อให้การพยาบาลผู้ป่วยชาวต่างชาติอย่างมีคุณภาพ**

โปรดอ่านข้อความและทำเครื่องหมาย √ ลงในช่องคะแนนที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงช่องเดียว (10 ข้อ)

ข้อความ	คะแนน				
	ไม่เห็นด้วยอย่างยิ่ง (1)	ไม่เห็นด้วย (2)	เฉยๆ (3)	เห็นด้วย (4)	เห็นด้วยอย่างยิ่ง (5)
1.มันเป็นเรื่องง่ายสำหรับฉันที่จะลดความพยายามเพื่อให้บรรลุตามเป้าหมายของงาน					
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10. ฉันมุ่งมั่นเพื่อให้บรรลุตามเป้าหมายอื่นที่มีความสำคัญ					

APPENDIX C

Participants’ information sheet and consent form

เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย

(Participant Information Sheet)

รหัสโครงการวิจัย : G-HS 008/2563

(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง : แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย

เรียน ผู้เข้าร่วมโครงการวิจัย

ข้าพเจ้า นายวิธิรงค์ สุทธิกุล ตำแหน่ง พยาบาลวิชาชีพชำนาญการ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิตสาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) หน่วยงานคณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ขอเรียนเชิญท่านเข้าร่วมโครงการวิจัยแบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย ก่อนที่ท่านจะตกลงเข้าร่วมการวิจัย ขอเรียนให้ท่านทราบรายละเอียดของโครงการวิจัย ดังนี้

วัตถุประสงค์ของโครงการวิจัยนี้เพื่อทดสอบแบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทยและเพื่อหาปัจจัยที่ส่งผลกระทบต่อสมรรถนะทางวัฒนธรรมของพยาบาล กลุ่มตัวอย่างคือพยาบาลวิชาชีพที่ปฏิบัติงานที่หน่วยงานอุบัติเหตุและฉุกเฉิน หน่วยงานผู้ป่วยนอกและหน่วยงานผู้ป่วยใน สังกัดโรงพยาบาลระดับตติยภูมิของรัฐบาลและเอกชนในจังหวัดกรุงเทพมหานคร จังหวัดเชียงใหม่ จังหวัดชลบุรีและจังหวัดภูเก็ต โดยมีระยะเวลาในการเก็บข้อมูลวิจัย 6 เดือนคือ ระหว่าง วันที่ 1 มีนาคม พ.ศ.2563 – 1 สิงหาคม พ.ศ.2563

เมื่อท่านเข้าร่วมโครงการวิจัยจะได้รับแบบสอบถาม 1 ชุดพร้อมซองปิดผนึกจากผู้ช่วยในการเก็บข้อมูลวิจัย ท่านสามารถใช้เวลาในการตอบแบบสอบถามงานวิจัยภายใน 2 อาทิตย์หลังได้รับแบบสอบถาม เมื่อท่านมีข้อสงสัยในขณะท่านตอบแบบสอบถามสามารถขอความช่วยเหลือจากผู้วิจัยและผู้ช่วยในการเก็บข้อมูลวิจัย เมื่อท่านตอบแบบสอบถามเสร็จสมบูรณ์ผู้ช่วยในการเก็บข้อมูลวิจัยจะเป็นผู้รวบรวมแบบสอบถามทั้งหมดส่งคืนแก่ผู้วิจัยเพื่อทำการวิเคราะห์ผลต่อไป

ประโยชน์ที่ผู้เข้าร่วมโครงการวิจัยพึงได้รับจากโครงการวิจัย ประโยชน์ทางตรง ท่านสามารถประเมินตนเองด้านสมรรถนะทางวัฒนธรรมเพื่อการปรับปรุงตนเองเพื่อให้เกิดการพัฒนาด้านสมรรถนะดังกล่าวให้เกิดคุณภาพและประสิทธิภาพแก่การปฏิบัติการพยาบาล ส่วนประโยชน์ทางอ้อม ข้อมูลที่เกี่ยวข้องกับปัจจัยที่ส่งผลต่อสมรรถนะทางวัฒนธรรมของพยาบาล จะเป็นประโยชน์ต่อองค์กรพยาบาล เพื่อกำหนดแผนและนโยบายเพื่อส่งเสริมสมรรถนะทางวัฒนธรรม

ของพยาบาลในองค์กรและเป้าหมายของการบริการด้วยความเป็นเลิศตามความคาดหวังของผู้ใช้บริการทุกกลุ่ม

การเข้าร่วมโครงการวิจัยนี้เป็นไปด้วยความสมัครใจ ท่านมีสิทธิปฏิเสธการเข้าร่วมโครงการวิจัยได้ และสามารถถอนตัวออกจากการเป็นผู้เข้าร่วมโครงการวิจัยได้ทุกเมื่อโดยการปฏิเสธหรือถอนตัวของท่านจะไม่มีผลกระทบต่อสิทธิประการใดๆ ที่ท่านจะพึงได้รับ

ข้อมูลของท่านจะถูกปกปิดเป็นความลับ การเผยแพร่ผลการวิจัยจะกระทำในภาพรวม โดยผู้วิจัยจะไม่นำข้อมูลส่วนบุคคลของท่านออกเปิดเผยไม่ว่าในทางใดๆ เว้นแต่ท่านจะยินยอมให้เปิดเผยข้อมูลดังกล่าวโดยได้อนุญาตไว้เป็นลายลักษณ์อักษร

กรณีที่ผู้วิจัยคาดว่าจะมีข้อมูล หลักวิชาการ หรือเทคโนโลยีใหม่ๆ เกิดขึ้นในอนาคต ที่อาจส่งผลกระทบต่อท่านในระหว่างที่ยังอยู่ในโครงการวิจัย ผู้วิจัยจะแจ้งให้ท่านทราบเพื่อใช้ประกอบการตัดสินใจว่าจะยังคงเป็นผู้เข้าร่วมโครงการวิจัยต่อไปหรือไม่

การติดต่อผู้วิจัย

นายวิธิรงค์ สุทธิกุล คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา 169 ถนนลงหาดบางแสน ตำบลแสนสุข อำเภอเมืองชลบุรี ชลบุรี 20131 โทรศัพท์ 038-102880 โทรสาร 038-393476 โทรศัพท์มือถือ 091-4147903 Email withirong1818@hotmail.com

หมายเหตุ

หากผู้วิจัยไม่ปฏิบัติตามที่ได้ชี้แจงไว้ในเอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย สามารถแจ้งมายังคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยบูรพา กองบริหารการวิจัยและนวัตกรรม หมายเลขโทรศัพท์ 038-102561-62

เอกสารแสดงความยินยอม

ของผู้เข้าร่วมโครงการวิจัย (Consent Form)

รหัสโครงการวิจัย : G-HS 008/2563

(สำนักงานคณะกรรมการพิจารณาจริยธรรมในมนุษย์ มหาวิทยาลัยบูรพา เป็นผู้ออกรหัสโครงการวิจัย)

โครงการวิจัยเรื่อง แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย

ให้คำยินยอม วันที่ …………….. เดือน ………………………………. พ.ศ. ……………….

ก่อนที่จะลงนามในเอกสารแสดงความยินยอมของผู้เข้าร่วมโครงการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายถึงวัตถุประสงค์ของโครงการวิจัย วิธีการวิจัย และรายละเอียดต่างๆ ตามที่ระบุในเอกสารข้อมูลสำหรับผู้เข้าร่วมโครงการวิจัย ซึ่งผู้วิจัยได้ให้ไว้แก่ข้าพเจ้า และข้าพเจ้าเข้าใจคำอธิบายดังกล่าวครบถ้วนเป็นอย่างดีแล้ว และผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยเกี่ยวกับการวิจัยนี้ด้วยความเต็มใจ และ ไม่ปิดบังซ่อนเร้นจนข้าพเจ้าพอใจ

ข้าพเจ้าเข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ และมีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ การบอกเลิกการเข้าร่วมการวิจัยนั้นไม่มีผลกระทบต่อการปฏิบัติงานหรือผลประโยชน์ใดๆ ที่ข้าพเจ้าจะพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเกี่ยวกับตัวข้าพเจ้าเป็นความลับ จะเปิดเผยได้เฉพาะในส่วนที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลของข้าพเจ้าต่อหน่วยงานต่างๆ ที่เกี่ยวข้องต้องได้รับอนุญาตจากข้าพเจ้า

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้วมีความเข้าใจดีทุกประการ และได้ลงนามในเอกสารแสดงความยินยอมนี้ด้วยความเต็มใจ

กรณีที่ข้าพเจ้าไม่สามารถอ่านหรือเขียนหนังสือได้ ผู้วิจัยได้อ่านข้อความในเอกสารแสดงความยินยอมให้แก่ข้าพเจ้าฟังจนเข้าใจดีแล้ว ข้าพเจ้าจึงลงนามหรือประทับลายนิ้วหัวแม่มือของข้าพเจ้าในเอกสารแสดงความยินยอมนี้ด้วยความเต็มใจ

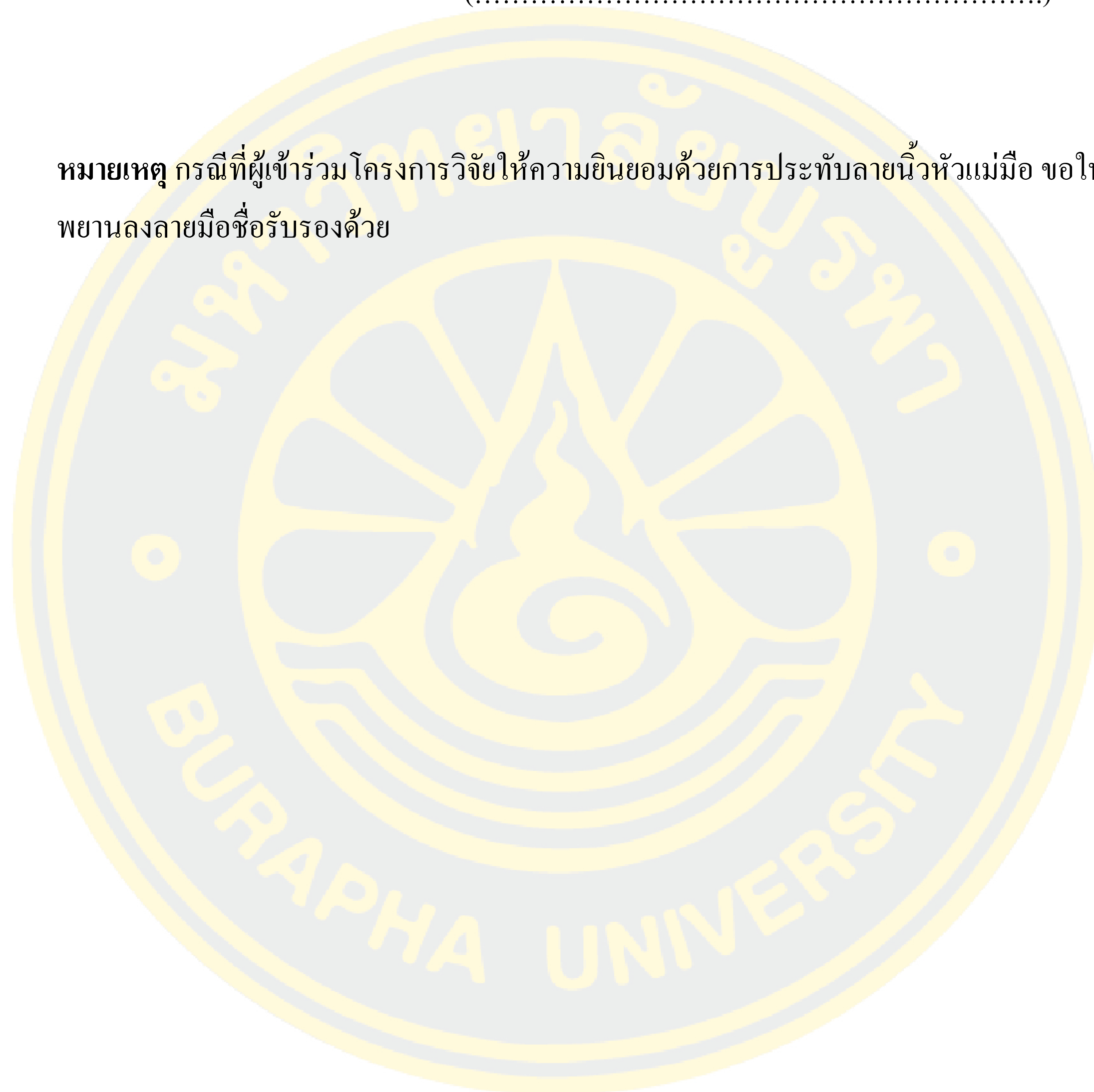
ลงนาม …………………………….....……………………..ผู้ยินยอม

(…………………………………………………….)

ลงนาม ……………………….…………………...…..พยาน

(…………………………………………………….)

หมายเหตุ กรณีที่ผู้เข้าร่วมโครงการวิจัยให้ความยินยอมด้วยการประทับลายนิ้วหัวแม่มือ ขอให้มีพยานลงลายมือชื่อรับรองด้วย



APPENDIX D

The institutional review board and permission letter for data collection

Certificate Number 003/2020

Certificate of Human Research Approval
Burapha University

BUU Ethics Committee for Human Research has considered the following research protocol

Protocol Code : G-HS 008/2563
Protocol Title : A Structural Equation Modeling of Cultural Competence Thai Nurses
Principal Investigator : Mr.Withirong Sutthigoon
Affiliation : Graduate Program of Faculty of Nursing

BUU Ethics Committee for Human Research has considered the following research protocol according to the ethical principles of human research in which the researchers respect human's right and honor, do not violate right and safety, and do no harms to the research participants.

Therefore, the research protocol is approved (See attached)

1. Form of Human Research Protocol Submission	Version 2 : 19 February 2020
2. Research Protocol	Version 2 : 19 February 2020
3. Participant Information Sheet	Version 1 : 24 January 2020
4. Informed Consent Form	Version 1 : 24 January 2020
5. Research Instruments	Version 1 : 24 January 2020
6. Others (if any)	Version - : -

Approval Date : 6 March 2020
Valid Date : 5 March 2021

Sign Witawat Jangiam
(Associate Professor Dr. Witawat Jangiam)
Chairperson
The Burapha University Institutional Review Board
Panel 1 (Clinic / Health Science / Science and Technology)

ที่ อว ๘๑๐๖/ ๖๒๗๓

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๗ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลพระรามเก้า

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลพระรามเก้า จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๓๐๒๘๙๖, ๓๐๒๘๐๔
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๘๔๑๘-๗๙๐๓

ที่ อว ๘๑๐๖/๐๒๗๙

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลบางละมุง

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลบางละมุง จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๑๔๑๔-๗๔๐๓

ที่ อว ๘๑๐๖/๐๒๗๕

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลกรุงเทพพัทยา

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลกรุงเทพพัทยา จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
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เรียน ผู้อำนวยการโรงพยาบาลวชิระภูเก็ต

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เรียน ผู้อำนวยการโรงพยาบาลกรุงเทพภูเก็ต

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เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลนครพิงค์

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
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จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
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เรียน ผู้อำนวยการโรงพยาบาลกรุงเทพเชียงใหม่

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
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เรียน ผู้อำนวยการโรงพยาบาลนพรัตนราชธานี

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๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง “A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES” โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลนพรัตนราชธานี จำนวน ๓๐ ราย ระหว่างวันที่ ๒๓-๓๑ มีนาคม พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๔
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๓๙๑๔-๗๘๐๓

ที่ อว ๘๑๐๖/๐๒๗๒

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลนพรัตนราชธานี

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

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จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๑๔๑๔-๗๔๐๓

โรงพยาบาลบางละมุง
เลขรับที่ ๓๕๔๐
วันที่ ๑๘ พค. ๒๕๖๓
เวลา ๑๕.๑๕ น.

ที่ อว ๘๑๐๖/๐๒๓๙

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลบางละมุง

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลบางละมุง จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

ทราบ

นางอัจฉรา ประสพสิน
พยาบาลวิชาชีพชำนาญการพิเศษ

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๓๔๑๙-๗๙๐๓

23 มี.ค. 2563

BY HAND

ที่ อว ๘๑๐๖/๖๒๗๓

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
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เรียน ผู้อำนวยการโรงพยาบาลพระรามเก้า

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกูล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

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จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๒๔๓๕-๗๗๐๓

คณะกรรมการวิจัยและจริยธรรมวิจัย
โรงพยาบาลนพรัตนราชธานี

ใบรับรองโครงการวิจัยผ่านการพิจารณาจากคณะกรรมการวิจัยและจริยธรรมวิจัย
โรงพยาบาลนพรัตนราชธานี

ชื่อโครงการ(ไทย) : แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย

ชื่อโครงการ(อังกฤษ) : A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES

ชื่อหัวหน้าโครงการวิจัย: นายวิธิรงค์ สุทธิกุล

เลขที่ใบรับรอง : 11/2563 **รหัสโครงการวิจัย** : 63-2-011-0

หน่วยงานที่สังกัด : คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา

ประเภทโครงการวิจัย ☐ **โครงการวิจัยภายใน** ☑ **โครงการวิจัยภายนอก**

ผลการพิจารณาของคณะกรรมการวิจัย :

คณะกรรมการจริยธรรมการวิจัยได้พิจารณารายละเอียดโครงการวิจัย เรื่องดังกล่าวข้างต้นแล้ว ในประเด็นที่เกี่ยวกับ

1) การเคารพในศักดิ์ศรี และสิทธิของมนุษย์ที่เป็นกลุ่มตัวอย่างในโครงการวิจัย
2) วิธีการวิจัยที่เหมาะสมและได้รับความยินยอมจากกลุ่มตัวอย่างก่อนเข้าร่วมโครงการวิจัย (Informed consent) รวมทั้งการปกป้องสิทธิประโยชน์ และรักษาความลับของกลุ่มตัวอย่างในโครงการวิจัย
3) การดำเนินงานวิจัยเหมาะสม ไม่ก่อความเสียหายต่อกลุ่มตัวอย่างของการศึกษาวิจัย

ออกให้ ณ วันที่ 14 พฤษภาคม 2563 **หมดอายุวันที่** 13 พฤษภาคม 2564

เอกสารนี้ให้ไว้เพื่อแสดงว่าโครงการวิจัยนี้ ได้ผ่านการตรวจสอบและมีมติจากคณะกรรมการวิจัยและจริยธรรมวิจัยของโรงพยาบาลนพรัตนราชธานี ให้ดำเนินการเก็บข้อมูลในโรงพยาบาลนพรัตนราชธานีได้ตามเงื่อนไขและแนวทางที่เจ้าของโครงการเสนอมา

ลงนาม..

(นายศุภวุฒิ พฤฒิวรนันทน์)

ประธานคณะกรรมการวิจัยและจริยธรรมวิจัย

หมายเหตุ : ใบรับรองนี้เป็นใบรับรองที่จัดทำขึ้นชั่วคราวเท่านั้น กลุ่มงานวิจัยและประเมินเทคโนโลยีจะดำเนินการออกเอกสารใบรับรองฉบับจริงให้ เมื่อผู้วิจัยนำรูปเล่มงานวิจัยฉบับสมบูรณ์ มาส่งที่กลุ่มงานวิจัยฯ เพื่อเผยแพร่ผลการศึกษาวิจัยต่อไป

ผลการพิจารณาจากคณะกรรมการวิจัยและจริยธรรมวิจัย

โรงพยาบาลนพรัตนราชธานี

ประเภท : โครงการวิจัยนอก / ประจำปี 2563

ชื่อโครงการ "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES"

ผู้ทำวิจัย นายวิธิรงค์ สุทธิกุล

หน่วยงาน นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา (บุคลากรในโรงพยาบาลนพรัตนราชธานี ตำแหน่ง พยาบาลวิชาชีพชำนาญการ งานอุบัติเหตุและฉุกเฉิน)

ผลการพิจารณา เห็นสมควรผ่านการรับรอง

สรุปผล วันที่ 14 พฤษภาคม 2563

(นายแพทย์ศุภวุฒิ พฤฒิวรนันทน์)

หัวหน้ากลุ่มงานวิจัยและประเมินเทคโนโลยี

สำนักงานผู้อำนวยการ สนง.รองฯ พรส.
รับที่ ๕๙๓๗ รับที่ 1031
วันที่ ๑๕ พ.ค. ๒๕๖๓ วันที่ ๑๕ พ.ค. ๒๕๖๓
เวลา 10:10 เวลา 9.10น.

บันทึกข้อความ

ส่วนราชการ กลุ่มงานวิจัยและประเมินเทคโนโลยี โรงพยาบาลนพรัตนราชธานี โทร.๒๖๖๑

ที่ สธ ๐๓๐๖.๒๘/๑๕๙ **วันที่** ๑๕ พฤษภาคม ๒๕๖๓

เรื่อง ขออนุมัติดำเนินโครงการวิจัยในโรงพยาบาล

เรียน ผู้อำนวยการโรงพยาบาลนพรัตนราชธานี (ผ่านรองผู้อำนวยการด้านการพัฒนาระบบสุขภาพ)

ตามที่ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้ส่งโครงการวิจัยเพื่อขออนุมัติจริยธรรมการวิจัย และขออนุมัติดำเนินการวิจัยในโรงพยาบาลนพรัตนราชธานี รายละเอียดดังนี้

ชื่อโครงการวิจัยเรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดย นายวิธิรงค์ สุทธิกุล นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา (พยาบาลวิชาชีพชำนาญการ งานอุบัติเหตุและฉุกเฉิน) และโครงการนี้ได้ผ่านการพิจารณารับรองจริยธรรม เลขที่ใบรับรอง ๑๑/๒๕๖๓ ลงวันที่ ๑๕ พฤษภาคม ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาอนุมัติให้ดำเนินการโครงการวิจัยในโรงพยาบาลด้วย จะเป็นพระคุณ

การพยาบาล/พยาบาล
รับที่ ๓๕๙๑
วันที่ ๒๐ พ.ค. ๖๓
เวลา ๑๓.๑๓

(นายศุภวุฒิ พฤฒิวรนันทน์)
หัวหน้ากลุ่มงานวิจัยและประเมินเทคโนโลยี

เห็นสมควรอนุมัติ

(นางเจียมรัตน์ ผลาสินธุ์)
รองผู้อำนวยการด้านพัฒนาระบบสุขภาพ
๑๕ พ.ค. ๒๕๖๓

เรียน นิจการหอผู้ป่วยที่เกี่ยวข้อง
เพื่อโปรด ให้ความร่วมมือในการเก็บข้อมูลด้วย

○ ทราบ ○ พิจารณาเสนอ
○ ดำเนินการต่อไป ○ เก็บเรื่อง

(นางรัชนีวรรณ คูตระกูล)
รองผู้อำนวยการด้านการพยาบาล
๒๐ พ.ค. ๒๕๖๓

เรียน รอง ผอ. ด้านการพยาบาล
เพื่อโปรด อำนวยความสะดวกแก่ผู้วิจัย ต่อไปด้วย จะเป็นพระคุณยิ่ง
* เก็บข้อมูลกลุ่มพยาบาล ER, OPD, IPD

(นายศุภวุฒิ พฤฒิวรนันทน์)
หัวหน้ากลุ่มงานวิจัยและประเมินเทคโนโลยี
18 พ.ค. 63

อนุมัติ
ดำเนินการได้

(นายสมบูรณ์ ทศบวร)
ผู้อำนวยการโรงพยาบาลนพรัตนราชธานี
๑๕ พ.ค. ๒๕๖๓

เลขที่หนังสือรับรอง 178

คณะกรรมการพิจารณาจริยธรรมการวิจัย
โรงพยาบาลนครพิงค์

โครงการวิจัย : แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย
รหัสโครงการ : -

ผู้ดำเนินงานวิจัย : นายวิธิรงค์ สุทธิกุล

สถานที่ดำเนินการวิจัย : โรงพยาบาลนครพิงค์

เอกสารที่พิจารณา :
1. คำขอการรับรองเชิงจริยธรรมในการทำวิจัยที่เกี่ยวข้องกับคน
2. แบบอัตตประวัติ
3. รายละเอียดโครงการ
4. เครื่องมือในการวิจัย

เอกสารที่อนุมัติ : คณะกรรมการพิจารณาจริยธรรมการวิจัย โรงพยาบาลนครพิงค์ ได้พิจารณาโครงการฉบับภาษาไทยแล้ว คณะกรรมการฯ พิจารณาอนุมัติในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ ทั้งนี้โดยยึดตามเอกสารฉบับภาษาไทยเป็นหลัก

(..)
(นายกิจจา เจียรวัฒนกนก)
ประธานคณะกรรมการวิจัยโรงพยาบาลนครพิงค์

(..)
(นางสุภารัชต์ กาญจนะวณิชย์)
ประธานคณะกรรมการจริยธรรมการวิจัยโรงพยาบาลนครพิงค์

รับรอง ณ วันที่ 8 ธ.ค. 2563 ถึง 7 ธ.ค. 2564

ศูนย์วิจัย
รับที่ 190
วันที่ 13 ส.ค. 2563

โรงพยาบาลนครพิงค์
เลขที่ 09181
วันที่ 11 ส.ค. 2563

บันทึกข้อความ

ส่วนราชการ มหาวิทยาลัยบูรพา

ที่ บัณฑิตวิทยาลัย มหาวิทยาลัยบูรพา **วันที่** ๒๖ กรกฎาคม พ.ศ. ๒๕๖๓

เรื่อง ขอความอนุเคราะห์เก็บข้อมูลวิจัย

กลุ่มภารกิจด้านการพยาบาล
รับที่ 155
วันที่ 26 ส.ค. 2563

เรียน ผู้อำนวยการ โรงพยาบาลนครพิงค์

ตามที่ นายวิธิรงค์ สุทธิกุล นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาพยาบาลศาสตร์ สังกัดคณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพาได้ขอเสนอโครงการวิจัยเรื่อง แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย A Structural Equation Modeling of Cultural Competence among Thai Nurses แหล่งเก็บข้อมูลเป็นโรงพยาบาลระดับตติยภูมิทั้งรัฐบาลและเอกชน 8 แห่งทั่วประเทศ กลุ่มตัวอย่างเป็นพยาบาลประจำการทั้งสิ้น 480 คนแบ่งเป็นแห่งละ 60 คน โดยโครงการวิจัยนี้มี ดร.สุทธิพันธ์ ถนอมพันธ์ หัวหน้ากลุ่มงานวิจัยและพัฒนาการพยาบาล โรงพยาบาลนครพิงค์เป็นผู้วิจัยร่วมตามหลักเกณฑ์ของโรงพยาบาลนั้น ขณะนี้ได้ผ่านการพิจารณาโครงการวิจัยจากคณะกรรมการพิจารณาจริยธรรมการวิจัยของโรงพยาบาลนครพิงค์แล้ว จึงใคร่ขอความอนุเคราะห์ในการดำเนินการเก็บข้อมูลวิจัย ทั้งนี้ได้แนบเอกสารเพื่อประกอบการพิจารณาดังนี้

๑. เอกสารรับรองการผ่านการพิจารณาจากคณะกรรมการพิจารณาจริยธรรมการวิจัยของโรงพยาบาลนครพิงค์
๒. เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย
๓. เอกสารแสดงความยินยอมของผู้เข้าร่วมโครงการวิจัย
๔. แบบสอบถามงานวิจัย
๕. โครงร่างงานวิจัย
๖. รายละเอียดเค้าโครงดุษฎีนิพนธ์ระดับบัณฑิตศึกษา
๗. เอกสารรับรองการผ่านการพิจารณาจากคณะกรรมการพิจารณาจริยธรรมการวิจัยของมหาวิทยาลัยบูรพา

จึงเรียนมาเพื่อโปรดพิจารณา

เรียน กง. วิจัย
เพื่อโปรด ทราบ พิจารณา ดำเนินการ
10 ส.ค. 63

ลงชื่อ..

(ร.ศ.ดร.นุจรี ไชยมงคล)

คณบดีบัณฑิตวิทยาลัย มหาวิทยาลัยบูรพา

(นางสาวรัญญา เยื่องไพโรจน์)

หัวหน้าภารกิจด้านการพยาบาล

27 ส.ค. 63

แบบรายงานผลการพิจารณาจริยธรรมการวิจัยในมนุษย์

โรงพยาบาลกรุงเทพพัทยา

....

ชื่อหัวข้อวิจัย : รูปแบบสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย

Protocol Title: A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES

ชื่อผู้วิจัย นายวิธิรงค์ สุทธิกุล

ผลการพิจารณาของคณะกรรมการจริยธรรมการวิจัยในมนุษย์ฯ

คณะกรรมการจริยธรรมการวิจัย ฯมีมติเห็นชอบ รับรองจริยธรรมการวิจัย **รหัส 04-2563**

โดยได้พิจารณารายละเอียดการวิจัยเรื่องดังกล่าวข้างต้นแล้ว ในประเด็นที่เกี่ยวกับ

1) การเคารพในศักดิ์ศรี และสิทธิของมนุษย์ที่ใช้เป็นกลุ่มตัวอย่างการวิจัย

2) วิธีการอย่างเหมาะสมในการได้รับความยินยอมจากกลุ่มตัวอย่างก่อนเข้าร่วมโครงการวิจัย (Informed consent) รวมทั้งการปกป้องสิทธิประโยชน์และรักษาความลับของกลุ่มตัวอย่างในการวิจัย

3) การดำเนินการวิจัยอย่างเหมาะสม เพื่อไม่ก่อความเสียหายหรืออันตรายต่อกลุ่มตัวอย่างที่ศึกษา

การรับรองจริยธรรมการวิจัยนี้มีกำหนดระยะเวลาหนึ่งปี นับจากวันที่ออกหนังสือฉบับนี้ ถึงวันที่ 25 **มิถุนายน พฤษภาคม** 2564 โดยมีกำหนดส่งรายงานความคืบหน้าของโครงการทุก ๆ 6 เดือน นับจากวันที่ได้รับการอนุมัติ

อนึ่ง หากมีการแก้ไขเพิ่มเติมใดๆของโครงการวิจัย หรือ เหตุการณ์ไม่พึงประสงค์ทุกชนิด กรุณารายงานต่อคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ ก่อนดำเนินการปรับเปลี่ยนแก้ไขด้วย

วันที่ให้การรับรอง 25 เดือน มิถุนายน พ.ศ.2563

ลงนาม

(นายแพทย์คมสัน วสุวานิช)

ประธานคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลกรุงเทพพัทยา

FM-BPH-143 Rev.0 (29 Mar 18)

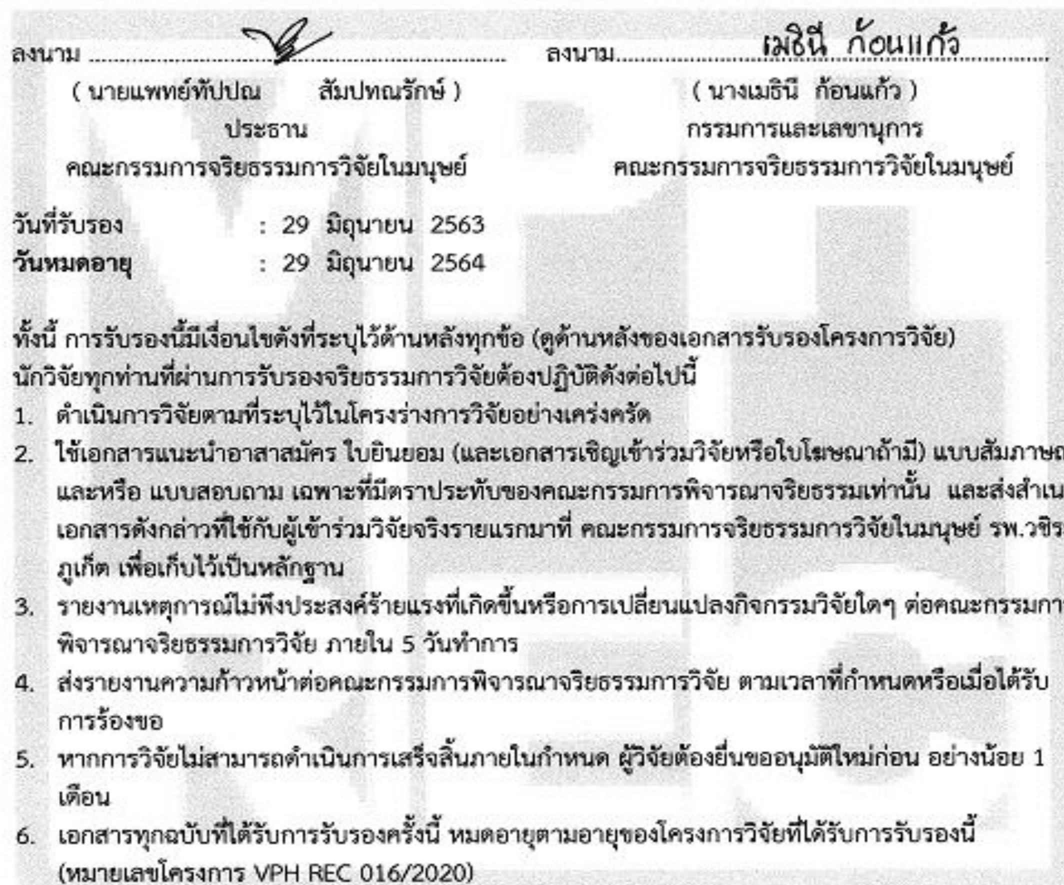
COA No.013B2020
VPH REC 016/2020

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลวชิระภูเก็ต
กระทรวงสาธารณสุข
ที่อยู่353 ถนน เยาวราช ตำบล ตลาดใหญ่ อำเภอเมือง จังหวัดภูเก็ต 83000โทร.076-361-234 ต่อ6624

เอกสารรับรองโครงการวิจัยแบบเร็ว

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลวชิระภูเก็ต ดำเนินการให้การรับรองโครงการวิจัยตามแนวทางหลักจริยธรรมการวิจัยในคนที่เป็นมาตรฐานสากลได้แก่ Declaration of Helsinki, The Belmont Report, CIOMS Guideline และ International Conference on Harmonization in Good Clinical Practice หรือ ICH-GCP

ชื่อโครงการ	: แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย A Structural Equation Modeling of Cultural Competence among Thai Nurses
เลขที่โครงการวิจัย	: VPH REC 016/2020
ผู้วิจัยหลัก	: นายวิธิรงค์ สุทธิกุล
สังกัดหน่วยงาน	: สาขาวิชาพยาบาลศาสตร์(นานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา
วิธีทบทวน	: แบบเร็ว
รายงานความก้าวหน้า	: ส่งรายงานความก้าวหน้าอย่างน้อย 1 ครั้ง/ปี หรือ ส่งรายงานฉบับสมบูรณ์หากดำเนินโครงการเสร็จสิ้นก่อน 1 ปี
เอกสารรับรอง	: 1. โครงร่างการวิจัยฉบับสมบูรณ์ (Full Protocol) 2. เอกสารข้อมูลคำอธิบายสำหรับผู้เข้าร่วมวิจัย Information sheet Version 1.0 วันที่ 25 พฤษภาคม 2563 3. เอกสารแสดงความยินยอมเข้าร่วมโครงการวิจัย Informed Consent Form Version 1.0 วันที่ 25 พฤษภาคม 2563 4. หนังสืออนุญาตเก็บข้อมูลวิจัยจากผู้อำนวยการโรงพยาบาลวชิระภูเก็ต 5. เครื่องมือที่ใช้ในการวิจัย แบบสอบถามงานวิจัย แบ่งเป็น 6 ส่วน



ลงนาม .... ลงนาม ......เมธินี ก้อนแก้ว......

(นายแพทย์ทัปปณ สัมปทณรักษ์) (นางเมธินี ก้อนแก้ว)

ประธาน กรรมการและเลขานุการ

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ คณะกรรมการจริยธรรมการวิจัยในมนุษย์

วันที่รับรอง : 29 มิถุนายน 2563

วันหมดอายุ : 29 มิถุนายน 2564

ทั้งนี้ การรับรองนี้มีเงื่อนไขดังที่ระบุไว้ด้านหลังทุกข้อ (ดูด้านหลังของเอกสารรับรองโครงการวิจัย)

นักวิจัยทุกท่านที่ผ่านการรับรองจริยธรรมการวิจัยต้องปฏิบัติดังต่อไปนี้

1. ดำเนินการวิจัยตามที่ระบุไว้ในโครงร่างการวิจัยอย่างเคร่งครัด
2. ใช้เอกสารแนะนำอาสาสมัคร ใบยินยอม (และเอกสารเชิญเข้าร่วมวิจัยหรือใบโฆษณาถ้ามี) แบบสัมภาษณ์และหรือ แบบสอบถาม เฉพาะที่มีตราประทับของคณะกรรมการพิจารณาจริยธรรมเท่านั้น และส่งสำเนาเอกสารดังกล่าวที่ใช้กับผู้เข้าร่วมวิจัยจริงรายแรกมาที่ คณะกรรมการจริยธรรมการวิจัยในมนุษย์ รพ.วชิระภูเก็ต เพื่อเก็บไว้เป็นหลักฐาน
3. รายงานเหตุการณ์ไม่พึงประสงค์ร้ายแรงที่เกิดขึ้นหรือการเปลี่ยนแปลงกิจกรรมวิจัยใดๆ ต่อคณะกรรมการพิจารณาจริยธรรมการวิจัย ภายใน 5 วันทำการ
4. ส่งรายงานความก้าวหน้าต่อคณะกรรมการพิจารณาจริยธรรมการวิจัย ตามเวลาที่กำหนดหรือเมื่อได้รับการร้องขอ
5. หากการวิจัยไม่สามารถดำเนินการเสร็จสิ้นภายในกำหนด ผู้วิจัยต้องยื่นขออนุมัติใหม่ก่อน อย่างน้อย 1 เดือน
6. เอกสารทุกฉบับที่ได้รับการรับรองครั้งนี้ หมดอายุตามอายุของโครงการวิจัยที่ได้รับการรับรองนี้ (หมายเลขโครงการ VPH REC 016/2020)

ศูนย์วิจัยและพัฒนา
เลขที่ 046
วันที่ 19 พ.ค. 2563

โรงพยาบาลวชิระภูเก็ต
เลขรับ 006822
วันที่ 18 พ.ค. 2563
เวลา 14.02 น.

ที่ อว ๘๑๐๖/๐๒๗๖

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลวชิระภูเก็ต

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิธิรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลวชิระภูเก็ต จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

เรียน ผู้อำนวยการ
เพื่อโปรด
☑ ทราบ
☑ พิจารณา ดำเนินการ
☑ กลุ่มงาน ศูนย์วิจัยฯ พัฒนา
☐ ฝ่าย
☐ งาน
☐ อื่นๆ
ลงชื่อ
18 พค 63 18 พ.ค. 2563

เรียน รอง ฯ ด้านวิจัยและพัฒนา ทราบ.
- ผ่อนผันฯ [illegible] Ethics
- อนุญาตเก็บข้อมูลได้หลังผ่านการพิจารณา Ethics
19 พ.ค. 63
- ชี้แจง ผอ. [illegible]
- ประกัน [illegible]

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๔๗๖
ผู้วิจัย ๐๙-๑๕๑๙-๗๙๐๓

88/8-9 หมู่ 6 ตำบลหนองป่าครั่ง อำเภอเมืองเชียงใหม่ จังหวัดเชียงใหม่ 50000
88/8-9 Moo 6, Tumbol Nong Pa Khrang, Ampher Mueang Chiang Mai, Chiang Mai 50000, Thailand
Tel. 052-089-888 Fax. 052-089-800 Contact Center Tel. 1719 www.bangkokhospital-chiangmai.com

ที่ สน.ผอ. 041/2563 วันที่ 08 มิถุนายน 2563

เรื่อง แจ้งผลการพิจารณาขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์ คณบดีคณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา

ตามที่นายวิธิรงค์ สุทธิกุล ได้ขอพิจารณาเรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย ตามที่เสนอดุษฎีนิพนธ์เรื่อง "แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย (A Structural Equation Modeling Of Cultural Competence Among Thai Nurses)" ดังรายละเอียดตามหนังสือ เลขที่ อว 8106/0279 วันที่ 19 มีนาคม 2563 ตามความแจ้งแล้วนั้น

ทางโรงพยาบาลได้พิจารณาโครงการวิจัย และส่งต่อให้คณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่แล้ว เห็นควรอนุญาตให้นิสิตเข้าเก็บรวมรวมข้อมูลได้ และขอมอบหมายให้ คุณวิชุดา การะหงษ์ เจ้าหน้าที่ฝ่ายการพยาบาล เบอร์โทรติดต่อ 080-4979944 เป็นผู้ประสานงานกับผู้วิจัย

จึงเรียนมาเพื่อทราบและโปรดแจ้งให้ผู้เกี่ยวข้องได้รับทราบต่อไป จักเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

ลงชื่อ พลตรี...

(นายแพทย์ นิวัฒน์ บุญยืน)
ผู้อำนวยการโรงพยาบาลกรุงเทพเชียงใหม่

BANGKOK HOSPITAL
CHIANG MAI

บันทึกภายใน

INTERNAL ROUTIG SLIP

วันที่ 04 มิถุนายน 2563

เรื่อง : ขอพิจารณาออกหนังสือรับรองโครงการวิจัย (Certificate of Approval) โครงการ BCM-IRB -2020-05-002

เรียน : ประธานคณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่

จาก : เลขานุการคณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่ โทร. 1442

☑ เพื่อโปรดทราบ For your information	☑ เพื่อโปรดพิจารณาอนุมัติ For your approval	☐ ความเห็นของท่าน For your comment	☐ โปรดส่งคืนข้าพเจ้า Please return
☐ เพื่อโปรดลงนาม For your signature	☐ เพื่อโปรดดำเนินการ Please handle	☐ เพื่อโปรดติดต่อข้าพเจ้า Please contact me	☐ เพื่อเป็นเอกสารอ้างอิง For further reference
☐ ตามที่ท่านร้องขอ As per your request	☐ ส่งคืนด้วยความขอบคุณ Returned with thanks	☐ โปรดส่งต่อไปยัง........ Please forward to........	

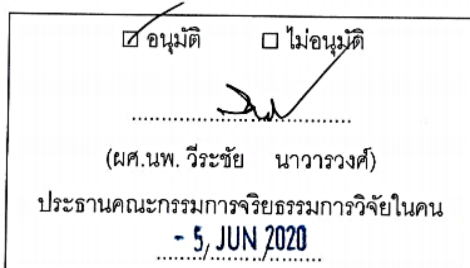
ตามที่ นายวิธิรงค์ สุทธิกุล คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา โรงพยาบาลกรุงเทพเชียงใหม่ ได้เสนอดุษฎีนิพนธ์เรื่อง “แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย (A Structural Equation Modeling Of Cultural Competence Among Thai Nurses)” ตามหนังสือเลขที่ อว 8106/0279 วันที่ 19 มีนาคม 2563 และโครงการดังกล่าวได้รับการพิจารณาจริยธรรมการวิจัยในคนจากคณะกรรมการพิจารณาจริยธรรมการวิจัยในคน มหาวิทยาลัยบูรพา (BUU Ethics Committee) มีมติ รับรองโครงการวิจัย รับรองตั้งแต่ วันที่ 6 มีนาคม 2563 ถึง 5 มีนาคม 2564 Certificate Number : 003/2020 แล้วนั้น

โดยเลขานุการคณะกรรมการฯ พิจารณาโครงการวิจัยดังกล่าวแล้ว เห็นว่ามีความเสี่ยงต่ำ จึงขอเสนอประธานคณะกรรมการฯ พิจารณาออกหนังสือรับรองโครงการวิจัย (Certificate of Approval) ตามการรับรองของคณะกรรมการพิจารณาจริยธรรมการวิจัยในคนมหาวิทยาลัยบูรพา (BUU Ethics Committee) ให้แก่หัวหน้าโครงการวิจัย

จึงเรียนมาเพื่อโปรดพิจารณาและดำเนินต่อไป

ขอแสดงความเคารพ

(นพ.วิทวัส อริยวุฒยากร)
เลขานุการคณะกรรมการจริยธรรมการวิจัยในคน
โรงพยาบาลกรุงเทพเชียงใหม่



☑ อนุมัติ ☐ ไม่อนุมัติ

(ผศ.นพ. วีระชัย นาวารวงศ์)
ประธานคณะกรรมการจริยธรรมการวิจัยในคน
- 5 JUN 2020

88/8-9 หมู่ 6 ตำบลหนองป่าครั่ง อำเภอเมืองเชียงใหม่ จังหวัดเชียงใหม่ 50000
88/8-9 Moo 6, Tumbol Nong Pa Khrang, Ampher Mueang Chiang Mai, Chiang Mai 50000, Thailand
Tel. 052-089-888 Fax. 052-089-800 Contact Center Tel. 1719 www.bangkokhospital-chiangmai.com

ที่ จธ.09/2563 วันที่ 05 มิถุนายน 2563

เรื่อง แจ้งผลการขอรับการพิจารณารับรองเชิงจริยธรรมการวิจัย โครงการวิจัย : BCM-IRB -2020-05-002

เรียน หัวหน้าโครงการวิจัย โครงการ : BCM-IRB -2020-05-002

ตามที่คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้เสนอโครงการวิจัยเรื่อง "แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย (A Structural Equation Modeling of Cultural Competence Among Thai Nurses)" ของนายวิธิรงค์ สุทธิกุล มาเพื่อขอรับการพิจารณารับรองเชิงจริยธรรมฯ ดังรายละเอียดตามหนังสือเลขที่ อว 8106/0279 วันที่ 19 มีนาคม 2563 ตามความแจ้งแล้วนั้น

คณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่ ได้พิจารณาเอกสารดังกล่าว เป็นการพิจารณาโครงร่างการวิจัยแบบเร่งด่วนแล้ว มีความเห็นชอบให้ดำเนินการวิจัยได้ ทั้งนี้ ตั้งแต่วันที่ระบุในเอกสารรับรองโครงการวิจัยเป็นต้นไป ดังได้แนบเอกสารรับรองโครงการมาพร้อมนี้ หลังจากได้รับเอกสารรับรอง ขอให้ผู้วิจัยปฏิบัติดังนี้

1. โปรดพิจารณาส่งรายงานความก้าวหน้าให้คณะกรรมการจริยธรรมอย่างน้อยปีละ 1 ครั้ง หรือมากกว่านั้น ถ้าคณะกรรมการฯ ร้องขอ หากการศึกษามีระยะเวลาไม่ถึงหนึ่งปี ขอให้รายงานฯ เมื่อสิ้นสุดโครงการ รายงานฯ ดังกล่าวเป็นส่วนหนึ่งที่ใช้ประกอบการพิจารณาอนุมัติให้ดำเนินการวิจัยในปีต่อไป
2. โปรดพิจารณาส่งรายงานความก้าวหน้าให้คณะกรรมการจริยธรรมอย่างน้อยปีละ 1 ครั้ง หรือมากกว่านั้น ถ้าคณะกรรมการฯ ร้องขอ หากการศึกษามีระยะเวลาไม่ถึงหนึ่งปี ขอให้รายงานฯ เมื่อสิ้นสุดโครงการ รายงานฯ ดังกล่าวเป็นส่วนหนึ่งที่ใช้ประกอบการพิจารณาอนุมัติให้ดำเนินการวิจัยในปีต่อไป

จึงเรียนมาเพื่อทราบและแจ้งให้ผู้เกี่ยวข้องได้รับทราบต่อไปด้วย จักเป็นพระคุณยิ่ง

ลงชื่อ

(ผู้ช่วยศาสตราจารย์นายแพทย์วีระชัย นาวารวงศ์)
ประธานคณะกรรมการจริยธรรมการวิจัยในคน

Institutional Review Board Bangkok Hospital Chiang Mai
Certificate of Approval

COA 2020-004

Name of Ethics Committee	: Institutional Review Board (IRB) Bangkok Hospital Chiang Mai
Address of Ethics Committee	: 88/8-9 Moo 6, T. Nong Pa Khrang A. Mueang Chiang Mai, Chiang Mai, Thailand 50000
Principal Investigator	: Mr.Withirong Sutthigoon
Department	: Faculty of Nursing, Burapha University
Protocol Title	: A Structural Equation Modeling of Cultural Competence Among Thai Nurses
Study Number	: G-HS 008/2563
Sponsor	: -
IRB Protocol No	: BCM-IRB -2020-05-002

Document files	Document reference
Research proposal	1. English version protocol version 2 Date 19 February 2020 2. Form of Human Research Protocol Submission version 2 Date 19 February 2020
Patient information sheet/ Informed consent documents	1. Participant Information sheet, version 1 date 24 January 2020 2. Informed Consent Form, version 1 date 24 January 2020
Principal Investigator (s)	1. Curriculum vitae and GCP certificate of Investigators Mr.Withirong Sutthigoon
Other documents	1. Research Instruments version 1 date 24 January 2020

DECISION: [✓] By expedited review Date 05 June 2020

[ ] By full committee meeting

Opinion of Institutional Review Board :
✓ Approval Please submit progress report every ☐ 3 months ☐ 6 months (Please check one) ☑ 1 year ☐ Other.................. Date of Approval: 6 March 2020 Expiration Date: 5 March 2021

This Ethics Committee is organized and operated according to Good Clinical Practice and relevant international ethical guidelines, the applicable laws and regulations.

Signed:..

(Asst.Prof. Weerachai Nawarawong)

Chairman of Institutional Review Board

Bangkok Hospital Chiang Mai

Date - 5 JUN 2020

คณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่

เอกสารรับรองโครงการ

เอกสารเลขที่ 2020-004

ชื่อคณะกรรมการจริยธรรมการวิจัย	: คณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่
ที่อยู่	: 88/8 หมู่ 6 ต.หนองป่าครั่ง อ.เมืองเชียงใหม่ จ.เชียงใหม่ ประเทศไทย 50000
ชื่อหัวหน้าโครงการวิจัย	: นายวิธิรงค์ สุทธิกุล
หน่วยงานที่สังกัด	: คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา
ชื่อเรื่องโครงการวิจัย	: แบบจำลองสมการโครงสร้างสมรรถนะทางวัฒนธรรมของพยาบาลไทย
เลขที่โครงการ	: G-HS 008/2563
ผู้ให้ทุนวิจัย	: -
IRB Protocol No	: BCM-IRB -2020-05-002

เอกสารที่รับรอง	ฉบับที่รับรอง
โครงการวิจัย	1. แบบขอรับการพิจารณาจากคณะกรรมการ IRB ฉบับที่ 2 ลงวันที่ 19 กุมภาพันธ์ 2563 2. โครงร่างการวิจัยฉบับเต็ม ฉบับภาษาอังกฤษ (Proposal) ฉบับที่ 2 ลงวันที่ 19 กุมภาพันธ์ 2563
ข้อมูลสำหรับผู้ป่วย/หนังสือแสดงความยินยอม	1. เอกสารชี้แจงผู้เข้าร่วมโครงการวิจัย/อาสาสมัคร ฉบับที่ 1 ลงวันที่ 24 มกราคม 2563 2. หนังสือแสดงความยินยอมเข้าร่วมการวิจัย 1 ฉบับที่ 1 ลงวันที่ 24 มกราคม 2563
อัตตประวัติส่วนตัว	ประวัติส่วนตัวและการอบรม GCP ของหัวหน้าโครงการวิจัย 1. นายวิธิรงค์ สุทธิกุล
อื่นๆ	1. แบบสอบถามภาษาไทย ฉบับที่ 1 ลงวันที่ 24 มกราคม 2563

กระบวนการพิจารณาโครงการวิจัย:

(✓) เร่งด่วน (Expedited review) วันที่ 05 มิถุนายน 2563

(   ) การประชุมคณะกรรมการจริยธรรมการวิจัยในคน

ผลการพิจารณา: คณะกรรมการจริยธรรมการวิจัย ได้พิจารณาแล้ว มีมติ

(✓) เห็นชอบให้ดำเนินการวิจัยในขอบเขตที่เสนอได้

กำหนดส่งรายงานความก้าวหน้า ☐ 3 เดือน ☐ 6 เดือน

(โปรดเลือก 1 ข้อ) ☑ 1 ปี ☐ อื่น..

ความเห็นชอบมีผล วันที่ 06 มีนาคม 2563 ถึง วันที่ 5 มีนาคม 2564

คณะกรรมการจริยธรรมการวิจัยในคน โรงพยาบาลกรุงเทพเชียงใหม่ ดำเนินการตามการปฏิบัติการวิจัยทางคลินิกที่ดี และแนวทางจริยธรรมสากล กฎหมายและข้อบังคับที่เกี่ยวข้อง

ลงชื่อ ....

(ผู้ช่วยศาสตราจารย์นายแพทย์วีระชัย นาวารวงศ์)

ประธานคณะกรรมการจริยธรรมการวิจัยในคน

วันที่ - 5 JUN 2020

การปฏิบัติหลังจากรับรอง

- โปรดส่งรายงานความก้าวหน้าของการวิจัยอย่างน้อยปีละครั้ง เว้นแต่กรรมการขอให้ส่งถี่กว่านั้น
- ต้องขอความเห็นชอบการขยายเวลาก่อนหนังสือรับรอง หมดอายุประมาณ 3 เดือน หากจะดำเนินการวิจัยต่อ

ที่ อว ๘๑๐๖/๒๗๗

มหาวิทยาลัยบูรพา คณะพยาบาลศาสตร์
๑๖๙ ถนนลงหาดบางแสน ตำบลแสนสุข
อำเภอเมือง จังหวัดชลบุรี ๒๐๑๓๑

๑๙ มีนาคม ๒๕๖๒

เรื่อง ขอความอนุเคราะห์ให้นิสิตเก็บรวบรวมข้อมูลเพื่อดำเนินการวิจัย

เรียน ผู้อำนวยการโรงพยาบาลกรุงเทพภูเก็ต

สิ่งที่ส่งมาด้วย ๑. ผลการพิจารณาจริยธรรมการวิจัย
๒. เครื่องมือที่ใช้ในการวิจัย

ด้วย นายวิริรงค์ สุทธิกุล รหัสประจำตัว ๖๐๘๑๐๐๑๑ นิสิตหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาพยาบาลศาสตร์ (หลักสูตรนานาชาติ) คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ได้รับอนุมัติเค้าโครงดุษฎีนิพนธ์ เรื่อง "A STRUCTURAL EQUATION MODELING OF CULTURAL COMPETENCE AMONG THAI NURSES" โดยมี รองศาสตราจารย์ ดร.นุจรี ไชยมงคล เป็นประธานกรรมการควบคุมดุษฎีนิพนธ์

ในการนี้ คณะฯ จึงขอความอนุเคราะห์จากท่านอำนวยความสะดวกให้นิสิตเก็บรวบรวมข้อมูลจากกลุ่มตัวอย่างคือ พยาบาลประจำการ มีประสบการณ์การปฏิบัติงานอย่างน้อย ๖ เดือน ณ โรงพยาบาลกรุงเทพภูเก็ต จำนวน ๖๐ ราย ระหว่างวันที่ ๑ เมษายน ถึงวันที่ ๓๐ กันยายน พ.ศ. ๒๕๖๓

จึงเรียนมาเพื่อโปรดพิจารณาให้ความอนุเคราะห์ด้วย จะเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.พรชัย จูลเมตต์)
คณบดีคณะพยาบาลศาสตร์ ปฏิบัติการแทน
ผู้รักษาการแทนอธิการบดีมหาวิทยาลัยบูรพา

18/5/63

นางพิไลลักษณ์ ชูสิริไพศาล
ผู้อำนวยการฝ่ายการพยาบาล

20/05/63

งานบริการการศึกษา (บัณฑิตศึกษา)
โทรศัพท์ (๐๓๘) ๑๐๒๘๓๖, ๑๐๒๘๐๘
โทรสาร (๐๓๘) ๓๙๓๘๓๖
ผู้วิจัย ๐๙-๙๒๑๙-๙๙๐๓

APPENDIX E

Evaluation of assumption

Test of outlier

Table Appendix E-1 Univariate outlier

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
1	1.83799	-1.48337	.14376	.68298	1.10382	-1.72680	-1.66379	.64142
2	.26938	.78495	-.26246	-1.01320	-.12925	-.20980	-.48374	-.07579
3	. 71756	-.02517	.95621	.68298	-.29366	1.07382	-.48374	.64142
4	-.85106	-1.15933	-2.42898	-1.22522	.52838	-.90995	.30296	-.55393
5	.49347	1.27102	.95621	1.10703	.69279	1.30721	.69632	1.35864
6	.49347	-.18719	1.09162	-.58915	-.45807	-.09311	-.48374	-1.03207
7	.04529	-.18719	.00835	.04692	-.54028	-.67657	.69632	-1.03207
8	-.17879	-1.15933	-.26246	.04692	.36397	-.67657	1.48302	1.35864
9	.04529	-2.94158	1.36243	.25894	-1.0335	2.00736	.30296	.40235
10	.26938	-.67326	-.12705	-.58915	-.54028	.14028	.69632	-.55393
11	-.62697	.13686	-.26246	-.58915	-.70469	.60705	-.87709	1.11956
12	.49347	.62293	-.80409	.25894	-.37587	2.47413	-.87709	-.31486
13	.62697	-.34921	-1.34572	-1.43724	-1.6089	-.55988	-.87709	.64142
14	-.26938	-.02517	.68539	1.10703	-.12925	.49036	.30296	2.79306
15	.04529	.62293	.14376	.47096	.44618	.72374	-.48374	-.07579
16	.04529	-.51123	.14376	.04692	-.04705	-1.72680	.69632	.16328
17	.71756	.62293	.54999	1.53107	-.04705	.14028	-.87709	.64142
18	1.61391	1.59507	1.63325	1.53107	-.04705	.14028	-.87709	.64142
19	-.17879	-1.32135	-.39787	-.58915	-.78689	-.32649	-.87709	-.55393
20	-.62697	-1.48337	-.39787	-1.01320	-.95130	-.32649	-.09039	-.55393
21	-.17879	-.83528	-2.15817	.04692	-.62248	-1.37673	-1.66379	-3.42278
22	-.40288	.13686	-.93950	-1.22522	-.12925	-1.26003	-.09039	.16328
23	.26938	-.51123	-1.07491	-.58915	.93941	-1.26003	.30296	-1.74929
24	-.62697	-.51123	-.66868	-.58915	.36397	-1.26003	.69632	.40235
25	.49347	.29888	-1.88735	-2.28533	-1.6911	-1.37673	.30296	-.31486
26	.26938	.78495	.14376	-.16511	-.62248	-.79326	.30296	.40235
27	-1.74741	-2.29349	-.39787	.04692	-.70469	-.44318	-.09039	-.07579
28	.26938	.46090	-.53328	.68298	.85720	.84044	.30296	-2.22743
29	-.62697	.62293	-1.34572	-1.43724	.77500	-2.54365	.69632	-1.03207

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
30	.49347	.46090	.54999	-.16511	-1.1157	.49036	-.87709	.64142
31	.94164	.46090	1.49784	.25894	-.45807	.02359	.30296	.16328
32	-1.07514	-.83528	-.39787	-1.64926	-1.7733	-.67657	.30296	-.55393
33	1.38982	1.27102	-.80409	1.31905	-1.2801	-.79326	-.09039	1.11956
34	1.83799	1.75709	1.76865	1.95512	-.95130	1.30721	-.48374	2.31492
35	.49347	.62293	.00835	-.16511	1.67925	-.20980	.30296	.88049
36	.04529	-.02517	.95621	.68298	-.54028	.37366	.30296	-.07579
37	.49347	.29888	.14376	.47096	-.62248	-.90995	-.09039	-.07579
38	.94164	-.18719	1.76865	1.53107	-.78689	2.12405	-.87709	-1.03207
39	-.62697	-.18719	-.26246	-.80117	.19957	.49036	-1.66379	-.07579
40	.04529	-.83528	.27917	.68298	-.37587	.02359	-.87709	.16328
41	-1.07514	-.83528	.41458	.47096	-1.1157	-.55988	.69632	-1.03207
42	-1.97149	-1.32135	-3.10602	-3.13342	.03516	-.09311	1.08967	-1.27115
43	1.83799	.46090	-.39787	-.58915	-.29366	-1.2600	-2.05714	.16328
44	-.17879	.78495	.54999	-.37713	-.29366	-1.2600	-.09039	-.07579
45	-.40288	-.99730	-.66868	-.37713	-1.19792	-1.0266	.30296	-.79300
46	.71756	.13686	.41458	-.80117	-.86910	-.90995	-.09039	-.07579
47	-.85106	1.43304	.54999	.47096	1.35043	-1.2600	.30296	-.07579
48	-.85106	-.18719	-3.64765	-1.64926	.36397	-1.1433	.69632	.40235
49	-.40288	.94697	1.09162	.47096	-1.36233	-.09311	-1.66379	.16328
50	-1.07514	.78495	.82080	.89501	-.86910	.60705	1.08967	1.11956
51	-.85106	.78495	-1.61654	.04692	-.37587	-.44318	-.09039	-.31486
52	.26938	-.18719	.41458	-.16511	.61059	.49036	.69632	1.35864
53	-.17879	-.51123	.00835	.25894	1.18602	.25697	.69632	.40235
54	.94164	1.43304	.95621	1.10703	-1.11571	-.32649	.30296	.40235
55	.04529	-.83528	-.26246	-1.22522	-.04705	.02359	.30296	-.07579
56	.04529	-.18719	.82080	-.16511	.11736	-.55988	.30296	1.35864
57	-.40288	-.02517	-.26246	-.58915	.69279	-.32649	1.08967	.40235
58	1.16573	.62293	1.63325	.68298	-.45807	.72374	-.87709	.40235
59	-.62697	-2.13147	.54999	-.58915	-.29366	.49036	-.09039	-.55393
60	.04529	.13686	-.80409	-.16511	-1.44453	-.55988	-.09039	-.07579

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
61	1.38982	.94697	1.49784	.89501	.44618	-.79326	.30296	.64142
62	-1.29923	-.83528	-.39787	.04692	.28177	1.07382	-1.27044	2.31492
63	1.29923	-.18719	.41458	1.95512	-.54028	-1.4934	-.09039	.88049
64	-.17879	-1.15933	.68539	.68298	-.04705	.60705	-.87709	-.31486
65	1.83799	.62293	.14376	.47096	.85720	.02359	.69632	-1.51022
66	-.62697	-.99730	-1.88735	-1.22522	.77500	-1.2600	1.08967	-.07579
67	.04529	-.02517	-.26246	-.37713	2.00807	1.30721	.30296	.64142
68	.26938	-.99730	1.49784	1.74310	.28177	1.19051	-.48374	1.11956
69	-.17879	-.02517	.95621	1.10703	.28177	.37366	-1.27044	-.55393
70	.94164	.13686	-.53328	-2.92140	.93941	-.67657	-1.27044	-.07579
71	-.85106	-1.32135	.14376	.25894	.11736	.37366	.30296	-1.03207
72	.04529	-.34921	-.93950	-.80117	2.99453	.37366	1.48302	.88049
73	.04529	.13686	.00835	-.16511	.03516	-.20980	-.09039	.40235
74	.71756	-.34921	-.12705	-1.86129	1.18602	-1.1433	1.87637	.40235
75	1.52332	-1.15933	-.66868	.04692	-.62248	.25697	-.48374	.40235
76	-3.31602	-.34921	-.80409	-2.28533	-1.03351	1.19051	.30296	.40235
77	.26938	-.02517	.41458	.04692	.44618	1.07382	.69632	2.79306
78	-1.07514	.62293	.00835	-.16511	-.54028	.14028	-1.66379	-.79300
79	-.17879	-.83528	-.39787	.47096	-.04705	-.20980	.30296	-.79300
80	-.85106	-.02517	-1.07491	-.16511	.03516	-1.8435	-.09039	-.55393
81	-1.07514	-.83528	-1.07491	-1.22522	-.54028	.60705	-.09039	-1.51022
82	-.40288	-2.13147	-1.61654	-.37713	-.62248	-1.4934	-.48374	-.31486
83	-1.29923	-.83528	.00835	.47096	.36397	-.55988	-.09039	.16328
84	1.38982	1.10900	1.49784	1.53107	.28177	.02359	1.08967	1.83678
85	.04529	-.51123	-.93950	-.58915	-.04705	-1.3767	-.48374	-1.27115
86	.71756	-2.13147	.95621	1.10703	-.86910	.02359	-1.66379	-.31486
87	.04529	-.02517	.00835	.68298	-1.77335	.14028	-2.05714	-.55393
88	-.85106	.29888	-.93950	-.16511	-.29366	-1.6101	-.09039	-.79300
89	-1.29923	-.99730	-1.48113	-1.43724	-.12925	-.32649	-1.66379	-1.98836

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
90	1.83799	1.75709	1.76865	2.16714	4.47421	2.12405	2.26972	.88049
91	.71756	.78495	1.36243	1.53107	-.45807	.37366	-.87709	.64142
92	.04529	.13686	-.80409	-2.92140	1.26823	-1.1433	1.48302	1.35864
93	-.62697	-.18719	-.12705	-.80117	1.51484	-1.0266	1.48302	-.07579
94	-1.52332	-1.32135	.00835	-.80117	-.54028	-1.0266	-.48374	-.07579
95	-.62697	-1.32135	.14376	.04692	-1.03351	-.20980	.30296	-1.51022
96	.26938	.46090	-.53328	.04692	-1.36233	-.79326	.30296	.40235
97	-.85106	-.51123	.14376	-1.01320	-.12925	-.44318	-.09039	-.07579
98	1.97149	-.18719	.00835	-.37713	-.37587	.14028	.30296	.40235
99	-.17879	.94697	-1.21031	-2.07331	.52838	-.20980	.69632	-.31486
100	.26938	1.43304	.14376	.68298	-.37587	-.79326	-.87709	-.31486
101	.04529	.29888	.41458	1.74310	-.70469	2.00736	1.87637	2.31492
102	-.40288	-4.07574	.00835	-.16511	-.86910	-1.6101	.30296	.88049
103	.49347	-.18719	.41458	-.16511	-1.11571	-1.2600	1.08967	-.07579
104	-2.41967	-1.32135	-4.59550	-2.49736	-.78689	-1.7268	-1.27044	-.07579
105	1.16573	.29888	1.09162	.68298	.52838	1.65728	.69632	1.11956
106	.04529	.29888	.14376	.47096	2.17248	-.67657	1.48302	-.07579
107	1.16573	1.10900	-.26246	.47096	.19957	.84044	.69632	-.31486
108	1.38982	1.59507	1.76865	.04692	1.35043	-.67657	-.48374	-.55393
109	.26938	.13686	-.26246	-.16511	1.10382	-1.9601	1.87637	-.55393
110	-.62697	-.67326	.00835	-.58915	-1.36233	.84044	-.09039	.40235
111	-1.74741	-.34921	-.66868	-.80117	-1.36233	1.30721	.69632	-.31486
112	.71756	-.02517	.54999	.04692	-.37587	.14028	-.09039	.40235
113	-.17879	-.51123	-.66868	.25894	.77500	2.12405	2.12405	-1.27044
114	.26938	-.18719	-1.21031	-1.43724	.52838	.02359	.69632	-.55393
115	-.62697	-.99730	.68539	.68298	-.70469	-.09311	1.87637	.40235
116	-.49347	.29888	.68539	1.10703	.61059	-.44318	.69632	1.11956
117	.49347	.78495	-.12705	.68298	-.62248	1.19051	1.48302	1.83678
118	.04529	.04529	.13686	-1.21031	-.16511	-.12925	.49036	-.48374
119	.26938	.46090	.82080	.25894	-1.11571	.95713	-1.66379	-.07579

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
120	-.17879	-.67326	.54999	2.16714	1.02161	1.89067	.69632	.40235
121	.49347	.62293	.14376	.47096	-.29366	1.42390	-2.45049	-.07579
122	-.62697	-.67326	.00835	.89501	-.54028	-.32649	-2.05714	-.55393
123	-.62697	-.18719	-.80409	-1.43724	-1.69115	-1.1433	-.87709	-1.27115
124	-.40288	-2.45551	.00835	.89501	.11736	1.89067	-.87709	-.07579
125	.49347	.29888	1.09162	-.16511	.85720	-.90995	-1.66379	-.07579
126	1.16573	.94697	.14376	-.37713	-.78689	.84044	-1.27044	.40235
127	1.16573	-.34921	.14376	-.37713	-1.36233	-.79326	-.48374	-.31486
128	.94164	.78495	1.09162	1.53107	.93941	1.07382	-.09039	-.55393
129	-.40288	.94697	1.76865	1.74310	-.37587	1.77398	.69632	1.35864
130	.49347	.29888	-.39787	-.16511	1.59705	.02359	-1.27044	.88049
131	1.83799	1.75709	1.76865	2.16714	-.78689	.84044	-.48374	1.35864
132	.49347	.78495	-.26246	1.10703	-.37587	1.30721	-.87709	1.59771
133	-.85106	.29888	-.39787	.68298	-.12925	.84044	.30296	1.11956
134	-.62697	-1.15933	-1.75194	-.58915	.19957	-.20980	.69632	-.07579
135	.26938	.29888	.27917	1.31905	-.29366	.14028	.30296	.16328
136	.49347	.94697	.41458	1.31905	-.29366	.60705	-1.66379	-.31486
137	.04529	-.02517	-.26246	-.37713	.69279	.60705	.69632	.40235
138	.04529	-.51123	-.26246	-.37713	-.12925	-.44318	.30296	-.07579
139	-.17879	-1.64540	.54999	1.53107	-.86910	-.32649	-.09039	-.55393
140	-1.74741	-1.32135	-.53328	-1.01320	.03516	-1.1433	-.48374	-1.03207
141	-1.29923	-2.13147	-1.07491	-1.01320	2.09028	-.67657	.69632	.88049
142	.04529	-.02517	.68539	.47096	-.04705	-.09311	-.09039	.16328
143	.04529	-1.15933	-.80409	-.80117	-.86910	-.20980	-1.27044	.40235
144	-1.74741	-.18719	-.12705	.04692	.52838	-.79326	1.48302	1.11956
145	.94164	.62293	.14376	.47096	-.70469	-1.2600	-.09039	.64142
146	.26938	.62293	-.26246	.47096	.36397	-.44318	.30296	.16328
147	.04529	-.02517	-.12705	.25894	1.76146	.95713	.69632	.88049
148	.04529	-.02517	-.26246	.25894	1.43264	-.90995	.69632	.40235
149	-1.97149	-1.32135	-1.21031	.89501	-.54028	-1.2600	.30296	.16328
150	-1.52332	-.99730	-1.34572	-1.43724	.77500	-.09311	-1.66379	-.07579

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
151	-.40288	-.18719	.82080	.25894	-.54028	-.44318	-1.66379	-1.51022
152	-1.97149	-1.15933	-.53328	-.37713	-.12925	-.32649	-.09039	-1.74929
153	.26938	.13686	.27917	.68298	-.04705	-1.1433	.69632	-.79300
154	-2.41967	-3.42765	.54999	2.16714	-2.18437	-1.0266	-.48374	-.79300
155	-4.88463	-3.91372	-5.13713	-1.22522	-.95130	.60705	2.26972	.88049
156	.71756	1.27102	1.22702	.68298	1.02161	.25697	-.09039	.88049
157	.26938	-1.32135	.14376	.89501	-1.60894	-.32649	-2.84384	-.07579
158	.26938	.29888	.14376	.04692	.69279	.49036	2.26972	1.11956
159	-.85106	-.83528	.14376	-.80117	1.59705	.72374	-.09039	-1.27115
160	-.17879	-.02517	-.93950	.04692	.03516	-1.3767	-.87709	-.55393
161	.49347	.46090	.14376	.68298	.11736	-.90995	-.87709	.64142
162	-.85106	-1.48337	-.26246	.04692	.28177	-.90995	-.09039	.64142
163	1.52332	.29888	-.66868	-.80117	.03516	-.79326	.30296	.40235
164	-.40288	-.83528	.54999	1.31905	.52838	.25697	-1.27044	1.35864
165	.26938	.46090	.27917	.89501	.44618	.37366	.30296	.16328
166	-.17879	-.02517	-1.48113	-2.49736	.36397	-1.6101	-.09039	-.79300
167	.71756	-.02517	.27917	-.16511	-.62248	-.09311	.30296	.16328
168	-1.07514	-1.15933	1.09162	.89501	-.21146	.84044	-1.66379	.64142
169	1.16573	.46090	1.09162	.04692	-1.44453	-1.0266	-2.05714	.16328
170	.49347	-.02517	.00835	-1.22522	-.12925	-1.1433	-.87709	-6.29164
171	-.17879	-.02517	-2.02276	-2.49736	.03516	-.90995	.30296	-.31486
172	-.40288	-.51123	.68539	-.58915	-1.36233	.14028	-.09039	.40235
173	-.17879	.13686	.68539	1.74310	.03516	1.89067	-.09039	2.07585
174	.26938	.29888	.27917	.47096	2.99453	-1.0266	.69632	-.31486
175	-1.74741	-2.45551	-.80409	-1.01320	-1.93776	-1.7268	-2.45049	-.79300
176	.49347	.62293	.14376	.47096	-.29366	.37366	-2.45049	-.07579
177	-.17879	.62293	-.39787	-1.01320	.44618	-.79326	-.09039	-.07579
178	.71756	-.51123	-.26246	-.16511	.85720	.02359	2.26972	-.31486
179	.71756	-.51123	-.53328	-.16511	.85720	.14028	2.26972	-.07579
180	-.17879	-.67326	.82080	1.95512	.19957	-.09311	.30296	-.55393

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
181	-1.07514	-.02517	-2.69980	-1.22522	-.54028	-.67657	.69632	-.79300
182	1.38982	1.10900	.54999	-.37713	.85720	-1.1433	-.87709	-.55393
183	.49347	1.10900	-.53328	1.31905	-.12925	-1.1433	-.09039	-.55393
184	1.16573	.78495	.54999	.89501	-.37587	.84044	-.09039	-1.03207
185	-.17879	-1.64540	-.26246	.25894	-.21146	.02359	.30296	-.07579
186	1.83799	.78495	.95621	2.16714	.19957	2.12405	-.48374	1.35864
187	.04529	-1.32135	.82080	.04692	-.21146	.37366	-.48374	-.31486
188	.94164	.62293	-.12705	1.95512	.19957	-.79326	-.87709	-.07579
189	-.17879	-.02517	-1.07491	-1.01320	.44618	-1.0266	.69632	.64142
190	.04529	.46090	-.80409	-.58915	.77500	.25697	.30296	-.07579
191	-.17879	-.18719	-.93950	-.58915	2.00807	2.12405	3.44977	2.07585
192	.26938	.29888	.54999	.68298	1.02161	-.20980	1.08967	1.11956
193	-.17879	-.02517	.82080	.25894	-1.03351	1.65728	-1.27044	1.83678
194	1.61391	1.27102	.95621	1.31905	.19957	.84044	.69632	.16328
195	-.17879	.62293	.68298	1.67925	-1.61011	.30296	-.79300	-.79300
196	-.62697	1.10900	1.36243	.47096	.85720	.37366	-.09039	-.79300
197	.71756	.29888	.00835	.25894	-.86910	.14028	-.09039	-.31486
198	.49347	-.51123	-.53328	.04692	.77500	-1.6101	.69632	.16328
199	-.85106	-.51123	-1.48113	-1.22522	.69279	-1.0266	.69632	-.55393
200	-1.97149	-1.80742	.27917	.47096	-1.44453	.60705	-.87709	.16328
201	.49347	.62293	.14376	.47096	-.45807	-.44318	-.09039	.16328
202	-.17879	.13686	.95621	-.16511	.11736	.14028	.30296	.64142
203	.04529	-.83528	.00835	.47096	-.29366	.49036	-.48374	-.31486
204	.49347	.62293	.14376	.47096	2.66571	-2.1935	2.26972	-1.03207
205	1.83799	1.75709	1.49784	.68298	-.21146	1.30721	-.87709	1.59771
206	.94164	-.67326	.14376	-.58915	-.12925	.60705	.30296	-.55393
207	1.61391	1.75709	.95621	-.80117	-.70469	-.79326	-.48374	-.79300
208	-.17879	.13686	.14376	1.74310	-1.36233	.37366	.69632	.40235
209	1.16573	.94697	-1.88735	.47096	-.95130	-1.0266	-.09039	-.55393
210	.26938	.62293	-.12705	-.16511	-.37587	.49036	.30296	-.31486
211	1.83799	1.75709	.00835	.04692	-.78689	1.07382	-1.66379	1.11956

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
212	-.62697	.29888	-1.48113	-.16511	.52838	-.20980	1.08967	-1.03207
213	.04529	1.43304	1.49784	.68298	-.54028	.37366	.69632	-.07579
214	.26938	.94697	-.12705	.04692	-.21146	-.55988	-.09039	-1.51022
215	.26938	.13686	.68539	.68298	-1.28012	.84044	.30296	.16328
216	.26938	-.18719	.14376	.25894	-.45807	1.19051	.69632	-.07579
217	1.16573	.62293	1.63325	-.16511	-.95130	1.89067	-.48374	.40235
218	1.38982	.94697	1.36243	.47096	.52838	.72374	.30296	.88049
219	.71756	-1.32135	-.26246	-1.01320	-.12925	.14028	.69632	.40235
220	1.38982	.78495	.54999	.47096	.61059	.25697	-.09039	.16328
221	-.17879	-.34921	-.93950	-.37713	2.50130	1.42390	1.08967	.64142
222	1.61391	1.27102	.82080	1.10703	-.04705	.60705	-.09039	-1.03207
223	.49347	.29888	-.26246	-1.01320	1.02161	1.07382	.30296	-.07579
224	.49347	-.02517	.00835	.47096	.61059	.84044	-.09039	.40235
225	1.61391	1.59507	1.76865	1.95512	-.86910	.25697	-.87709	-1.74929
226	-.40288	-.34921	-.12705	.04692	-.62248	.02359	-.87709	-.55393
227	.49347	.78495	.27917	-.16511	.36397	.84044	.69632	1.59771
228	-.85106	-1.15933	-.80409	.25894	-.95130	-.32649	-.09039	.16328
229	-.85106	.62293	.95621	.68298	-.04705	.49036	-.48374	.40235
230	.04529	-.02517	.00835	.47096	.28177	2.24075	-2.05714	.64142
231	1.38982	-.67326	.95621	.47096	.36397	-.44318	.30296	-.79300
232	.71756	.94697	-.12705	-1.01320	-.04705	.49036	-1.27044	.40235
233	-.85106	-1.15933	-.93950	.25894	.44618	.49036	-1.27044	.64142
234	.49347	.29888	.14376	.04692	-.21146	-.79326	-1.27044	.64142
235	.49347	1.10900	.68539	2.16714	.93941	-.09311	-.87709	.88049
236	-.85106	-1.15933	-.93950	.25894	-.54028	-.32649	-.09039	.16328
237	1.83799	1.75709	1.76865	2.16714	-1.44453	.60705	.69632	.16328
238	.71756	.94697	.95621	.89501	.61059	2.00736	1.08967	-.55393
239	-1.29923	.62293	-.39787	-.16511	-.12925	-.20980	-.87709	-.31486
240	.71756	.78495	.27917	.04692	-1.52674	-.55988	.30296	-.07579
241	-.85106	-.51123	-1.21031	.04692	.85720	-1.3767	-.09039	.55393

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
242	-.62697	-.02517	.00835	-.80117	-1.19792	1.89067	.30296	-.55393
243	1.61391	.62293	1.76865	1.10703	-.12925	.37366	-.09039	.40235
244	-.17879	-.18719	.41458	.68298	1.02161	.25697	.69632	.64142
245	-.85106	-1.15933	-1.07491	-.16511	-.78689	-1.4934	1.08967	.40235
246	1.16573	.46090	.95621	.04692	.11736	.25697	-.87709	-1.51022
247	-.62697	-.34921	-.39787	-.80117	.44618	-.79326	1.08967	.40235
248	-.85106	.62293	-2.02276	-1.22522	-1.28012	-.32649	.30296	-1.03207
249	.04529	.46090	-.12705	-.16511	-.21146	.02359	-.48374	-.31486
250	.49347	.29888	.00835	-.80117	.44618	-1.6101	-.09039	.40235
251	-1.07514	-.02517	-.53328	-1.43724	-.86910	.25697	.30296	.40235
252	.71756	.94697	-.53328	-.37713	.11736	-1.1433	-1.27044	-1.51022
253	.04529	-.51123	-1.34572	.25894	.19957	-.55988	.30296	.64142
254	-.62697	-.34921	-.80409	-.80117	-.78689	1.89067	-.09039	-.31486
255	-1.07514	-1.48337	-.12705	-1.43724	-.21146	.02359	-2.05714	-.55393
256	1.38982	.29888	1.49784	-.37713	-.70469	-1.3767	-.48374	2.79306
257	.04529	-.83528	.82080	1.31905	1.35043	-.32649	-.48374	-.07579
258	-.62697	.78495	-.53328	-2.07331	1.10382	-.79326	1.08967	.40235
259	-.62697	-1.32135	.41458	-.37713	.03516	1.42390	-.09039	.64142
260	-1.52332	-.99730	.00835	-.37713	-1.19792	.49036	-.09039	-.55393
261	.94164	1.10900	1.63325	2.16714	2.25469	1.07382	-.48374	2.31492
262	-.85106	-.51123	.00835	.25894	.44618	.60705	-.48374	-.55393
263	.49347	.46090	.00835	.25894	-.12925	.02359	.30296	.16328
264	-1.07514	-1.48337	-.66868	-1.01320	-.04705	-1.0266	-.09039	-.31486
265	.04529	-.51123	-1.48113	-.80117	.69279	-1.7268	-.48374	-1.27115
266	-.40288	-1.48337	-.66868	-1.01320	-.21146	-1.8435	-.09039	-.31486
267	1.83799	-.18719	1.36243	1.31905	.52838	.14028	.30296	.16328
268	.94164	1.75709	1.63325	1.53107	2.09028	1.30721	.30296	1.83678
269	1.83799	-.18719	1.63325	2.16714	.52838	.25697	.30296	.16328
270	.49347	-.34921	.82080	.04692	.93941	1.54059	-.87709	-.07579
271	.26938	-.67326	-1.48113	-1.64926	-.54028	-.67657	.30296	-.31486

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
272	-.85106	-.99730	-.26246	.25894	-1.19792	-1.2600	-.09039	-1.98836
273	-.40288	-.02517	-.93950	-2.28533	-1.03351	-.09311	-.09039	-.07579
274	-.85106	-.18719	-.39787	-.58915	.44618	-.90995	-.09039	.40235
275	-.40288	-.83528	-1.34572	-1.43724	.69279	-1.1433	-.09039	-.79300
276	-.85106	-1.64540	.95621	.47096	-1.11571	1.54059	1.08967	-.55393
277	-1.74741	-.51123	-.93950	-.80117	.69279	.02359	.30296	-.07579
278	-.17879	-.18719	-.26246	-.58915	3.24114	-1.9601	-1.27044	.88049
279	-1.74741	.62293	-.80409	-1.64926	.61059	1.19051	2.26972	.40235
280	.49347	.29888	-.12705	-1.64926	-.78689	-.79326	-.79326	-.48374
281	1.83799	1.75709	1.76865	1.95512	-.70469	-.09311	-.87709	-1.03207
282	-1.97149	-1.15933	.14376	-.16511	.19957	-.55988	-.87709	-.31486
283	.26938	.78495	.14376	-.37713	1.51484	-1.0266	1.08967	.88049
284	.71756	.62293	.14376	.04692	-.54028	2.35744	.30296	1.11956
285	.04529	-.02517	-.93950	-1.86129	-.21146	1.54059	.69632	2.07585
286	.26938	.46090	-.39787	.47096	2.00807	-.09311	2.26972	.16328
287	-.40288	-.51123	.00835	.47096	-.86910	-.32649	-1.27044	.64142
288	-1.29923	-1.48337	-.26246	.47096	-.86910	-.32649	-1.27044	.64142
289	-.40288	-.83528	-.80409	-1.86129	.19957	.72374	1.48302	-1.03207
290	-.40288	-1.80742	-1.07491	-.58915	-1.11571	-1.1433	.30296	-.79300
291	.26938	.13686	-.12705	-.37713	.36397	-.79326	.30296	.40235
292	-.62697	-.18719	.82080	.47096	.11736	.60705	.30296	.16328
293	-.62697	-.02517	-.12705	.25894	.36397	-1.0266	-.09039	-1.03207
294	-2.41967	-3.10360	-1.34572	-.58915	1.26823	-.09311	.30296	.64142
295	-1.07514	-.67326	.14376	.25894	1.43264	.60705	.69632	-1.03207
296	1.38982	1.75709	1.36243	1.95512	-.54028	1.07382	2.66307	2.07585
297	-.40288	-.51123	-1.48113	-.80117	.77500	-.67657	.69632	-.07579
298	-.62697	-.34921	.27917	-1.01320	.11736	.60705	-.09039	-.07579
299	-.85106	-.51123	-1.48113	-1.22522	1.10382	.72374	2.26972	-1.51022

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
300	-2.19558	-1.64540	-3.10602	-2.92140	1.10382	-1.0266	2.26972	-1.51022
301	1.83799	1.43304	1.76865	.68298	.19957	2.00736	.30296	-.55393
302	1.83799	.78495	1.22702	.25894	1.67925	1.30721	.30296	.88049
303	.94164	.46090	.27917	-.16511	-1.69115	.25697	-2.45049	-.07579
304	1.61391	.94697	1.22702	-1.86129	-.95130	.37366	-1.66379	-1.03207
305	1.61391	1.75709	1.49784	2.16714	-1.52674	1.42390	-2.45049	1.83678
306	1.16573	.29888	.14376	.47096	-.29366	.49036	-.48374	-.31486
307	.26938	.78495	1.63325	1.10703	-.54028	1.30721	-1.66379	1.35864
308	1.16573	-.51123	-.53328	-.37713	.03516	2.00736	.30296	.88049
309	94164	.46090	.68539	.47096	-.37587	1.30721	1.08967	.16328
310	-.40288	-.34921	.54999	1.10703	-.37587	1.19051	-.09039	-1.51022
311	.04529	-.18719	1.36243	.47096	-.70469	.72374	-1.66379	1.35864
312	-.62697	-.34921	.27917	.04692	.03516	.02359	.30296	-.07579
313	1.38982	.78495	.27917	.25894	.44618	.25697	-.48374	-1.27115
314	-.40288	.94697	.00835	.04692	-1.44453	-.32649	-.48374	-.55393
315	.49347	.62293	.14376	.68298	.52838	-.44318	-.09039	.16328
316	1.61391	.78495	1.49784	1.53107	.44618	.72374	-.48374	1.59771
317	.71756	1.27102	1.49784	.68298	-1.52674	.14028	.30296	-.07579
318	-.17879	1.27102	.41458	.47096	-1.03351	.25697	-.87709	.16328
319	1.83799	1.75709	1.09162	.04692	-.86910	.02359	-.09039	-.31486
320	1.16573	1.59507	1.76865	.47096	.19957	1.42390	-.87709	.40235
321	-.40288	.62293	.14376	.25894	-.70469	.02359	-1.27044	-.07579
322	.71756	1.27102	.54999	-.16511	.52838	1.19051	-.48374	1.11956
323	.94164	-1.32135	-.53328	-2.28533	-2.10217	.02359	-2.05714	-.31486
324	1.38982	1.10900	1.22702	.47096	-.37587	.37366	.30296	-.07579
325	.04529	-.67326	.95621	.89501	-.54028	1.30721	.30296	1.83678
326	.26938	-.02517	-1.61654	-.80117	-1.44453	-.09311	-.87709	-.55393
327	.04529	1.27102	1.09162	.47096	-1.52674	1.89067	-.09039	-.07579
328	-.85106	.29888	1.63325	.25894	-.78689	-.20980	1.08967	-.07579
329	-1.29923	-.67326	-1.75194	-1.43724	1.76146	-.90995	.30296	.64142

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
330	1.83799	1.75709	1.63325	1.10703	-1.44453	2.59083	-.09039	1.35864
331	.04529	-.34921	1.22702	.47096	-.54028	2.00736	-.87709	-.31486
332	.04529	-.34921	.14376	.25894	.44618	1.07382	-.09039	.40235
333	1.83799	1.75709	1.76865	2.16714	-.12925	2.12405	-.48374	1.83678
334	.71756	.62293	.54999	.89501	.93941	1.30721	.69632	1.11956
335	.04529	.62293	.41458	.04692	.03516	.60705	.30296	-1.03207
336	.94164	1.43304	1.49784	.89501	-1.03351	1.77398	-.48374	1.59771
337	1.61391	1.75709	1.76865	1.53107	-.29366	1.30721	.69632	2.55399
338	-1.74741	-1.80742	.95621	-1.43724	-.78689	-1.1433	-.48374	.88049
339	-1.97149	-.67326	.00835	-.16511	-.62248	1.30721	-1.27044	.16328
340	-.17879	-.83528	-2.15817	.04692	-.62248	-1.3767	-1.66379	-3.42278
341	-.40288	.13686	-.93950	-1.22522	-.12925	-1.2600	-.09039	.16328
342	.26938	-.51123	-1.07491	-.58915	.93941	-1.2600	.30296	-1.74929
343	-.62697	-.51123	-.66868	-.58915	.36397	-1.2600	.69632	.40235
344	.49347	.29888	-1.88735	-2.28533	-1.69115	-1.3767	.30296	-.31486
345	.26938	.78495	.14376	-.16511	-.62248	-.79326	.30296	.40235
346	1.74741	-2.29349	-.39787	.04692	-.70469	-.44318	-.09039	-.07579
347	.26938	.46090	-.53328	.68298	.85720	.84044	.30296	-2.22743
348	-.62697	.62293	-1.34572	-1.43724	.77500	-2.5436	.69632	-1.03207
349	.49347	.46090	.54999	-.16511	-1.11571	.49036	-.87709	.64142
350	.94164	.46090	1.49784	.25894	-.45807	.02359	.30296	.16328
351	1.29923	-2.77956	-.26246	.04692	-.95130	-.79326	-.09039	.64142
352	.04529	-.02517	-.26246	.47096	-1.77335	-1.2600	-.87709	-.07579
353	-.40288	-.83528	.41458	.04692	-.04705	-1.2600	-.48374	-.07579
354	.94164	1.27102	-.26246	-1.43724	1.18602	-1.8435	.69632	.88049
355	.26938	-.99730	-.26246	-.58915	.19957	.60705	.69632	.88049
356	.26938	.62293	.14376	-.16511	.36397	-.90995	.69632	-.07579
357	.71756	.46090	.95621	.25894	-1.03351	.02359	.30296	-.07579
358	-.62697	-.67326	.41458	.68298	-.12925	1.54059	-1.27044	.88049
359	-.17879	-.02517	.82080	.47096	-.45807	1.54059	.69632	-1.03207

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
360	.49347	.62293	.14376	-.37713	.77500	.72374	1.08967	-1.51022
361	.26938	.29888	.14376	.04692	-.54028	1.65728	.30296	-.07579
362	-.85106	-.34921	-1.75194	-.80117	.52838	-.44318	1.08967	-.31486
363	-.40288	-.34921	-1.48113	-1.22522	2.41909	-1.1433	.69632	-.55393
364	-.62697	.62293	.54999	.04692	3.24114	-.67657	2.26972	1.83678
365	-.40288	.13686	-.39787	-1.86129	1.02161	-1.1433	1.87637	-1.51022
366	.04529	.46090	.54999	.47096	.19957	.37366	.69632	-.31486
367	.04529	-1.80742	.54999	.89501	.85720	.72374	-1.27044	-.07579
368	-1.74741	-1.80742	.00835	.47096	-.21146	-.79326	-.48374	-1.27115
369	-.17879	-.02517	-1.48113	-1.86129	-.37587	-.09311	.69632	-.31486
370	.04529	.29888	.41458	.04692	-.37587	.02359	.30296	-.55393
371	.04529	-.34921	-.53328	-1.22522	-.54028	.49036	.30296	-.31486
372	1.16573	.62293	-.39787	-.16511	-.12925	1.07382	-.09039	-.07579
373	.26938	.46090	-.80409	-1.64926	-.45807	.60705	.30296	-3.90093
374	-2.19558	-1.32135	-2.15817	-1.64926	.28177	-.55988	-.48374	-1.51022
375	-3.54011	-2.94158	-2.15817	-1.86129	.11736	-2.0768	-.48374	-.07579
376	.26938	.46090	.00835	.25894	1.02161	.72374	-1.27044	-.07579
377	-.62697	-2.45551	-.66868	.25894	-.37587	.14028	.69632	1.11956
378	1.83799	1.75709	1.76865	.68298	1.02161	.14028	.69632	.40235
379	-.85106	-.02517	.82080	-1.43724	-.54028	.72374	1.87637	-.07579
380	-.17879	-.02517	-.66868	-1.22522	.11736	-.32649	.69632	-.07579
381	1.16573	-.18719	-.93950	-.16511	-.04705	-1.3767	.69632	-.07579
382	-1.07514	-2.45551	.14376	-.80117	.03516	.60705	.30296	-.07579
383	-.62697	-1.48337	.00835	.68298	-.54028	.25697	.69632	-.31486
384	-.17879	.13686	.68539	.47096	.85720	1.19051	-.09039	1.59771
385	.04529	-1.32135	-1.88735	.89501	-.95130	1.30721	-2.84384	-.55393
386	.04529	-.51123	-.53328	-.58915	-.37587	.95713	-.09039	.40235
387	.26938	.78495	.41458	.25894	.61059	-.44318	.30296	-1.27115
388	-1.52332	-.67326	-1.88735	-1.22522	.69279	-.44318	1.48302	-1.51022
389	-.40288	-1.32135	-2.15817	-.16511	-.45807	.14028	-.09039	-.07579

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
390	.49347	.29888	-.80409	-1.43724	1.59705	-.90995	.69632	.88049
391	-.40288	1.59507	1.49784	.68298	.85720	-.32649	-.48374	.88049
392	-2.64376	-1.80742	-1.34572	-.16511	1.51484	-1.0266	-.09039	.40235
393	.26938	.62293	.00835	.04692	1.59705	-1.8435	.69632	-1.03207
394	-1.52332	-1.32135	-1.88735	-1.64926	-1.44453	.49036	.30296	-.79300
395	.26938	.46090	-.80409	-.37713	1.92587	-.55988	1.08967	.88049
396	1.29923	-.02517	-1.48113	-1.43724	2.25469	.49036	1.87637	.16328
397	-.40288	.29888	.68539	1.31905	-.29366	.02359	-.48374	-1.03207
398	1.38982	1.27102	-.12705	-1.01320	-.12925	-.55988	-.09039	2.55399
399	.04529	.94697	.68539	.68298	-.54028	.84044	-.87709	1.35864
400	.04529	.94697	.27917	.47096	-.54028	.84044	-.87709	.40235
401	.04529	.94697	.68539	1.10703	-.54028	.84044	-.48374	.64142
402	.26938	.46090	.14376	-.16511	.85720	1.42390	.69632	1.35864
403	-.17879	.29888	.27917	.25894	1.35043	-.09311	.69632	.16328
404	-1.52332	-1.32135	.00835	-1.64926	-.70469	-.55988	.30296	-1.03207
405	-1.07514	.94697	-2.15817	-.37713	.77500	-.20980	2.26972	-.07579
406	.71756	.62293	-.26246	-.37713	1.76146	-1.8435	.30296	-1.03207
407	1.83799	1.75709	-.66868	-1.64926	2.25469	-1.2600	2.66307	.64142
408	.26938	1.10900	-.53328	-.58915	-.21146	.72374	-.09039	1.11956
409	-1.07514	-1.80742	-.26246	1.10703	.11736	.60705	-1.27044	-.07579
410	-.62697	.78495	1.63325	.47096	-.12925	.02359	-.87709	.64142
411	-2.41967	-.99730	-.26246	-.37713	-.04705	-.09311	-1.66379	-.79300
412	.26938	.78495	-.12705	.04692	-1.19792	.37366	.69632	1.11956
413	.94164	.94697	.54999	.47096	1.10382	-.55988	.30296	-1.27115
414	.49347	.62293	.14376	.47096	.93941	-.09311	1.08967	-2.46650
415	.49347	.78495	.14376	.47096	.77500	-1.0266	2.26972	-1.98836
416	1.83799	.78495	1.36243	1.10703	-.37587	-.20980	.30296	-.31486
417	.26938	.94697	.41458	-.16511	1.10382	-.55988	.69632	1.11956
418	.26938	.46090	.14376	-.58915	-.62248	.84044	-.87709	-1.51022
419	.26938	-.18719	.95621	1.53107	-.78689	.25697	-.48374	-1.51022

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
420	.26938	.46090	-.80409	-.58915	-.86910	.02359	-.87709	-.55393
421	-.85106	.13686	.82080	1.53107	.61059	-.79326	-.87709	.16328
422	.71756	1.43304	.14376	.68298	-.62248	-.79326	-.87709	-.31486
423	.49347	-.51123	.41458	.68298	-1.03351	1.19051	-.48374	.64142
424	-2.64376	-.99730	.27917	-.37713	-1.28012	.37366	-.87709	.64142
425	-1.29923	-.02517	-.80409	.25894	.28177	-1.4934	.30296	-.55393
426	1.83799	.29888	.95621	1.31905	-.37587	-.32649	.69632	1.11956
427	1.61391	1.27102	.14376	1.53107	-1.36233	.72374	.30296	-.07579
428	-.85106	-.51123	-1.48113	-1.22522	2.66571	.37366	2.26972	.88049
429	.71756	.62293	.14376	.47096	.52838	.02359	-.87709	-.07579
430	.49347	.62293	-.39787	-.58915	2.41909	.72374	-.48374	.88049
431	-.62697	.62293	.14376	.47096	2.66571	-.79326	2.26972	.88049
432	-.85106	-.67326	.95621	-.37713	-.37587	.49036	.30296	.16328
433	.71756	.78495	1.09162	2.16714	3.98099	-.20980	3.84312	1.83678
434	.49347	.62293	.14376	.25894	.25894	-1.1979	-.44318	-.87709
435	.49347	.62293	.14376	.25894	-1.44453	-.55988	-.87709	-.55393
436	-.62697	.94697	.82080	.47096	-.78689	.37366	-.87709	-.07579
437	.94164	1.27102	.82080	.89501	-.95130	-.09311	1.87637	-1.27115
438	.26938	1.10900	.00835	-.16511	.36397	-1.1433	.69632	-.55393
439	1.61391	1.10900	.54999	1.53107	-.45807	.95713	.69632	-.55393
440	-1.97149	-.99730	-.39787	-1.64926	.44618	-.55988	-1.27044	-1.27115
441	-.40288	-.99730	.41458	.25894	2.83012	.37366	.69632	-.31486
442	-.40288	.62293	.14376	-.16511	.93941	-.32649	.69632	.16328
443	1.83799	1.10900	.00835	-.37713	.11736	-.67657	-.09039	.16328
444	1.83799	.78495	.68539	1.31905	-.45807	.49036	-1.66379	.64142
445	.49347	1.27102	.00835	.47096	.44618	-.20980	-.09039	-1.27115
446	-.85106	1.59507	.95621	1.31905	-.37587	1.42390	-.87709	-.07579
447	-1.07514	-.51123	.14376	.04692	-.62248	-1.1433	.69632	-.55393
448	.26938	.62293	.68539	.25894	-.62248	.95713	-.09039	-.07579
449	-1.07514	-.02517	.27917	-.58915	.93941	1.07382	-.87709	1.11956

Table Appendix E-1 (Continued)

ID	Zccawa	Zcck	Zccs	Zccsk	Zethno	Zmeq	Zocs	Zgas
450	1.07514	-.02517	.27917	-.58915	1.02161	1.07382	-.87709	1.11956
451	-.62697	-.51123	.54999	1.10703	.61059	-1.3767	-1.27044	-.31486
452	-.85106	-.51123	-1.48113	-1.22522	1.02161	-2.0768	-.09039	-2.22743
453	-.17879	.62293	.14376	-.37713	-.45807	-.55988	.30296	-1.03207
454	.49347	.62293	.14376	.47096	-1.11571	2.00736	-.48374	-.31486
456	.49347	.62293	-.26246	-1.43724	.19957	-1.3767	2.26972	-2.70557
457	.26938	-1.32135	.68539	.04692	-1.36233	2.00736	-.48374	-1.03207
458	-.62697	-.18719	.27917	.25894	.11736	-.55988	-.09039	.40235
459	.49347	-.83528	.41458	.47096	-.29366	.14028	-1.66379	-.31486
460	.04529	.62293	.14376	.25894	-.54028	.25697	-.48374	-.07579
461	.26938	.62293	.14376	-.37713	.77500	-1.2600	-.87709	-2.46650
462	.49347	.62293	.14376	-.16511	-.45807	.14028	-.48374	.16328
463	.49347	.62293	.14376	-.37713	-1.60894	.14028	.30296	-.07579
464	.49347	.62293	.14376	.25894	-1.44453	.60705	.69632	-.55393
465	.49347	.62293	.14376	.25894	-.45807	-.79326	.69632	.88049
466	.49347	.62293	.14376	-.16511	-1.77335	-.09311	-1.27044	-.55393
467	-.85106	-.51123	-1.34572	-.16511	-.78689	-1.4934	-.09039	-1.03207
468	.04529	.62293	-.39787	-.16511	-.54028	-.44318	.30296	.16328
469	-1.07514	-.51123	-1.48113	-1.22522	-.62248	-.90995	-.09039	-.31486
470	1.83799	1.75709	1.76865	1.53107	-1.36233	2.00736	.30296	-.55393

Table E-2 Multivariate outlier

ID	MAH_P	ID	MAH_P	ID	MAH_P	ID	MAH_P
1	.00076	39	.65514	77	.35571	115	.24960
2	.94156	40	.96553	78	.39759	116	.87148
3	.97143	41	.46910	79	.94881	117	.28831
4	.56018	42	.05996	80	.71490	118	.80726
5	.77887	43	.08140	81	.66887	119	.82926
6	.61076	44	.73485	82	.24481	120	.15811
7	.93424	45	.82400	83	.88460	121	.27858
8	.48137	46	.76712	84	.45557	122	.58670
9	.00139	47	.13137	85	.88192	123	.56870
10	.89738	48	.01754	86	.05725	124	.05599
11	.78975	49	.38639	87	.62066	125	.30607
12	.09416	50	.18770	88	.69937	126	.70285
13	.44656	51	.31411	89	.30198	127	.56426
14	.35030	52	.91681	90	.00014	128	.68375
15	.97300	53	.96972	91	.90569	129	.22085
16	.69640	54	.64934	92	.02890	130	.34583
17	.86199	55	.88534	93	.72921	131	.44827
18	.72698	56	.75378	94	.65521	132	.37049
19	.89192	57	.98503	95	.60717	133	.69585
20	.83537	58	.88414	96	.69122	134	.77136
21	.00529	59	.28573	97	.91161	135	.94364
22	.90027	60	.83335	98	.47338	136	.62936
23	.61032	61	.69148	99	.48392	137	.99014
24	.94789	62	.15779	100	.66208	138	.99850
25	.07279	63	.04112	101	.03669	139	.31532
26	.93124	64	.83760	102	.00006	140	.69596
27	.55259	65	.33636	103	.42837	141	.19272
28	.14736	66	.70962	104	.00034	142	.99914
29	.31332	67	.45646	105	.72704	143	.65894
30	.93318	68	.45179	106	.61294	144	.29696
31	.83117	69	.77843	107	.75021	145	.69729

Table E-2 (Continued)

ID	MAH_P	ID	MAH_P	ID	MAH_P	ID	MAH_P
32	.37471	70	.00892	108	.19070	146	.98694
33	.02762	71	.79350	109	.43508	147	.75891
34	.23682	72	.15353	110	.83997	148	.90781
35	.85430	73	.99994	111	.23192	149	.15114
36	.97743	74	.11956	112	.99250	150	.26509
37	.96646	75	.87271	113	.13514	151	.54086
38	.20359	76	.00098	114	.80437	152	.50806
153	.85007	195	.33680	237	.17901	279	.02957
154	.00009	196	.24172	238	.40156	280	.60253
155	.00000	197	.98647	239	.55675	281	.30936
156	.86356	198	.67361	240	.74577	282	.48827
157	.13680	199	.93844	241	.76049	283	.72561
158	.61566	200	.34118	242	.33808	284	.43785
159	.24023	201	.99287	243	.81442	285	.06637
160	.81200	202	.93410	244	.97113	286	.44293
161	.85683	203	.97679	245	.42772	287	.89884
162	.82089	204	.03720	246	.60826	288	.63591
163	.63122	205	.49353	247	.95351	289	.29026
164	.48470	206	.63628	248	.21557	290	.49261
165	.99431	207	.29134	249	.99910	291	.99385
166	.41934	208	.31782	250	.73502	292	.95626
167	.97807	209	.02793	251	.68382	293	.91792
168	.39271	210	.99288	252	.52308	294	.09493
169	.26668	211	.14832	253	.65045	295	.48965
170	.00000	212	.59499	254	.46209	296	.01533
171	.41114	213	.48275	255	.22036	297	.93242
172	.71567	214	.85668	256	.00353	298	.86130
173	.37651	215	.91230	257	.49558	299	.13154
174	.20010	216	.92458	258	.30510	300	.04278
175	.05213	217	.35953	259	.63022	301	.29499

Table E-2 (Continued)

ID	MAH_P	ID	MAH_P	ID	MAH_P	ID	MAH_P
176	.46916	218	.89355	260	.72282	302	.33313
177	.94467	219	.32968	261	.06561	303	.40240
178	.37794	220	.96446	262	.93207	304	.01030
179	.36049	221	.15605	263	.99958	305	.05306
180	.48428	222	.71681	264	.91174	306	.95313
181	.21734	223	.69987	265	.58572	307	.50842
182	.49496	224	.97553	266	.61224	308	.14228
183	.30905	225	.17581	267	.40428	309	.80332
184	.82312	226	.99602	268	.20628	310	.48625
185	.78863	227	.86404	269	.21503	311	.55739
186	.21114	228	.87639	270	.46794	312	.99739
187	.72606	229	.69797	271	.63170	313	.74156
188	.22587	230	.14029	272	.43697	314	.68434
189	.90412	231	.36888	273	.45439	315	.98828
190	.96675	232	.59429	274	.96191	316	.67378
191	.00379	233	.53245	275	.86141	317	.51772
192	.90897	234	.86085	276	.09351	318	.71347
193	.45466	235	.27532	277	.81740	319	.62209
194	.82190	236	.90319	278	.00272	320	.55593
321	.88551	362	.83324	403	.96678	444	.47632
322	.73705	363	.40116	404	.31275	445	.78135
323	.00474	364	.02683	405	.04059	446	.08455
324	.92133	365	.23643	406	.44413	447	.70578
325	.61288	366	.98894	407	.01486	448	.98387
326	.46193	367	.19347	408	.71808	449	.34102
327	.32325	368	.40300	409	.37178	450	.31841
328	.13213	369	.70688	410	.33738	451	.35551
329	.44611	370	.99617	411	.16962	452	.35968
330	.17414	371	.90509	412	.68386	453	.92379
331	.54825	372	.78098	413	.74495	454	.57527
332	.98172	373	.00411	414	.21394	455	.02750

Table E-2 (Continued)

ID	MAH_P	ID	MAH_P	ID	MAH_P	ID	MAH_P
333	.31032	374	.38456	415	.11701	456	.13919
334	.87533	375	.03439	416	.68571	457	.98557
335	.92826	376	.68302	417	.83834	458	.74810
336	.53216	377	.18008	418	.61075	459	.99662
337	.25535	378	.58493	419	.55896	460	.24186
338	.00963	379	.05209	420	.90142	461	.99768
339	.30446	380	.98169	421	.33187	462	.32789
340	.00529	381	.42819	422	.71237	463	.79285
341	.90027	382	.24373	423	.87343	464	.71762
342	.61032	383	.71708	424	.08901	465	.85965
343	.94789	384	.81141	425	.59496	466	.79454
344	.07279	385	.00077	426	.35712	467	.70987
345	.93124	386	.93448	427	.25156	468	.98173
346	.55259	387	.88980	428	.13408	469	.91094
347	.14736	388	.45510	429	.96102	470	.17776
348	.31332	389	.25082	430	.16578		
349	.93318	390	.50715	431	.13966		
350	.83117	391	.15996	432	.68914		
351	.17241	392	.13978	433	.00019		
352	.55452	393	.50173	434	.94107		
353	.85206	394	.34727	435	.88329		
354	.18635	395	.67911	436	.64539		
355	.74781	396	.18667	437	.12766		
356	.98190	397	.72792	438	.88222		
357	.92104	398	.05799	439	.45486		
358	.68513	399	.79642	440	.16613		
359	.52704	400	.91678	441	.13487		
360	.55721	401	.90190	442	.95707		
361	.86174	402	.79765	443	.67384		

BIOGRAPHY

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