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TACKLING THE CHALLENGES OF MULTICULTURAL CREWING PRACTICES IN THE SHIPPING INDUSTRY: AN APPROACH TO ENHANCING CULTURAL AWARENESS AMONG CREW

By

FANGFANG HU

China

A dissertation submitted to the World Maritime University in partial fulfillment of the requirements for the award of the degree of

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(MARITIME EDUCATION AND TRAINING)

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature): _____

(Date): _____18 September 2017_____

Supervised by: * Dr. Momoko KITADA

Assistant Professor

World Maritime University

World Maritime University

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ABSTRACT

Title of Dissertation: **Tackling the challenges of multicultural crewing practices in the shipping industry: An approach to enhancing cultural awareness among crew**

Degree: **MSc**

The employment of multi-national crews has become widespread since the 1980s. This practice brought a number of problems in communication, including cultural misunderstanding among crew on board as it was criticized as one of the major causes of marine accidents. This dissertation focuses on the challenges posed by the lack of cultural awareness onboard ships, and seeks to provide feasible methods to enhance cultural awareness among crew through education and training.

Given the current scarce resources of research on cultural awareness and its training, the research begins with the understanding of notions of culture, the concept of awareness and other intercultural constructs to generate a clear-cut definition for cultural awareness, formulate its conceptual model, and investigate its influencing factors.

A concise self-reporting scale was developed with reference to the definition and conceptual model proposed to measure cultural awareness among seafarers. The scale was sent to a sample population through a questionnaire survey to collect data on the influencing factors of cultural awareness proposed in the model. The survey results were collated and analyzed to examine the current level of cultural awareness of the surveyed respondents as well as the correlation relationships between different influencing factors and the cultural awareness score.

Based on the findings, the concluding chapter proposes measures to build seafarers' cultural awareness, supported by various stakeholders, including maritime education and training institutions, shipping companies and IMO. Finally, recommendations are proposed concerning directions for further research on this subject.

KEY WORDS: Multicultural crewing, Culture, Cultural awareness, Model, Measurement, Maritime education and training

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LIST OF ABBREVIATION

The following abbreviations are used in this dissertation:

OECD	Organization for Economic Co-operation and Development
CA	Cultural Awareness
CCAI	Cross-Cultural Adaptability Inventory
CCWM	Cross-Cultural World Mindedness
CGA	Culture-General Assimilator
CQ	Cultural Intelligence
CRM	Crew Resource Management
CSI	Cultural Shock Inventory
EQ	Emotional Intelligence
GAPT	Global Awareness Profile Test
GE	General English
IDV	Individuality versus Collectivism
IMO	International Maritime Organization
IND	Indulgence versus Restraint
IQ	Cognitive Intelligence
ISM	International Safety Management
LTO	Long Term Orientation versus Short Term Normative Orientation
MAKSS	Multicultural Awareness Knowledge Skill Survey
MAS	Masculinity versus Femininity

ME   Maritime English

MET   Maritime Education and Training

METI   Maritime Education and Training Institutions

OCIMF   Oil Companies International Maritime Forum

PDI   Power Distance Index

SMCP   Standard Maritime Communication Phrases

SMNV   Standard Marine Navigational Vocabulary

STCW   Standards of Training, Certification and Watchkeeping

UAI   Uncertainty Avoidance Index

CHAPTER 1 INTRODUCTION

1.1 Research background

1.1.1 The practice of mixed crewing

The further economic integration of world economy and technological development have exerted a great impact and prompted great changes in the shipping industry. Whilst globalization is a contested norm (Saul, 2009), its impact on the shipping industry is becoming increasingly dominant, which can be seen in almost every aspect of the shipping sector from ship building and operation to crew manning. It is not uncommon to have a ship managed in one country, registered in a second country, classed in a third country, and crewed by people from multiple countries (Grech, Horberry, & Koester, 2008, p.135).

The employment of mixed nationality crew has become widespread since the 1980s as a way to reduce manning cost, one of the most flexible elements of ship operation costs (Lane, 1986; Sampson & Zhao, 2003; Theotokas & Progoulaki, 2007). Since the 2008 global crisis, the shipping industry has been struggling with an ongoing decline in demand for transport and historically low freight rates. This, the longest ever downturn in the maritime sector to date, has further witnessed shipping companies' efforts to reduce operational costs and the ever more accepted practice of multicultural manning. Ships are no longer homogeneous communities occupied by single nationality crews, but have become the site of complex cultural exchanges and negotiations (Rehman, 2007). It is estimated that 80 percent of the world's merchant ships are crewed by multicultural crews. It is not unusual to have seven or eight nationalities onboard, and large cruise ships may have more than thirty (Tran, 2007).

In addition to the economic concerns, there is a general worry that there will be an international shortage of crew in the near future, and especially of the high-skilled

officers (UNCTAD, 2016; ICS, 2016). However, it may be argued that these predictions seemed to be based on a very optimistic presumption about world economic and trade development trends. The labor supply from OECD countries continues to decline, while the availability of personnel from the Far East (e.g. India, China, Philippines) and Central/Eastern Europe (e.g. Russia, Poland, Ukraine) steadily increases (Precious, 1997, p.121). There is a dependent demand for OECD seafarers as senior officers and, in contrast, the labor force from the Far East and Central/Eastern Europe would work primarily as the junior officers and ratings. Most likely, multicultural crews in the shipping industry are an unavoidable and irreversible trend (Horck, 2006, p. 12).

The phenomenon of manning a ship with a culturally mixed crew is nothing new in the shipping industry. The difference is, with the manning scale on ships steadily decreasing to a minimum level today, proper monitoring and checking of crewmembers is no longer available, which could easily lead to increasing risks and hazards to ship safety. There are studies (Horck, 2005, 2006) holding skeptical attitudes toward any real benefit of mixed crews, if comparing the economic benefits with the risks posed to ship safety by the misconception, stereotyping and substandard communication inherent in a cross-cultural manning environment. There has been a voice heard in the shipping industry to eliminate the cultural diversity on ships by manning ships with crews of only one or two nationalities. This is hardly feasible in the current market situation considering extra expenses and the noticeable shortage of qualified seafarers.

1.1.2 Risks of mixed crew and accident report

The industry appears unready to cope with manning diversity and is incapable of balancing the advantages with the risks of mixed crews. Cultural complexity on ships has recently become an issue of intensive attention, due to the fact that a growing number of maritime accidents are attributed to ineffective communication and misinterpretation of different behaviors on multilingual and multicultural vessels. These accidents result in great losses for shipping companies (Horck, 2006). Poor command of English, wrong stereotyping, different understanding of safety/work

culture, and different attitude toward risk have been identified as major causes underlying accidents (Loginovsky, 2002; Philippine National Maritime Polytechnic, 2002; Tang, Llangco, & Zhao, 2015).

It is not an exaggeration to say that language and cultural barriers are becoming stress-contributing factors in the same way as homesickness, fatigue, long duty hours, job security, threats to life and food problems, which jeopardizes the safety of maritime transport. There are statistics suggesting that 80 to 90 percent of shipping accidents involve human elements and 40 percent are due to cultural constraints such as communication or language problems (Rehman, 2007, p.83). In the spatially closed environment of a vessel, where people not only work but also live together, cultural diversity, when managed badly, can further create conflicts and misunderstandings (Progoulaki & Theotokas, 2016). These issues can lead to potentially hazardous conditions such as poor cohesion among crew members, damage to morale, and poor leadership support, which may greatly increase the risk of maritime accidents (Progoulaki & Theotokas, 2016).

In order to illustrate the problem, a few examples of maritime accidents, deemed by maritime casualty investigation reports to have been caused by miscommunication or lack of cultural awareness, are highlighted in Table 1.

Table 1 Maritime accidents due to cultural constraints

(Source: www.gov.uk, www.maritimeaccident.org, Horck,2006, p. 38)

Type of accident	Ship/s by name	Ship/s nationality	Year	Constraints
Collision	Cosco Busan -	CN	2009	Culture (language and cultural differences, different connotation of "yes" between Asian and Western cultures)
Fire/explosion	St. Georgij -	PA	2005	Culture (language incompetence)
Grounding	Domiat -	EG	2004	Culture
Explosion	Bow Mariner -	GR	2004	Culture (fear for

						Captain)
Collision	Fu Shan Hai	Gdynia	CN	CY	2004	Culture (language incompetence)
Collision	Silja Opera	Several	SE		2003	Culture (language incompetence)
Collision	Tricolor	Kariba	NO	BS	2003	Culture (language incompetence)
Crew death (accident to person)	Wave Sentinel	-	UK		2002	Culture (unquestioned following of superiors orders)
Grounding	Sea Mariner	-	CY		2002	Culture (language incompetence)
Collision	Xu Chang Hai	Aberdeen	PA	BS	2000	Culture
Crew death	Sally Maersk	-	DK		2000	Culture (language incompetence)
Collision	Tidan	Anglo	SW	NO	1998	Culture (language incompetence)
Grounding	Algolake	-	CA		1997	Culture (Captain's authority, power distance)
Grounding	Braer	-	LR		1993	Culture (language incompetence)
Fire	Scandinavian Star	-	BS		1990	Culture (language incompetence)
Grounding	Torrey Canyon	-	LR		1967	Culture (hierarchy work environment) and language incompetence

It can be seen from Table 1 that there is a noticeable increase in the number of accidents attributed to culture related constraints after 2000. This is likely to have been when investigators began to realize there existence of cultural constraints behind the problems that had traditionally been described as ineffective communication. Reporting on problematic cultural constraints is something that casualty investigators, ship surveyors, and port state control officers have only started to do recently (Tran, 2007).

1.2 Existent research on cultural awareness among crew on board

Considering the urgency of the issue, researchers in the maritime field have discussed possible measures to ease the negative impacts of culturally mixed crew on ship safety. Disappointingly, an examination of the research has failed to discover a satisfactory solution either in academic exploration or practical measures so far.

There have been efforts to identify culturally related challenges that hinder cross-cultural communications on board. Currently, the capability of crews to deal with cultural differences is mainly gained through their experience and, most often, the handling of multicultural difficulties becomes a burden carried by the seafarers themselves. Kahveci and Sampson's (2001) research shows that occupational culture or experience gained at work is not sufficient for solving the problems caused by different languages and different national cultures, or for overcoming the stereotypical behaviors between seafarers. Rehman (2007) in his research called for close cooperation between the International Maritime Organization (IMO), shipping industry and maritime education and training (MET) institutions to provide quality training in English language and culture differences to help eliminate the communication berries among crewmembers.

Cultural awareness has been regarded as a key concept for understanding why some individuals function more effectively than others in culturally diverse situations (Van Dyne & Ang, 2015, p. 3). Cultural awareness development and its teaching have been widely recognized in multinational business management. However, the research on and training of cultural awareness of crew in the maritime sector has not been extensively developed. Horck's research (2006) raised the importance of cultural awareness on the part of seafarers and argued that cultural awareness provides a better understanding of the support to be expected and the challenges to be faced when working with crew members of certain nationalities. It was not until 2010 that the IMO Standards of Training, Certification and Watchkeeping (STCW) was amended to include cultural awareness issues resulting in the development of especially designed courses (Brenker et al., 2016). However, research on courses in this domain has raised

doubts with regard to their quality and speculations on whether they might have had negative effects by reinforcing stereotypes or through gross oversimplification (Brenker et al., 2016). More systematic research on seafarers' cultural awareness, such as its formation and evolution, the identification of its influencing factors, and possible assessment methods is needed.

1.3 Aim and objectives

From the literature review, it can be said that the importance of cultural issues of mixed crews or seafarers' cultural awareness has been recognized throughout the shipping industry and in maritime education and training (MET). However, current research on the cultural awareness of crews seems more symptom-descriptive and the proposed measures to carry out cultural sensitivity education in MET are unconvincing due to the absence of a clear-cut definition of cultural awareness and a lack of valid instrument to measure it.

The author plans to fill the research gap and the main objectives of this dissertation are：

- To provide a definition of crew cultural awareness through borrowing related research results in management, psychological and sociological researches;
- To develop a model for cultural awareness revealing its formation factors and function mechanism;
- To develop a self-reporting scale for seafarers to measure their cultural awareness level;
- To use the results of the self-reporting scale to verify the validity of the influencing factors identified for the formation and improvement of cultural awareness;
- To formulate proposals on how to practically apply cultural awareness education in MET and how to promote cultural awareness in the shipping industry.

The dissertation aims to provide insight to enable seafarers and the shipping

industry to be more confident and competent in dealing with the multi-cultural environment on ships, and help them understand that cultural diversity or multicultural manning does not have to be a major risk that endangers shipping safety. If managed properly, seafarers may benefit from an inclusive cooperative culture and cultural diversity may become a core competency and a source of sustainable competitive advantages for seafarers and shipping companies.

1.4 Research questions

To this end, the questions to be addressed in the dissertation are:

1. What is the cultural awareness? How does cultural awareness work? What are the qualities manifested by a person/crew member who possesses the cultural awareness?

2. How could seafarer's cultural awareness be evaluated? And what is their cultural awareness level?

3. What are the factors affecting the formation of the cultural awareness?

4. How effective are the current efforts made by MET institutions and other relevant stakeholders across the shipping industry in preparing seafarers for a multi-cultural working environment on board? How could the efforts be improved?

1.5 Research methods

In order to answer the research questions and achieve the objectives, a literature search, model construction and questionnaire survey were carried out.

| Literature research | Model construction | Questionnaire survey | Data collection and analysis |

Figure 1 Research process

In the first phase, a literature search was conducted to identify problems caused by

multicultural and multilingual crews on board ships. The research status quo of cultural awareness in the maritime context was also briefly examined. A more detailed literature search on the notion of culture and cross-cultural constructs was conducted as a solid theoretic basis for proposing a definition of cultural awareness.

The second phase attempted to construct a model that reveals the constitutional elements/dimensions of cultural awareness, how it functions in the dynamics of a culturally diverse environment, and the factors influencing its formation and improvement. The model served as the key basis for the development of the questionnaire in the subsequent phase of the research.

The third phase focused on the preparation of a questionnaire. The questionnaire was designed to consist of two parts: a self-reporting scale to enable seafarers to perform a self-evaluation of their cultural awareness and a set of additional questions to investigate influencing factors that impact the formation and improvement of cultural awareness.

The questionnaire was designed to be used easily by respondents, with question structure, grammar and wording carefully considered to avoid ambiguity. The questionnaire was targeted at seafarers who have sailing experience on multi-culturally manned ships and was distributed to the research population that included faculty and students of the World Maritime University, faculty of Shanghai Maritime University (China) and Dalian Maritime University (China), faculty of the Maritime Academy of Asia and the Pacific (the Philippines), contracted seafarers of Ningbo Jinde Shipping Co. Ltd, trainers and trainees of Anglo-eastern (India). The data was then collected and analysed and the results of the survey were presented in this dissertation.

The survey was designed and developed in compliance with the guidelines of ethical requirement by the World Maritime University Research Ethics Committee. A formal approval was gained from WMU REC before the survey was conducted. The entire process of the survey was anonymous and confidential. All data were well protected only for the author's personal research use.

1.6 Dissertation structure

Chapter 1, "Introduction", overviews the practice of multicultural and multilingual manning and the risks it engenders in the shipping industry. It further examines the research status quo of cultural awareness in the maritime sector. This chapter also includes the aim, objectives and research methods of the study. The issue is introduced from a broad cultural perspective and then narrowed down to a focus on cultural awareness.

Chapter 2, "Culture, awareness and cross-cultural constructs", investigates the notions of "culture", "culture in the maritime context", and "awareness", and explores related cross-cultural constructs such as "cultural intelligence", "global mindset", and "cultural competence".

Chapter 3, "Defining and modeling cultural awareness", refers to relevant theories in cognitive psychology and general awareness studies, and proposes a working definition and conceptual model for cultural awareness, which serves as the basis for the development of the questionnaire used in the survey.

Chapter 4, "Survey and findings", describes the design and implementation of the questionnaire survey, and presents and analyzes the data collected. The findings from the analysis support the validity of the cultural awareness model proposed in Chapter 3, justify the usefulness of the self-reporting scale for measuring seafarers' cultural awareness, and reveal factors that are positively related with the formation and improvement of cultural awareness.

Chapter 5, "Challenges and recommendations for the enhancement of cultural awareness", discusses the challenges and status quo of cultural awareness education and training in MET and proposes methods and actions to be taken by MET institutions, shipping companies and the IMO to facilitate the overall enhancement of seafarers' cultural awareness.

Chapter 6, "Conclusion", concludes the whole study and recommends directions for further researches.

CHAPTER 2 CULTURE, AWARENESS AND CROSS-CULTURAL CONSTRUCTS

As mentioned in the previous chapter, the importance of cultural awareness has been recognized throughout MET and the shipping industry. If an enlarged search is carried out of the publications and conference presentations in management, psychological and sociological fields on multicultural interaction, it is not difficult to find that cultural awareness is a concept that is still evolving. And often, the terms cultural awareness, cultural sensitivity, and cultural competence are used interchangeably and their definitions are implied, rather than explicitly stated (Rew, Becker, Cookston, Khosropour, & Martinez, 2003, p. 250). This necessitates an investigation into the notions of "culture" and "awareness" and an exploration of other related cross-cultural constructs before settling on a precise and workable definition as the basis for further research and investigation of cultural awareness.

2.1 The notions of culture

Any discussion of cultural awareness must begin with the notion of culture. It is not easy to provide an exact definition for culture. The term "culture" refers to a complex set of constructs around which there is ongoing debates (Dolan & Kawamura, 2015, p. 45).

An insightful definition proposed by Vickers et al. (as quoted by Manuel, 2005) is:

> "Culture…can be broadly defined in terms of the shared practice, mental habits and norms which shape people's identities and influence their attitudes and behaviors. These practices, habits and norms are generated and assimilated by people in a variety of settings including in the context of particular national or ethnically based cultures, but also in particular institutional/organizational settings and professional contexts".

Dolan and Kawamura (2015) expand Hofstede's commonly cited definition of culture as the mental programming of people within certain settings and proclaim "individuals…carry many different levels of mental programs that correspond to different levels of culture, all at the same time".

Aiming at examining seafarers' cultural awareness to augment their work performance, the present study focuses on three types or levels of culture that are commonly believed to influence human attitudes and behaviors toward work: national culture, professional culture and organizational culture (Helmreich and Merritt, 2009).

2.1.1 National cultures

Different human societies have followed different development patterns. National culture represents the core of a society in relation to its institutions and practices (Earley, Murnieks, & Mosakowski, 2007). A handy metaphor of an "iceberg" can be used to depict national culture, with cultural manifestations on the surface seen as certain behaviors or practices that are easy to notice and get used to (e.g. dress, food, language, traditions and customs, etc.) and those hidden below the surface represented as unspoken rules and values that are more difficult to detect, understand and effectively deal with (e.g. beliefs, norms, values, concept of time and space, concept of self and others, concept of good or bad, worldview).

Hofstede (2001) defines national culture as a collective mental programing or "software of the mind", which embodies in a person's patterns of thinking, feeling and potential acting that develops out of the social environment in which they grow up and live. Since much of the programming is acquired in early childhood, the stage at which a person is most susceptible to learning and assimilating, it would be difficult for individuals to change or unlearn their culture before being able to learn or be programmed in another way. Hofstede (1991, 2001, 2017) created a model identifying six dimensions that differentiate national cultures: power distance index (PDI), individuality versus collectivism (IDV), masculinity versus femininity (MAS), uncertainty avoidance index (UAI), and long term orientation versus short term normative orientation (LTO) and indulgence versus restraint (IND).

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2.1.2 Professional culture

A profession is a community that shares norms, assumptions, perspectives, values, attitudes, social ideals and beliefs among its members (Janus, 2014). A professional culture can be broadly regarded as a subculture in sociology, and Paoline, (as quoted by Kitada, 2010, p. 21), defines it as "a product of the various situations and problems which all professional/vocational members confront and to which they equally respond". Professional culture concerns attributes of the profession and incorporates such factors as traditions of the profession, training processes, associated risks, duties, and responsibilities, as well as characteristics/traits of persons making up the profession (Grech, Horberry, & Koester, 2008, p.135). Professional culture, developed and transmitted across a certain occupational group, makes an important impact on the values, attitudes, and norms of the group members, and is as important as national culture in shaping a person's attitudes and behaviors (Kitada, 2010).

2.1.3 Organizational cultures

Organizational culture and practices have been found to influence individual attitudes and behaviors toward work. It is a specific way of acting and interacting, which differentiates the people working for one organization from another (Hofstede, 2001). The practice, patterns, norms, values, and beliefs developed by the organization are reflected in the strategies and attitudes of management toward such aspects as open communication, teamwork, and training (Grech, Horberry, & Koester, 2008, p.137).

Different from national culture in nature, organizational culture is a social system at a workplace that its members usually enter as adults with the bulk of their values firmly in place. Organizational culture consists more of the firm's practices, or to be more explicit, the shared perceptions of daily practices (Hofstede, 1991, 2001). Organizational culture is strongly influenced by professional culture (Hofstede, 1991).

Considering the three levels of culture in the work environment, to develop cultural awareness requires an understanding of one's own and one's colleagues'

national (or social) cultures, and the professional and organizational cultures one finds themselves in.

2.2 Culture in maritime work environment

It is not exaggerating to say that the maritime work environment is a hybrid of different types of cultures. Seafaring professional culture, seafarers' national cultures, shipping company organizational culture, and the industry-hailed safety culture all exert influences on seafarers' individual attitudes, values, and team interactions and can lead to positive or negative performance on board ships (Grech, Horberry, & Koester, 2008, p.135).

2.2.1 Maritime professional culture

Compared with other professions, seafaring is an old tradition that possesses a strong professional culture. Seafaring has its own jargon, laws, traditions, and working conditions and is characteristic of internationalism, emphasis on efficiency, safety and environmental preservation.

Ships are highly self-contained, where crewmembers not only work but also live together. Isolation from family and friends, small community, confined and shared space, extremely routinized and tightly-scheduled lifestyle, rigid rules and restrictions from a hierarchical authority, priority for ship operation efficiency, little consideration of privacy and individual needs, a high degree of interdependency amongst crew members for operation and safety of ships (Kitada, 2017), all make ships become a total institution as defined by Goffman (Kitada, 2010), where crewmembers' values and norms are greatly affected by others on board ship.

2.2.2 National cultures

As mentioned in Chapter 1, various national cultures coexist and interact on board ships. The cultural differences amongst crewmembers from different national

origins may easily become intensified and problematic under the total institutional situation on board.

There are contesting voices about the application of Hofstede's cultural model in seafaring. Hofstede's cultural model can be seen as static and deterministic with its bipolar understanding of cultural issues (Knudsen & Froholdt, 2009). This author finds Hofstede's dimensional framework useful in examining the main features of national cultures. If we apply Hofstede's (2017) six-dimension model to the work environment on board, four of the dimensions can be seen as most relevant and worthy of attention: power distance index (PDI), individuality versus collectivism (IDV), masculinity versus femininity (MAS) and uncertainty avoidance index (UAI) (Tran 2007; Lu, Lai, Venus Lun, & Cheng, 2012).

Power distance is defined by Hofstede (1991, p.28) as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally". Individualism pertains to situations where ties between individuals are loose while collectivism values strong and cohesive in-group relations and unquestioning loyalty (Hofstede, 1991, p.51). Masculinity versus femininity is related to individuals' performance of assertiveness, ambition, competition or modesty, and solidarity. Uncertainty avoidance can be defined as "the extent to which the members of a culture feel threatened by uncertain or unknown situations", which is expressed through the need for predictability or the need for explicit rules (Hofstede, 1991, p. 113).

In the onboard work context, in general, crewmembers originally from low power distance, feminine, collectivist, and uncertainty tolerant cultures would behave very differently to those originally from high power distance, masculine, individualist and uncertainty avoidance cultures in the ways they perceive the value of work (seeking mutual help and social contacts or personal achievement, recognition, advancement and challenge), adopt conflict handling strategies (compromise/ negotiation/ harmony or direct fight/ confrontation), participate in decision making process and question the actions of a superior (being less visible, intuitive and

accustomed to seeking consensus or being assertive, decisive and aggressive), and express preference for internal rules and regulations, or innovation.

Since greater importance has recently been placed on collaborative teamwork and inclusive work environment on ships, especially considering the popularity of crew resource management (CRM) and bridge team management courses, it is fair to say that a recognition and balance of these cultural disparities amongst crewmembers is crucial for safety purposes.

2.2.3 Organizational culture and safety culture

The maritime domain has only very recently started to address the influence of organizational culture on crew behavior. A considerable number of accidents have been traced to poor interaction between humans and organizations or poor organizational policies and decisions as the roots of human errors (Grech, Horberry, & Koester, 2008, p.137). Individual seafarers' behaviors are influenced by the organization, and one means of inducing optimum behavior is to develop an open, non-blaming, learning and inclusive organizational culture committed to by management onboard and ashore.

In the shipping industry, with the advent of the ISM code, safety culture has been better recognized and encouraged. Safety culture deals with the extent to which people and groups within one organization "strive to improve and communicate safety concerns and are willing to continuously learn, adapt, and modify behaviors based on lessons learned" (Grech, Horberry, & Koester, 2008). A good safety culture on board could only be achieved through a robust organizational culture that acknowledges the national cultural differences of individual crewmembers and channels them with professional cultures to shape positive attitudes and optimum behavior toward safety performance through organizational climate and environment support.

In summary, it would be fair to argue that cultural awareness in the maritime context should cover an understanding of the variances existing among different national cultures that influence the way risk and safety are perceived. The current professional characteristics of seafaring may intensify these differences and cause problems, and good organizational culture by the shipping company plays an important

role in accommodating the national differences and encouraging all parties concerned to strive for safety culture as a common goal.

2.3 Awareness

Awareness is a knowledge state, the state of being conscious of something, or more broadly it is the ability to know and perceive, to be cognizant of events (Figueroa-Martinez, Lopez-Jaquero, Vela, & Gonzalez, 2013). Aware implies vigilance in observing or alertness in drawing inferences from what one experiences. Much work has been done to define, describe and categorize awareness in various areas, such as psychology, neuroscience and, more recently, computing science (Antunes, Herskovic, Ochoa, & Pino, 2014).

Awareness (Endsley, 1995) is the perception of the elements in the environment within a time and space frame, the comprehension of their meaning, and the projection of their status in the near future. The observer obtains information from his or her own perceptions, and then applies intelligent processes to infer new knowledge about the observed elements: environment, entity, object, behavior, and so forth (Antunes, Herskovic, Ochoa, & Pino, 2014).

Awareness has been identified as essential for enabling effective interaction in dynamic environments and cooperative settings (Antunes, Herskovic, Ochoa, & Pino, 2014). In this setting, awareness is meant to convey how individuals monitor and perceive the information surrounding their colleagues and the environment they are in as a context for their own activities to facilitate the performance and success of collaborations.

Research has suggested different categories of awareness based on the type of information being obtained or maintained, such as informal awareness, social awareness, group-structural awareness, workspace awareness, location awareness, and context awareness. These categories are not mutually exclusive, rather they imply that particular knowledge might be covered by a particular type of awareness and there can be an overlap in what a particular type of awareness might be considered (Antunes,

Herskovic, Ochoa, & Pino, 2014). Therefore cultural awareness should be a specific category that focuses on cultural elements.

2.4 Cross-cultural constructs

With the impacts of globalization increasingly felt on many businesses and industries, helping people successfully deal with cultural and ethnic diversity has become hype for studies. Cultural awareness is not the only concept or construct proposed by researchers and scholars attempting to throw light on the problem. Similar and related constructs and concepts are many in number and three of them, cultural intelligence, global mindset, and cultural competence are found to be more maturely developed academically. A comparative examination of these three related concepts and constructs may help to clarify the specific nature and scope of cultural awareness.

2.4.1 Cultural Intelligence

Following the definition of general intelligence, cultural intelligence (CQ) is conceptualized as a specific form of intelligence, complementary to cognitive intelligence (IQ) and emotional intelligence (EQ). It focuses on a person's capability to effectively adapt to and function in situations characterized by cultural diversity (Earley & Ang, 2003). Earley and Ang (2003) drew on Sternberg and Detterman's multidimensional perspective of intelligence and modeled CQ as a multidimensional construct with three facets, cognitive/metacognitive, motivational and behavioral, existing at the same level of conceptualization.

Metacognitive CQ refers to an individual's level of conscious cultural awareness during cross-cultural interaction and reflects the mental capability and process to interpret the cultural values hidden behind the behaviors demonstrated and perceived, which enables individuals to question their own cultural assumptions , adjust them and acquire new cultural knowledge; Cognitive CQ reflects the general knowledge and knowledge structures about a variety of cultures people acquire thorough social or educational experience in different environments and settings; Motivational CQ

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represents individual capacity to direct attention, energy and effort toward learning and functioning in intercultural situations; Behavioral CQ captures individuals' capacity to exhibit appropriate verbal and nonverbal actions when interacting with people from different cultures (Van Dyne & Ang, 2015).

CQ, as a set of abilities, is more state-like and keeps evolving over time. It is malleable and can be enhanced through experience (multicultural and international experiences in particular), education, and training (Van Dyne & Ang, 2015).

2.4.2 Global mindset

A global mindset refers to a psychological construct and is defined as a way of viewing the world from a broader perspective. It is regarded as a cognitive filter through which we observe and make sense of the world, an openness and awareness of diversity across cultures combined with the ability to synthesize across this diversity (Rhinesmith, 1992; Srinivas, 1995; Lovvorn & Chen, 2011).

A global mindset allows individuals to see the world as a whole, to comprehend themselves as part of a global environment, to think globally and act locally through adaptation to local environments. Global mindset includes elements of curiosity and acceptance, and embracing of complexity, uncertainty and contradictions inherent in global interactions (Earley, Murnieks, & Mosakowski, 2007) for the achievement of personal, professional, or organizational objectives.

To develop and sustain a global mindset requires knowledge and involves an understanding of the universal and different aspects of the interdependent world (such as technology, sociopolitical factors, culture and cross-cultural issues), attitudinal elements (a positive and open attitude toward international affairs) and behavioral abilities that enable effective work in a global context (Earley, Murnieks, & Mosakowski, 2007). Having a global mindset requires the possession of six personal characteristics: knowledge (broad and deep), conceptualization (ability to deal with complexity), flexibility (ability to adjust to global and local demands), sensitivity (for cultural diversity), judgment (ability to intuit decisions with inadequate information)

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and reflection (seeking continuous improvement) (Earley, Murnieks, & Mosakowski, 2007).

In summary, different from cultural intelligence which emphasizes cognitive flexibility and metacognition across diverse cross-cultural settings, global mindset emphasizes the promotion of inclusive and holistic thinking, the collection and processing of context-specific knowledge and the creation of a single framework of mind that enables a person to work across cultural boundaries.

2.4.3 Cultural Competence

The term cultural competence has its origins in the health care field (Nichols, 2013, p.9). Many researchers and scholars in the filed of education, psychological counseling and health care have provided elaboration on cultural competence under their own professional context. Cultural competence has been defined by the American Academy of Nursing (Rew, Becker, Cookston, Khosropour, & Martinez, 2003) as "a complex integration of knowledge, attitudes, and skills that enhances cross-cultural communication and appropriate effective interactions with others". While Nichols (2013), from the educational perspective, defines cultural competence as "an acceptance of the significance of sociopolitical, economic and historical experiences of different racial, ethnic and gender subgroups as legitimate experiences that have a profound influence on how people learn and achieve inside and outside of formal and informal education settings". Campinha-Bacote (1994), in the context of health care, describes it as a deliberate and cognitive process consisting of "culturally responsive assessments and culturally relevant interventions", which begins with professionals examining their own prejudices and biases and recognizing how these affect cross-cultural interactions.

A number of models have been developed to describe the formation and function of multicultural competence. Clinton identified cultural awareness and cultural sensitivity (the appreciation of and respect for cultural difference) as two components of cultural competency (Mollen, Ridley, & Hill, 2003). Rew, Becker, Cookston, Khosropour, & Martinez (2003) and Campinha-Bacote (1994) both conceptualized

cultural competence as consisting of four facets, similar but still different. The four facets in Rew et al.'s (2003) model are cultural awareness, cultural sensitivity, cultural knowledge and cultural skills while Campinha-Bacote's (1994) model constitutes of cultural awareness, cultural knowledge, cultural skills, and cultural encounters.

As can be seen from the discussions, the three cross-cultural constructs: cultural intelligence, global mindset and cultural competence all try to describe how individuals can thrive in intercultural interactions. "Cultural awareness", together with attitudes and behavioral skills, has been taken as an important element of all three constructs. However it is quite obvious and worth pointing out that "cultural awareness" carries different connotations within the different constructs. Its use seems to be more based on the researchers' intuitive understanding or the convenience of their construct establishment. Nevertheless this contested situation leads the author to believe that cultural awareness should be a multi-dimensional construct itself, consisting of metacognitive, cognitive and knowledge facets facilitated by the individual's mindset.

CHAPTER 3 DEFINING AND MODELING CULTURAL AWARENESS

This chapter attempts to examine the definitions of cultural awareness (CA) currently found in academic works, make use of relevant theories in cognitive psychology and general awareness study to propose a working definition and conceptual model for cultural awareness.

3.1 Defining cultural awareness

3.1.1 Current definitions

Most commonly, cultural awareness is regarded as having knowledge about other cultures and being aware about one's own culture and its impact on ones' behavior (Stena, 2017, p7).

Hofstede (2001, p. 427-428) describes cultural awareness as the very start of the acquisition of intercultural communication abilities. He defines cultural awareness as the realization that one carries a particular "mental software" because of the way one was brought up, and that others who grew up in different environments carry different "mental software" for equally good reasons. This awareness enables one to perceive people in their cultural context and to fathom their own mental program that is usually unconscious.

Tomalin & Stempleski (1994), in their research, use the term cultural awareness to describe sensitivity to the impact of culturally-induced behavior on language use, communication and other cultural representations such as beliefs, values, life styles, attitudes and feelings. They claim that the term encompasses three layers of awareness, which seems to be an expansion of Hofstede's view: awareness of one's own culturally-induced behavior; awareness of the culturally-induced behavior of others; and ability to explain one's own cultural standpoint.

The three cross-cultural constructs examined in Chapter 2 all include cultural awareness as one important constituent element. Cultural intelligence tackles it more from the cognitive perspective and regards it as the mental ability and process; global

mindset treats awareness more as a knowledge of cultural diversity and cultural universals; while cultural competence sees cultural awareness as the ability to be conscious, observant, appreciative of similarities and differences among different cultures (Dolan & Kawamura, 2015, p.45-53), the first and most foundational element in achieving cultural competence.

3.1.2 Definition proposed by present research

A comparison and contrast of the definitions of cultural awareness currently available, an examination of the related different cross-cultural constructs and consideration the notions of culture and awareness, enable this author to propose a broad definition of cultural awareness in the work environment as follows:

Cultural awareness is a dynamic cognitive process involving a continuously evolving perception of the cultural elements embedded in encounters in culturally diverse environments within a time and space frame, the comprehension of their meaning, the projection of their status/consequences in the near future and the encoding of feedback into one's experience repository. In a dynamic and cooperative multicultural work setting, cultural awareness enables individuals to monitor the cultural related information surrounding their colleagues and the environment they are in, which provides a context for their own activities and for effective interaction.

The functioning of cultural awareness should be facilitated and mediated by a "self" open to the cultural differences, so as to be conscious of and question how one's own national, professional and organizational cultures impact their values, beliefs, judgment and behaviors. The level of one's cultural awareness should be influenced by a series of factors such as language skills, education and training experiences, international work experience, multicultural contact experience, and etc.

3.2 Conceptual model of cultural awareness

In this research, when conceptualizing the model for cultural awareness, this author tries to make it descriptive and prescriptive at the same time, a typical standard

for a good model (Mollen, Ridley, & Hill, 2003). The conceptualization borrowed the research results on cultural intelligence by Earley & Ang (2003) and Van Dyne & Ang (2015) and the so-called SA-model of situational awareness by Mica Endsley (Grech, Horberry, & Koester, 2008).
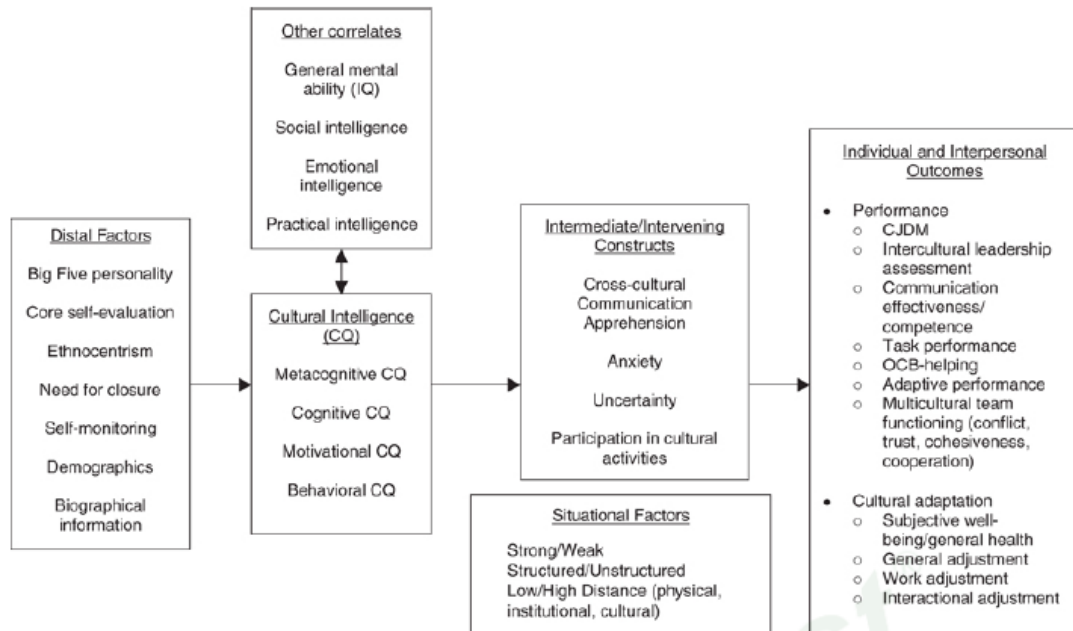
Figure 2 The nomological network of cultural intelligence

Source: Van Dyne & Ang (2015), *The handbook of cultural intelligence*, p. 21
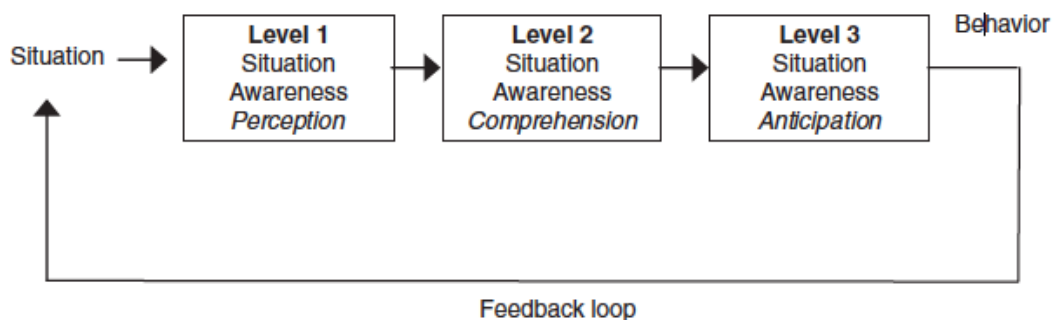
Figure 3 The traditional way of illustrating the Situational Awareness model by Mica Endsley

Source: Grech, Horberry, & Koester (2008), *Human factors in the maritime domain*, p. 48
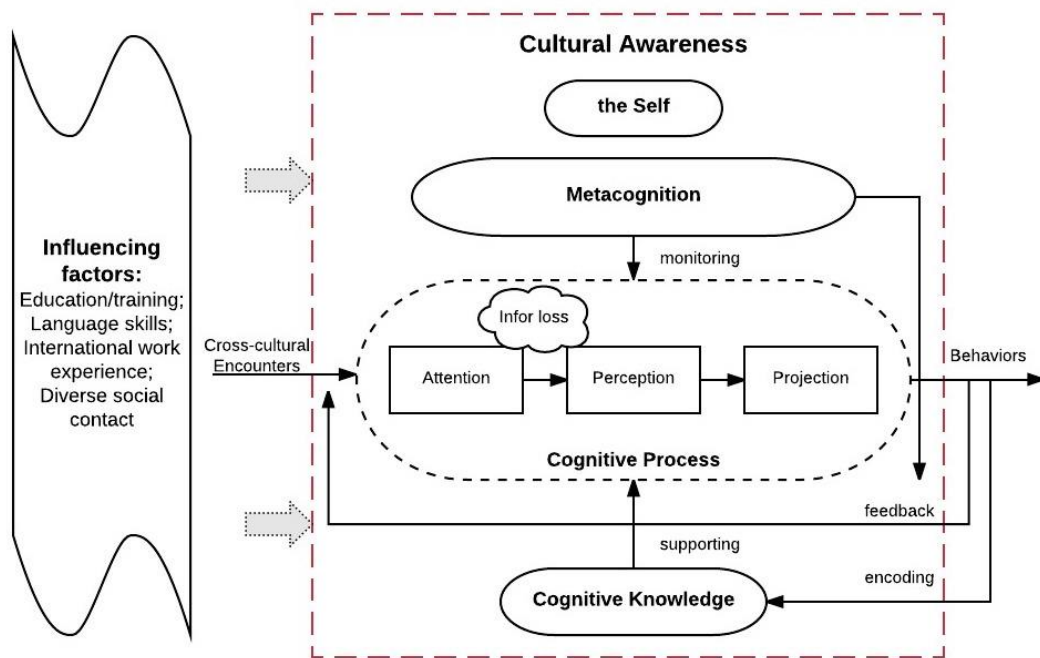
Figure 4 Conceptual model of cultural awareness

As illustrated in Figure 2, Figure 3 and Figure 4, the cultural awareness model proposed can be seen as a combination and development of the two models mentioned before, though they may deal with different topics or situations.

Cultural awareness (CA) is conceptualized as a four-dimensional construct consisting of "the self", "metacognition", "cognitive process" and "cognitive knowledge", which coexist at the same level forming an aggregate overall construct. The dimension of "the self" serves as a facilitator and or mediator of the whole construct. The dimension of metacognition is designed to reflect higher-level cognitive strategies to improve the cognitive process of culturally challenging encounters and influence the meaningful acquisition or encoding of new cultural knowledge. The dimension of cognitive process consists of three successive levels, namely attention, perception and projection/anticipation. The success of this mental process should be mediated and integrated by the individual's concept of "the self" and supported by his/her cognitive knowledge in national, professional and organizational cultures. A feedback loop is evident between behavior and cognitive process and between behavior and cognitive knowledge. This means that feedback from behaviors would be added

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into the inter-cultural interaction experience repository and further influence the performance of CA in the future. The fourth dimension of the model is cognitive knowledge of norms, values, practices, and conventions in different cultures. Four influencing factors are supposed to affect the effective functioning of cultural awareness: education and training experience, language skills, international work experience and diverse social contact.

More detailed explanation about each dimension and their relationships among dimensions is presented in the following sections.

3.2.1 The self

The concept of "the self" has been discussed in researches in communication and cross-cultural communication, leadership theories, education, philosophy, and other related areas (Scollon & Scollon, 1995; Avolio, Walumbwa, & Weber, 2009, P427). The self, put in a concise way, is a person's "mental representation of his or her own personality, social identity, and social roles" (Earley, Murnieks, & Mosakowski, 2007; Stryker, 2007).

In this cultural awareness model, "the self" hovers above the whole CA construct and serves as a mediating factor for metacognition and cognitive process to function. It plays an important role for an individual to differentiate themselves from others, and explains how it is possible for an individual to perceive and react to different cultural configurations.

"The self" should contain a facet of recognition of one's own cultural standpoint or assumptions (universal, national, professional or organizational), and a facet of openness and flexibility that motivates the individual to readily and constantly reshape, adapt and reformulate the concept of the self within new cultural situations and settings. It may be strengthened by additional knowledge and experience of other cultures as the acquisition of such knowledge and experience provides opportunities for an individual to reflect on his/her own culture to realize a deeper cultural insight (Horck, 2006, p.75).

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3.2.2 Metacognition

The prefix "meta" is from Greek and carries the meaning of "higher" or "more general" (Scollon & Scollon, 1995, p67). Metacognition has commonly been described as "knowing about knowing" and it is our awareness of and control over our cognitive process. It controls our ability to pay attention, be aware of the possibility of misperception, regulate the flow of information through mental process, and influence the meaningfulness of encoding, which eventually lays foundations for the formation of strategies for information compensation, self-checking, learning and development (Eggen & Kauchak, 2010, p.217-218).

Metacognition is a critical aspect of cultural awareness, a higher order cognitive process. With it, individuals are aware of the possibility of misperceptions of cross-cultural encounters; step out to question their own cultural assumptions and biases; continue reflecting and reasoning during interactions; check, adopt and revise their strategies; adjust their cultural knowledge and encode new knowledge so that they are culturally appropriate and more likely to achieve desired outcomes in cross-cultural encounters, especially in novel situations. Therefore, metacognitive skills are very important to overcome stereotyping and promote positive experience generation, and create new insights as indicated in the feedback loop in the model (Horck 2005, p.32-33; Van Dyne & Ang, 2015, p.5).

The improvement of metacognition cannot be achieved by simply providing knowledge about specific cultures, whether national or organizational. Instead, a more general learning principle, such as modeling and situational learning, which promotes the individual's active involvement, should be adopted to prepare them to understand and master novel cross-cultural situations.

3.2.3 Cognitive process

"Cognitive process" is a separate and anchoring dimension of the cultural awareness model, which describes how cultural awareness as a mental process functions to respond to the external cross-cultural encounter stimuli with certain attitudes and behaviors.

The dimension of cognitive process consists of three successive levels, namely attention, perception and projection. As illustrated in the CA model, when involved in cross-cultural encounters, attention is the first cognitive function employed, enabling individuals to focus their senses, and perceptual and mental resources on "contextualization cues". Attention here is related to all senses, visual, auditory and so on and a certain portion of it would be distributed or allocated to allow the individual to carry out tasks under multicultural settings. Perception immediately follows, information loss noticeable, as the next link where individuals interpret the cultural values hidden behind the encounters and behaviors perceived. Perceptions are constructed and will inevitably vary depending on individuals' prior knowledge and experience (Eggen & Kauchak, 2010) and their concept of "the self". The following projection or anticipation may be understood as the choice of standpoint or interaction strategy, which leads to demonstrated behaviors afterwards. The feedback from the behavior should be used as reference for improvement of the next round of cognitive processing.

Compared with the metacognition dimension, which is more intrapersonal, cognitive process is a more interpersonal process that reflects interactions within the social milieu. The whole cognitive process, as illustrated in the model, can be seen as constantly mediated by "the self", monitored by metacognition and supported by cognitive cultural knowledge dimension.

3.2.4 Cognitive knowledge

Cognitive knowledge refers to one's knowledge of norms, practices, and conventions in different cultures that has been acquired from one's educational and personal experience. Given the vide variety of cultures (national cultures, professional cultures, organizational cultures, generation cultures) in the contemporary world, cognitive cultural knowledge indicates the knowledge of cultural universals as well as knowledge of cultural differences.

Cognitive knowledge of multiple cultures is a critical component of the cultural awareness model. Cultural knowledge has long been regarded as a prerequisite of

cultural awareness, if not cultural awareness itself, as over simplified in certain research. Understanding a society's culture and components of a culture allows individuals to better appreciate the systems that shape and cause specific patterns of social interaction within a culture.

More importantly, cognitive cultural knowledge affects and supports the other three dimensions of the cultural awareness model: metacognition, cognitive process and the formation of the concept of the self. Richer cultural knowledge decreases the uncertainty about how to behave and anxiety about doing the right things, which may easily result in cognitive simplicity and eventually behavioral inflexibility and lower-quality interactions (Van Dyne & Ang, 2015). This would be extremely true for seafarers who are working in a confined space and within a group of colleagues they can hardly avoid in and off work.

3.2.5 Influencing factors

Continuous attempts, through theoretical and empirical research, have been made by scholars to identify the influencing factors for the functioning and improvement of cultural awareness. Research has shown that knowing the foreign language, possessing international work experience, living in diverse cultural settings, studying abroad and taking even shorter trips to other cultures can help improve cultural awareness. Certain personality attributes, such as openness to novel experience, the tendency to be imaginative, creative and adventurous reduce the negative effects of interaction with strange cultures. IQ, EQ, general worldview or beliefs that people have also interact with cultural awareness (Van Dyne & Ang, 2015).

After comparing this research, and given that cultural awareness is defined and modeled as a cognitive process in the present research, this author proposes to focus on the following four influencing factors or antecedents: educational/training experience, language skills, international work experience and diverse social contact.

1. Educational/training experience

Educational and training experience does not only refer to the learning subjects or training programs that focus on cultural knowledge. More importantly, it refers to

teaching and learning that is conducted in a culturally-aware way. It begins with faculty members' awareness of how their own cultures affect different aspects of their teaching (Rew, Becker, Cookston, Khosropour, & Martinez, 2003) and acknowledgment of how students from different cultural or ethnic backgrounds may experience the classroom differently. A culturally aware education is one that incorporates diverse cultural and social perspectives in the curriculum and uses a variety of teaching methods to more effectively accommodate learning styles of students from different backgrounds and facilitate students to consciously develop and question their own cultural identities and standings.

2. Language skills

Language skills refer to the extent to which individuals can speak, easily and accurately, the language that cross-cultural interactions require. Language skills are a fundamental instrument in acquiring the general cultural knowledge (economic, legal, and social systems) of different cultures and more importantly to acquire the subtle aspects and nuances that the cultures' individuals are exposed to (norms, conventions, and differences in thought patterns transmitted by language itself). The words of a language are vehicles of cultural transfer (Hofstede, 1997, p. 213). Therefore, a high-level competency in language means a systematic mechanism for accessing the core values of a different culture and being more knowledgeable about specific aspects of another culture.

Limited language comprehension and fluency may create a sense of remoteness, disconnectedness and even frustration, which can exclude individuals from each other and from opportunities for interaction in both working and social contexts (Earley & Ang, 2003). In contrast, individuals with superior language skills should be better at validating assumptions about behaviors that reflect different cultural practices.

3. International work experience

Social cognitive learning theory proposes that individuals learn better from social contexts and authentic situations. International experience is proposed to be another significant antecedent of cultural awareness. A variety of international work

experiences offer individuals occasions to retrieve their prior knowledge of cultures (values, beliefs, and norms) and prior experience of intercultural collaborative work, practice their cultural awareness, question their own cultural assumptions, think about cultural preferences, analyze other cultural norms, negotiate their roles and responsibilities before and during interactions for cooperative purposes, and encode the feedback as additional knowledge to assist their cross-cultural interaction in the future.

4. Diverse social contacts

Different from international work experience, focusing more on cooperative work, diverse social contacts may include the following circumstances: individuals whose parents are from different countries or cultures; individuals who have spent part of their childhood in countries or cultures other than their own; individuals who have studied abroad as graduate or undergraduate students and individuals who have international marriages or long-term relationships.

Individuals having extended social contact with members of different social groups are believed to be more prone to exploring other cultures from learning perspectives and to adopting more appreciative attitudes and behaviors, which eventually lead to reduction of stereotyping and enhancement of interaction strategy.

In addition, these various degrees of social contact are likely to facilitate the development of a more open "self" concept that enhances individuals' motivation, interests and propensity to seeking out relationships and synthesize across this diversity (Dolan & Kawamura, 2015; Van Dyne & Ang, 2015).

3.3 Levels of cultural awareness

As can be seen from the above discussion, to achieve a well-functioning cultural awareness requires the cooperation and integration of the four dimensions of the model: "the self", "metacognition", "cognitive process" and "cognitive knowledge". The possession of good command of a foreign language and the provision of proper education/training, international work experience and diverse social contacts could increase and enhance cultural awareness by augmenting different dimensions. The

varied development level of each dimension may lead to different levels of cultural awareness (Stena, 2017, Tran, 2007).

There are four different levels of cultural awareness:

The first level is cultural unconsciousness, where the person is unaware of cultural differences and cultural differences are ignored. People do not realize there may exist cultural mistakes or misinterpretations of the behaviors going on around them.

The second level is incompetent awareness where people realize that differences exist between the ways people behave, but understand very little about what these differences are, and how numerous and deep their impacts might be.

Then comes to third level of conscious awareness, where people know what these differences are, and try to make a conscious effort to behave in culturally appropriate ways.

The final level is unconscious awareness, where people are so multi-culturally conditioned or sensitive that culturally appropriate behaviors become effortless and instinctive.

3.4 The limitations of cultural awareness

It seems obvious that increased cultural awareness may lead to more positive impacts in cross-cultural interactions. However as discussed in Chapter 2, regarding different cross-cultural constructs, cultural awareness can only be regarded as one important aspect for achieving cultural competence. Merely raising individuals' conscious awareness of cultural diversity does not ensure cultural competency occurs. The overall improvement of cross-cultural interaction competency also relies on the individual's motivational and behavioral efforts and skills (such as communications and conflict settling skills) (Rew, Becker, Cookston, Khosropour, & Martinez, 2003; Scollon & Scollon, 1997), which is beyond the scope of this study.

CHAPTER 4 SURVEY AND FINDINGS

The questionnaire survey was conceived and conducted to answer the research questions 2 and 3:

Research question 2: How can seafarers' cultural awareness (CA) be evaluated and what is their cultural awareness level?

Research question 3: What are the factors affecting the formation of cultural awareness in seafarers?

In the existing literature, one would search in vain for a practical or workable measure of cultural awareness in seafarers. This is probably due to the ambiguity of the definition and lack of a sound conceptual model of cultural awareness. If taking a more general approach, scales developed for similar intercultural instruments, such as the cultural intelligence scale (Van Dyne & Ang, 2015), Cross-Cultural Adaptability Inventory (CCAI) (Kelley & Meyers, 1995), Cross-Cultural World Mindedness (CCWM) (Der-Karabetian, 1992), Cultural Shock Inventory (CSI), Culture-General Assimilator (CGA), Global Awareness Profile Test (GAPT), Multicultural Awareness-Knowledge-Skill Survey (MAKSS) (Ang et al., 2007; Van Dyne & Ang, 2015), are plenty in number. There have been a few measurement instruments addressing cultural awareness, in particular, found in the nursing field, mainly targeting nursing students (Rew, Becker, Cookston, Khosropour, & Martinez, 2003; Safipour, Hadziabdic, Hultsjo, & Bachrach-Lindstrom, 2017). However, a careful examination of the instruments reveals that the instruments are either too focused on a particular profession (like the nursing profession), or are based on conceptual models very different from the one proposed by this author as described in Chapter 3, and very often based on incoherent theoretical foundations.

Therefore, using the model developed in Chapter 3 as a blueprint, this research aims to develop a concise scale to measure the cultural awareness of seafarers. Besides the scale, within the same questionnaire, questions to investigate how influencing factors work on cultural awareness and its different constituting dimensions have been added as well. Hence, the results gathered through the questionnaire survey are

supposed not only to reflect the current level of cultural awareness among the respondents (through the self-reporting scale), but also facilitate analysis of the relevance and importance of influencing factors identified in the model for cultural awareness formation (through additional questions related with influencing factors).

4.1 Survey design

The basic requirement for a good questionnaire is content validity, which means that the measurement items in an instrument should cover the major content of the model construct (Song and Panayides, 2008). Fourteen items are developed in Part I of the self-reporting scale corresponding to the four dimensions of "the Self", "metacognition", "cognitive process", "cognitive knowledge" formulating cultural awareness. Eleven items are developed in Part II addressing the four influencing factors namely "language skills", "educational/training experience", "international work experience", and "diverse social contacts" as proposed in the model. Particular consideration has been given to the characteristics of the seafaring profession in terms of the complex cultural hybrid on board. More than one item has been designed to address each dimension and influencing factor so that multiple responses concerning each dimension and influencing factor would be gained and analyzed in an accumulative way to further increase the reliability and decrease measurement error (Song and Panayides, 2008).

All items in Part I of the self-reporting scale are measured on a seven-point Likert scale ranging from highly inaccurate (coded as 1) to highly accurate (coded as 7). Part II of influencing factors is a mixture, using Likert seven-point scale items and multiple choice questions coded differently. Table 2 and Table 3 summarize the items addressing different dimensions and influencing factors.

Table 2 Items addressing each dimension of cultural awareness in self-reporting scale

Dimensions	Number of items	Score range (Min-Max)
the Self	2	2-14
Metacognition	3	3-21
Cognitive process	4	4-28
Cognitive knowledge	5	5-35
Total	14	14-98

Note: All items were rated on a 7-pint scale.

Table 3 Items addressing influencing factors of cultural awareness

Influencing factors	Number of items
Language skills	3
Education and training experience	3 (1 multiple choice question*)
International work experience	2 (2 multiple choice questions*)
Diversity of social contacts	3 (3 multiple choice questions*)
Total	11

Note: Item using Likert scale were rated from 1 to 7 while items taking the form of multiple questions were coded differently.

Further consideration has also been given to each item regarding its content consistency with each dimension and influencing factor and the comprehensibility of meaning and clarity of expression of each item.

The questionnaire is provided in Appendix 1.

4.2 Respondent demographics and background

The survey was administered to a target group of seafarers or former seafarers who have work experience on multi-nationally manned ships. The questionnaire was emailed to the World Maritime University faculty and students in the Class of 2017 and Class of 2018, trainees and trainers from Anglo-eastern (India), faculty members from Shanghai Maritime University (China), Dalian Maritime University (China), Qingdao Ocean Shipping Mariners College (China), Maritime Academy of Asia and the Pacific (the Philippines), and contracted seafarers from Ningbo Jinde Shipping Co. Ltd.

A total of 102 responses were collected and 86 (n=86) of them were screened as usable, eliminating those with missing values. The 86 respondents represent a good variety of ethnic and racial backgrounds, accounting for 21 countries. But the

dominating majority of the respondents (59.3%) are from China and the numbers of respondents from other countries was much fewer, ranging from 1 to 7 (see Table 4).

Table 4 Demographic characteristics of sample population

Nationality	Number	Percentage (%)
Bangladeshi	1	1.2
Chinese	51	59.3
Egyptian	1	1.2
Ethiopia	1	1.2
Filipino	7	8.1
French	1	1.2
German	1	1.2
Ghanaian	1	1.2
Greek	1	1.2
Indian	4	4.7
Japanese	1	1.2
Korean	4	4.7
Liberian	1	1.2
Malaysia	1	1.2
Moroccan	1	1.2
Pakistan	1	1.2
Sarawakian	1	1.2
South African	1	1.2
Thai	1	1.2
Turkish	2	2.3
Vietnamese	3	3.5
Gender	**Number**	**Percentage (%)**
Male	83	96.5
Female	3	3.5
Age	**Number**	**Percentage (%)**
Less than 20	2	2.3
20-30	32	37.2
31-40	36	41.9
41-50	10	11.6
More than 50	6	7.0

The respondents were reassured of confidentiality and anonymity of the survey for the consideration of minimizing response bias.

4.3 Data analysis

4.3.1 Reliability analysis

To justify further data analysis, an internal consistency estimate of reliability for

the Part I self-reporting scale was carried out. Cronbach's alpha values were calculated for the total score of cultural awareness and the respective score of its four dimensions. As can be seen from Table 5, Cronbach's alpha value for the total CA score was .893 and the Cronbach's alpha coefficients for the four dimensions vary, with dimension "the Self" at .828, the dimension "metacognition" at .850, the dimension "cognitive process" at .887 and the dimension "cognitive knowledge" at .868. The Cronbach's alpha values were indicative of the high reliability of the scale employed as all values are above the 0.7 threshold as commonly agreed and applied by researchers and scholars (Tavakol & Dennick, 2011; DeVellis, 2016). The high correlation among all dimensions of cultural awareness as shown in Table 6, further testifies to the conceptual presumption about the close interrelationship among the four dimensions of cultural awareness and justifies the modeling of cultural awareness as a multi-dimensional aggregate.

Table 5 Reliability values of cultural awareness scale

Cronbach's alpha (α)	CA Sum	the Self	Metacognition	Cognitive process	Cognitive Knowledge
	.839	.828	.850	.887	.868

Table 6 Correlation relationships among dimensions of cultural awareness

CA Dimensions	the Self	Metacognition	Cognitive process	Cognitive Knowledge
the Self	-	.767	.767	.682
Metacognition	.767	-	.834	.858
Cognitive process	.767	.834	-	.778
Cognitive Knowledge	.682	.858	.778	-

4.3.2 Descriptive statistics

Descriptive statistics about the Part I cultural awareness scale and Part II influencing factors investigation are shown in Table 7 and Table 8.

Table 7 shows the means and standard deviations for the CA score sum and sub-scores of all dimensions. The mean of CA score of all respondents (n=86) was

relatively high, reaching 72.61 (out of max 98). A further investigation revealed that the respondents whose CA score fell in the range between 81 and 90 form the largest group of the total, accounting for 40.7% (n=86). The score distribution is better shown in Figure 5.

Table 7 Descriptive statistics for cultural awareness scale

Category	Mean	Std dev.	Frequency	
			Range	Number (%)
CA score (14-98)	72.61	18.97	14-20	3 (3.5%)
			21-30	2 (2.3%)
			31-40	2 (2.3%)
			41-50	6 (7.0%)
			51-60	2 (2.3%)
			61-70	9 (10.5%)
			71-80	21 (24.4%)
			81-90	35 (40.7%)
			91-98	6 (7.0%)
the Self (2-14)	10.85	3.42	-	-
Metacognition (3-21)	15.83	4.56	-	-
Cognitive process (4-28)	20.76	5.77	-	-
Cognitive knowledge (5-35)	25.19	6.90	-	-
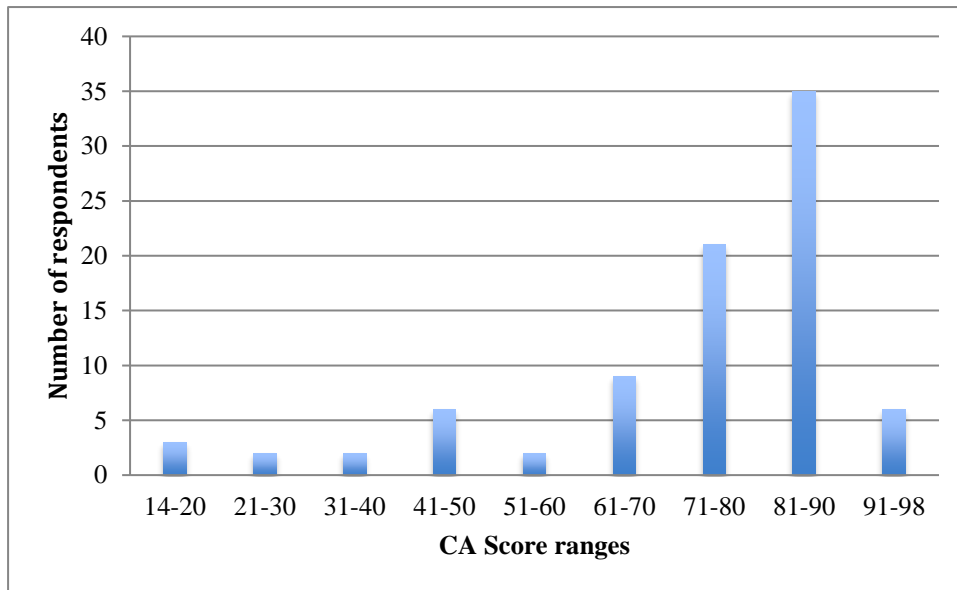
Figure 5 Distribution of CA Score

The mean scores for all dimensions of cultural awareness were relatively high. The mean score for the dimension of "the Self" was 10.85, metacognition 15.83, cognitive process 20.67, and cognitive knowledge 25.19. The high ratings may be understood as encouraging as they seem to indicate that seafarers consider themselves competent at dealing with intercultural encounters. However, it may be wise to use caution regarding the possibility that a noticeable difference could exist between the seafarers' perception and reality.

Table 8 shows a statistical summary of the information about respondents' language skills, education and training experience, international work experience, and diverse social contacts, conceived as influencing factors on their level of cultural awareness. The means and standard deviations of the influencing factors are indicative of the respondents' relatively good exposure to intercultural issues in learning, work and social settings on average, but diversity was also achieved.

Table 8 Summary of descriptive statistics for influencing factors

Sample size		N=86	
Influencing factors			

Language skills		**%**	
	Strong	**Moderate**	**Poor**
Basic language knowledge	72.1	20.9	7.0
English command skills	66.3	23.2	10.5
Preference for English in work setting	34.9	41.8	23.3
Statistic after coding	Min-Max	Mean	Std. dev.
	3-21	15.30	4.48

Education/training experience		**%**		
General education background	Vocational training	College/ diploma	University /bachelor degree	Master's degree or above
	1.2	24.4	41.9	36.2
Attending CA Course provided by METI		31.4		
Joining intercultural activities organized by METI		38.4		
Statistic after coding	Min-Max	Mean	Std. dev.	
	3-19	13.21	3.27	

International work experience		**%**	
Years sailing on multi-culturally manned ships	≤5 years	6-10 years	> 10 years
	43	41.9	15.1
Service rank	Support	Operation	Management
	5.8	50	44.2
Statistic after coding	Min-Max	Mean	Std. dev.
	2-7	4.40	1.54

Diverse social contacts		**%**	
Study abroad experience		77.9	
Life abroad experience		38.4	
Close foreign friendship		58.1	
Statistic after coding	Min-Max	Mean	Std. dev.
	0-3	1.74	1.01

4.3.3 Correlation analysis among influencing factors and CA score

A correlation analysis was adopted to test the interrelationship between the influencing factors and the scores of cultural awareness. The correlation coefficients of each influencing factor paired with the CA score and sub-scores of the four dimensions are shown in Table 9.

The correlation coefficients between the factor of "language skills" and CA scores (sum and sub-dimensions) are positive and fairly high, ranging from .672 (between language skills and the dimension of "the self") to .792 (between language skills and the total CA score). Very similarly, the correlation coefficients between the factor of "education/training experience" and CA scores (sum and sub-dimensions) are positive and fairly high, ranging from .625 (between education/training experience and the dimension of "the self") to .743 (between education/training experience and the total CA score).

It is interesting to note that, contrary to expectations, the correlation coefficient between the factor of "work experience" and CA scores (sum and sub-dimensions) are very low and are even negative sometimes, ranging from -.136 (between "work experience" and the dimension of "the self") to 0.47 (between "work experience" and the dimension of "metacognition". Similarly low correlation results occurred between the factor of "diverse social contacts" and CA scores (sum and sub-dimensions), ranging from -.124 (between "diverse social contacts" and the dimension of "the self") to -.017 (between "diverse social contacts" and the dimension of "cognitive knowledge").

The closer the coefficient is to 1.0, the greater the correlation (Veal, 2005, p.275). The correlation analysis, therefore, suggests the existence of the following relationships:

1. Fairly positive relationship between "language skills" and cultural awareness score, and the four dimensions of "the self", "metacognition", "cognitive process" and "cognitive knowledge".

2. Fairly positive relationship between "education/training experience" and cultural awareness score, and the four dimensions of "the self", "metacognition", "cognitive process" and "cognitive knowledge".

3. No relationship between "work experience" and cultural awareness score, neither any of the four dimensions.

4. No relationship between "diverse social contacts" and cultural awareness score, neither any of the four dimensions.

Table 9 Inter-correlations among influencing factors and cultural awareness score

CA Construct Influencing Factor	CA Score	the Self	Metacognition	Cognitive process	Cognitive Knowledge
Language skills	.792	.672	.780	.712	.734
Education/training experience	.743	.625	.697	.670	.710
International Work experience	-.003	-.136	.047	-.021	.046
Diverse social contacts	-.063	-.124	-.028	-.092	-.017

4.4 Discussion and implications

There are some obvious limitations of the survey study considering the relatively small number of participants and the fact that the majority of respondents come from one geographic area - China. Only a self-reporting scale was used and it might be more valuable if an observer-reporting version of the scale could be used to compare the two ratings to further verify the validity of the scale.

However, despite these limitations, the above reliability data analysis has provided evidence that the cultural awareness scale provides valid and reliable measurement for cultural awareness in seafarers, testifying the validity of the multi-dimensional construct of cultural awareness. And the further investigation into the CA scores and the data collected related to influencing factors, reveals the status quo of the overall level of cultural awareness in seafarers and reveals the relationships between the CA scores and different influencing factors, which eventually provides a basis for further discussion on the improvement of cultural awareness.

4.4.1 Theoretical implications

First, the positive relationship between the influencing factor of "language skills" with cultural awareness score supports the argument that good command of English

language enables people to better obtain cultural knowledge and cultural nuances in cross-cultural situations. It suggests the necessity to make efforts to improve the seafarers' command of the English language, in general, to augment their overall cultural awareness.

Another theoretical implication from the results of the survey study is the positive association between the influencing factor of "education/training experience" with cultural awareness score. The positive relationship suggests the importance of the provision for seafarers of proper education and training programs on cultural issues and a novel delivery method aimed at facilitating continuous self-learning (self-efficacy) on the part of seafarers.

Contrary to expectation, the results show that there are no noticeable beneficial effects of international work experience on CA score. This discovery on one hand may suggest that the pure increase of work experience does not necessarily mean the accumulation of effective intercultural communication in work or social settings that facilitate the development of CA. On ships, it is all too easy for seafarers to remain socially separate and to minimize communication if they choose to. Furthermore, they are most likely to minimize contact where it requires a considerable effort to understand and to be understood due to constraints such as language skill incompetency,or rigid hierarchy environment (Sampson & Zhao, 2003). On the other hand, the non-correlation between international work experience and CA score may also indicate that the augmentation of cultural awareness depends more on the individuals' cognitive and metacognitive efforts, which might not naturally happen but need to be trained. The discovery also partly echoes the research done by Shannon and Beglay (2008) on cultural intelligence where they conclude that international work experience promotes people's motivation and willingness to work with people from different cultures but has little effects on their cognitive cultural intelligence or cultural awareness.

At last, the discovery of the lack of direct relationship between diverse social contacts and cultural awareness may suggest that social contacts are in many cases very

personal and random, and pure accumulation of multi-cultural contact experience without factual and positive instructions on cultural diversity issues may not necessarily lead to an open attitude toward learning or self-examination and discarding of prejudicial beliefs (Tran, 2006).

4.4.2 Practical implications for maritime education and training and shipping companies

As discussed in the above session, language competency and sufficient culturally related education/training play an important role in the improvement of seafarers' cultural awareness. Maritime education and training institutions (METI) should shoulder this responsibility and make efforts in designing and providing relevant courses and activities in their curricula to emphasize a multicultural perspective. It is unfortunate that only 31.4% of the seafarer respondents reported receiving courses or training programs dealing with intercultural matters and 38.4% reported taking part in intercultural activities in METIs or training centers. To achieve a culturally aware curriculum, they might need to consider improving the faculty's cultural awareness, developing appropriate teaching materials, and examining the delivery methods. IMO and other relevant stakeholders should also be involved in providing regulatory and technical support such as developing or updating model courses on cultural awareness and maritime English.

The findings have implications for shipping companies, especially for their human resource operations in selecting, recruiting, training and developing a more culturally aware workforce. For example, shipping companies should consider recruiting individuals with better language skills and better educational/training records. Since international work experience and diverse social contacts do not directly lead to improved cultural awareness, seafarers should not be left alone to themselves but rather be provided with constant mentoring and training to help them cope with the increasingly culturally complex working environment on board.

4.4.3 Implications for research

The results of the research contribute to the quest to investigate seafarers' cultural awareness. The research testifies to and justifies the reliability and validity of the four-dimension model of cultural awareness. Further research could continue to explore the relationships among the four dimensions: whether there is any dimension dominating or they are equally important.

The CA scale developed according to the model has been proved to be a reliable and valid instrument for measuring seafarers' cultural awareness. It provides insights to individuals on their own cultural awareness level. The scale can be further improved and peer-reporting and supervisor-reporting versions could be developed and used as a supplementation to enhance the accuracy of the measurement results.

The research examined four influencing factors that are considered most relevant to enhancing cultural awareness: language skills, education/training experience, international work experience and diverse social contacts. Undoubtedly, additional influencing factors exist and need to be further explored by consecutive research. In addition, it would be of particular value if further research could focus on how and when each of the CA dimensions evolves or changes under the influence of different predictive factors.

CHAPTER 5 CHALLENGES AND RECOMMENDATIONS FOR THE ENHANCEMENT OF CULTURAL AWARENESS

By the empirical data analysis in Chapter 4, the CA scale was found to be a useful instrument to help seafarers understand their current level of cultural awareness. In addition, the relationships between influencing factors and CA level were validated. Those findings can be applied to building seafarers' cultural awareness. The discoveries justify the necessity of the provision of courses in cultural awareness, further improvement of seafarers' general English language skills, adoption of innovative student-centered constructivist ways of learning and promotion of culturally sensitive management in the industry.

5.1 The challenges of CA education and training

The last 30 years have witnessed a steady growth in sea-borne world trade and a corresponding expansion of the world fleet. This, in turn, has led to rapid development in the global labor market for seafarers, comprising 1.2 million workers, where mixed nationality crews are typical of some two-thirds of all internationally trading ships (Lane, 2002; Sampson & Zhao, 2003).

There has been discussion about cultural globalization among researchers and scholars (Benton, 2005; Tran, 2007, p.61), proclaiming different cultures are being introduced to one another and thereby producing a new culture of hybridity and heterogeneity. However, the worldwide harmonization of "mental programs" or values under the influence of a presumed cultural melting-pot process (Hofstede, 1991) is still far away if it will ever happen. To help seafarers tackle this cultural complexity requires deliberate and determined efforts from all maritime stakeholders (e.g., METI, shipping companies, IMO, etc.). The increasing number of maritime accidents attributed to cultural or communication barriers further highlights the risks of mixed crewing and the urgency for a provision of training courses for cultural awareness for seafarers.

5.1.1 Status quo of CA education and training

An examination across the shipping industry could easily reveal varied attitudes and a lack of consensus about maritime education and training on cultural awareness.

The MET institutions have not been proactive in offering their students a course on cultural awareness in a strict sense. Some may suppose that they have already offered some multicultural elements through social studies, international exchange programs and special memorial days (Tran, 2007). But this approach may not be fully responsive to the need of cultural education and training from the maritime industry. It may not be an effective approach either if we consider the discussion in Chapter 4 which revealed that the increase of social contacts may not necessarily lead to the improvement of cultural awareness level. To be beneficial, the topics or courses on cultural diversity, cultural awareness and tolerance should be better integrated in the day-to-day curriculum with explicit outcomes and objectives.

Many ship owners, for commercial reasons, continue to muster multicultural crews but do not provide them with prior courses in cultural awareness, nor do they require adequate knowledge in English language for all ranks. There are voices asserting that it should be the flag states' responsibility to provide such education and training instead of ship owners. A limited number of good practices of cultural awareness training across the industry mirror the current level of cultural awareness at the industry level. Nevertheless, an example can be found in Siga Ship Management which has worked with the Swedish Merchant Marine officers' Association to offer education in cultural differences and their significance for good leadership (Tran, 2007). Another example is the Oil Companies International Maritime Forum's (OCIMF), which has published the *Tanker Management and Self-assessment, a best practice guide for ship operations*. The guide contains a good consideration of cultural awareness dilemmas and communication constraints on board (Horck, 2005).

In addition, there is an absence of international regulations regarding multicultural issues on board ships and a lack of model courses regarding cultural awareness introduced by IMO to support the maritime education and training

curriculum. The STCW 95 Convention as amended and the ISM Code have brief requirements related to effective communication, asking shipping companies to ensure that ship personnel/officers on watch be able to communicate effectively, but the influence of cultural elements in communication are ignored. A very small number of IMO's model courses allocate time to cultural issues, such as the model course 1.21 "Personal safety and social responsibilities", the model course 1.22 "Ship simulator and bridge teamwork, the model course 1.29 "Proficiency in crisis management and human behavior training including passenger safety, cargo safety and hull integrity training" and the model course 5.04 Human resource management. However, the average number of hours dedicated to cultural awareness issues in these four model courses is only about 1.7 hours (Horck, 2006; Tran 2007).

5.2 Measures by a proactive MET

5.2.1 Cultural awareness courses

MET has a long tradition of waiting to be told what to do (Horck, 2006) and lagging behind modern educational practices (Lewarn, 2001). There comes a need to formulate a proactive MET and MET institutions should take their own initiative to introduce and develop cultural awareness courses to serve both the industry's and students' needs for long-term career building.

The following recommendations on the design of cultural awareness courses are based on the definition and conceptual model of cultural awareness proposed in Chapter 3. The improvement of CA level would depend on efforts toward the development of its four constituting dimensions, "the self", "metacognition", "cognitive process" and "cognitive knowledge". Therefore, the education process may start from the provision of essential and practical knowledge about various layers of the notion of culture relevant to seafarers working in culturally mixed environments, namely national cultures, seafaring professional culture, organizational culture and safety culture. This would serve as a basis for students to understand and accept that even though the shipping industry is international by nature, seafarers "are still divided

by barriers of culture, language, role, skills, wage levels and the like" (Precious, 1997, p.123), and the differences need to be respected for successful cooperation and collaboration to happen. Other topics such as recognizing the cultural commonalities and differences, investigating individuals' own biases and prejudices, and realizing that diversity around us should be carefully and skillfully built into the courses to help students formulate and exercise their self-concept, self-reflection, cognitive and metacognition skills. It is believed that this cognitive approach would help students acquire a broader, deeper and more accurate understanding of culture-related concepts and issues since students are guided to consciously examine and compare themselves to others. And, hopefully, an affective outcome could, simultaneously, be achieved with the formulation of confidence, open attitude and willingness to explore intercultural issues.

In adopting a more comprehensive approach, cultural awareness and cultural understanding could be incorporated into the other specialization subjects students need to take at the MET institutions (Horck, 2006, p. 46). In the specialization courses, a comparison and contrast of different operational practices among different countries, such as national maritime laws, regional regulations, and port state control, could be included.

5.2.2 Education in English language

The English language, as the "lingua franca" of the maritime field, has become an indispensable part of the education and training of seafarers serving on international routes and in international fleets. English language teaching should be given additional hours and more importance in MET.

There has been a lasting discussion about the teaching of English in the maritime context, "General English" (GE) vs. "Maritime English" (ME, English for special purpose). The creation of ME could be regarded as a top-down approach to language learning utilized by shipping industry regulators and training establishments (Sampson & Zhao, 2003). Currently, Maritime English is taught throughout MET institutions worldwide as a specialization subject and can generally be seen as a simplified and

technical version of English adapted for use by seafarers. Two major "instruments" have been constructed in its development: SMNV (Standard Marine Navigational Vocabulary) and SMCP (Standard Maritime Communication Phrases), which underpin the Maritime English standard adopted and recommended by IMO. The SMCP forms a part of the obligatory curriculum for officers and masters as required by the STCW Code 1995 amended (Cole & Trenkner, 2012). SMNV and SMCP, based on the simplest possible phraseology, is an abbreviated form of the English language which focuses almost exclusively on functional and technical aspects of seafaring, and gives very little attention to social purpose (Sampson & Zhao, 2003).

As argued in Chapter 4, good language skills enable individuals to gain cultural knowledge, understand cultural nuances and acquire more intercultural interaction opportunities to bring about the improvement of cultural awareness. The unnatural forms of speech of Maritime English could not be seen as adequate to enable seafarers to achieve the above-mentioned effects. Instead, more emphasis should be put on the provision to seafarers of good General English skills that would allow them to establish and sustain contact across cultural and ethnic divisions, forming social as well as working relationships. Good GE becomes especially necessary considering the increasingly frequent crew change and low crew retention rates, which allows crew limited opportunities to develop comparatively better understanding for work and social interactions (Sampson & Zhao, 2003).

Current steps to introduce more General English into the curriculum of maritime education training initiated by IMO should be encouraged and supported, especially its steady introduction into the revised IMO model course 3.17 to meet the updated language competences required by the STCW Convention Manila Amendments, 2010 (Xie & Ruan, 2014). And to help students develop linguistic skills and to increase interest and motivation for learning English as a communication tool, it would be effective to integrate GE and ME teaching and use diverse materials. Enriching and supplementing ME textbooks with technical articles, videos and documentaries of accidents and accident investigation would be beneficial, even, as Tenieshvili (2014)

proposed, to use temporary or classic literature fiction extracts themed around seafaring that provide more vivid illustrations of maritime concepts and terms and showcase, affectively, the essence of the seafaring profession.

5.2.3 Teaching and learning

Horck (2006, p.76) quotes Pitkanen and asserts that "the aim of multicultural education is to confront, with a critical mind, cultural habits and values, to be free from dependencies that restrict the human growth and intercultural dialogue where sensibleness and validity of different life forms are being judged and examined". Enabling students to develop the capability of critical thinking lies at the very center of cultural awareness education. Cultural education should be organized more as an experience where students actively explore cultural perspectives and boundaries, and recognize and challenge assumptions so as to increase their tolerance for ambiguity or complexity and respect for diversity.

The constructive approach to learning, emphasizing the active role learners play in constructing their own knowledge, has many advantages in cultural studies. Constructivist theory of learning advocates learners' responsibility to "individually discover and transform complex information if they are to make it their own", through drawing on their prior knowledge and experience and a "spontaneous interaction with the environment" (Eggen & Kauchak, 2010, p. 236). When implementing cultural awareness courses, it would be more effective for teachers to position themselves as a "guide on the side" rather than "a sage on the stage" (Fisher & Muirhead, 2013). Student-centered styles of pedagogy such as small group study, cooperative learning, case study, role-play, and simulation should be adopted. Role-play and simulation have been recognized as effective ways of teaching cultural awareness in nursing literature (Ndiwane, Koul, & Theroux, 2014).

5.2.4 Faculty quality

The effectiveness of education and training is dependent on the successful interaction of many components but it is often said that the single most important

component is the teacher or instructor. Marchesani & Adams (1992) acknowledge and stress the importance of instructors' awareness of their cultural selves in cultural diversity teaching. A teacher's responsibility is far more than imparting cultural facts or information. To successfully implement cultural awareness education and training, teachers and instructors should not only have good technical expertise, and sufficient seafaring experience with crew from different nationalities, but also be required to demonstrate awareness of the role one's cultural background and experiences play in forming beliefs, attitudes, and behaviors. They need to possess good knowledge and understanding of how students from different cultural or ethnic backgrounds may experience the classroom differently, incorporate diverse cultural and social perspectives into the curriculum, and be capable of employing a variety of teaching methods to more effectively accommodate learning styles of students from different backgrounds (Rew, Becker, Cookston, Khosropour, & Martinez, 2003).

Likewise, teachers' cultural awareness and culturally aware way of teaching could only be gained and improved through extra training, which should be supported and invested in by MET institutions.

5.3 Measures by shipping companies

Learning knowledge and skills for culturally aware behavior in multicultural environments is a long process. The process starts from MET institutions and then continues at the shipping companies where features of specific cultures interact and cultural awareness comes to practice onboard ships.

It needs to be recognized that shipping companies can play a vital role in training of cultural awareness among their crews. Developing cultural awareness at an organizational level may require a complex process. This research suggests the following steps to be considered by shipping companies:

- Establish a well-defined set of core values, goals and principles at the organizational level that acknowledge and respect cultural diversity (Progoulaki & Theotokas, 2016);

- Write into its policy and establish structures and rules that manage the dynamics of cultural differences and encourage cultural consideration at all levels of organization, from recruiting procedure and administration to onboard leadership style;

- Recruiting procedures shall cover a range of factors including the seafarers' previous training record on cultural issues, ability to communicate in English in work and social settings, and appropriate interpersonal skills. Emphasize a high CA level amongst management and senior officers on board;

- Conduct regular review and assessment, acquire and institutionalize cultural knowledge and intercultural interaction experience to facilitate further learning at the organizational level;

- Help employees and seafarers build trust by introducing dialogues and interactions that lead them to adopt open attitudes and learn cultural issues individually and as a group;

- Help employees appreciate the importance of "value congruency" (the fit between personal and organizational cultural values) and facilitate the alignment of employees' values with an organization's vision and mission (Dolan & Kawamura, 2015); and

- Organize continuous training and mentoring to all levels of employees. Cooperate with MET institutions and provide short courses about cultural issues for crewmembers prior to each voyage onboard vessels.

5.4 Measures by IMO

It should be noted that IMO, as the United Nations' specialized agency responsible for improving maritime safety and preventing pollution from ships, is another key player in facilitating and promoting cultural awareness education in the shipping industry.

For IMO to suggest guidelines or develop a conventional level of regulatory instrument for cultural awareness education and training will take a long-time and

tremendous cooperative effort from the member states. To begin with, a model course on cultural awareness should be developed and recommended for use as a comparatively more convenient way to provide guidance for MET teachers around the world. In addition, the revision of the model course 3.17 on Maritime English should consider further strengthening the General English part and including cultural elements.

The STCW 95 Convention as amended and ISM code have brief requirements related to effective communication among officers on watch/ship personnel, which could be regarded as a concern to address the possible safety threats associated with recruitment practices of mixed crew. It is recommended that the communicative competence in the STCW convention or definition of safe manning in the ISM code should be supplemented with more specific references to cultural awareness.

CHAPTER 6 CONCLUSIONS

6.1 Conclusions

Globalization and further economic integration of the world economy have exerted a great impact on and prompted changes to the shipping industry. The employment of mixed nationality crew has become widespread since the 1980s as a way of reducing manning costs. The cultural complexity observed on ships has been recognized as a concern in modern shipping, and a cause of the majority of maritime accidents. Stereotyping, cultural constraints or a lack of cultural awareness could easily lead to misunderstandings, substandard communication, onboard segregation and poor collaboration.

The literature review shows that researchers in the maritime field have tried to quantify and describe risks, and identify possible benefits of multicultural crews. Disappointingly, the results show a disagreement or disharmony. Though there seems to be a unanimous agreement on the importance of enhanced cultural awareness to ensure safety, there is an absence of systematic research on cultural awareness, such as its definition, conceptual model, influencing factors and measurement instruments in existing studies. Consequently, the training of cultural awareness of crew in the maritime sector has not been developed as expected.

To fill the identified research gap and answer the research questions, this study propose the following discoveries. Firstly, the term "culture" refers to a complex set of constructs and three levels of culture can influence human performance in the work environment: national culture, professional culture and organizational culture. These should be dealt with under cultural awareness. Cultural awareness is a dynamic cognitive process involving a continuously evolving perception, comprehension, and consequence projection of cultural elements embedded in encounters in culturally diverse environments, and the comprehension of their meaning. It enables individuals to monitor the culture-related information surrounding them and their environment to decide on their own activities for effective interaction.

Secondly, cultural awareness could be conceptualized as a four-dimensional aggregate construct, consisting of "the self", "metacognition", "cognitive process" and "cognitive knowledge" dimensions. Each dimension has its own specific function for the formation and working of cultural awareness. Four influencing factors are identified and proposed as impacting on the formation and improvement of cultural awareness, namely: educational/training experience, language skills, international work experience and diverse social contact.

Thirdly, using the model developed as a blueprint, the author develops a concise self-reporting scale to measure the cultural awareness of seafarers. This new instrument was sent out in the form of a questionnaire survey to investigate the relevance and importance of influencing factors. Analyses of the data collected from the survey revealed that the CA scale developed is a useful instrument to help seafarers understand their current level of cultural awareness and the average high CA score of the respondents indicates that seafarers consider themselves competent at dealing with intercultural encounters. More importantly, data investigation also shows that "language skills" and "education/learning experience" are two factors that are positively correlated with the overall level of cultural awareness, while the other two influencing factors proposed "international work experience" and "diverse social contact" are not related.

Lastly, the study revealed a varied attitude and lack of agreement across the shipping industry toward the initiation of cultural awareness education and training. The research finding about the relationships between influencing factors and CA level enables the author to recommend a series of feasible measures for METI, shipping companies and IMO to foster change and further build seafarers' cultural awareness. The recommended measures include the provision of courses in cultural awareness; more emphasis on General English skill teaching; the adoption of innovative student-centered, constructivist ways of teaching; the promotion of cultural sensitivity management on board ships; and the proactive role taken by IMO through the development of a CA model course and the re-examination of the concept of safe

manning to include cultural considerations in the relevant international regulatory instruments, such as the STCW Convention and Code and the ISM Code.

6.2 Limitations and suggestions

The novelty of this research is to develop an instrument to understand the CA level of seafarers so as to propose a number of recommendations for its improvement. There are, however, some limitations in this research, for example, the small number of participants in the questionnaire survey and the fact that the majority of respondents come from one geographic area - China. Nonetheless, this research has filled a gap in the existing knowledge about CA in MET and advanced our understanding of CA in the MET setting.

Culture is a wide and complex construct. Inevitably, cultural awareness will encompass a large scope of research. Cultural awareness should attract increasing interest considering the impact from the globalization process and ongoing North–South divide observed across many industries.

This dissertation defines cultural awareness as a four-dimensional aggregate from the cognitive perspective. Further research can continue to explore the relationships among the four dimensions: whether there is any dominant dimension or they are equally important.

The developed CA scale based on the four-dimension model has shown reliable and valid results as an instrument for measuring seafarers' cultural awareness. The scale can be further improved, for example, in the forms of peer-reporting and supervisor-reporting versions. Such forms can be developed and used as a supplement to enhance the accuracy of the measurement results.

The research examines four influencing factors that are considered most relevant to the enhancement of cultural awareness: language skills, education/training experience, international work experience and diverse social contacts. Additional influencing factors may exist and need to be further explored by consecutive research. In addition, it would be of particular value if further studies can focus on how and when each of the

CA dimension evolves or changes if influenced by different predictive factors. This dissertation only discusses the influencing factors that predict the formation and improvement of cultural awareness. Factors that promote its consequent functioning, such as personal motivation, behavioral skills or organizational structures, could be directions to consider for further research.

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APPENDICES

APPENDIX 1 QUESTIONNAIRE

Research Survey

I am a student and researcher undertaking MSc in Maritime Affairs at the World Maritime University, Malmo, Sweden. I am investigating seafarer's cultural awareness to offer insights in tackling challenges of multicultural manning in shipping. I would kindly invite you to take some minutes to participate in the questionnaire as below. Your kind support to this research will help seafarers' training and safe operation of ships. The obtained information will be strictly used for academic purposes only. Personal and private information about participants and your organizations will be treated with confidentiality. As a recipient of this survey, you have the right not to participate and withdraw at any stage.

Fangfang HU (WMU MSc student, email: s17126@wmu.se)

Survey Questionnaire

General Information
1. How old are you?
a. Less than 20
b. 21-30
c. 31-40
d. 41-50
e. More than 50

2. What is your nationality?
Please specify_____

3. What's your gender?
a. Male
b. Female

Part I Self-report Scale
1. I am aware of the cultural knowledge I need to use when interacting with people with different cultural backgrounds.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

2. I usually anticipate adjustment of my cultural knowledge if I interact with people from a culture that is unfamiliar to me.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

3. I am conscious of the cultural knowledge I apply to different cross-cultural interactions.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

4. I check the accuracy of my cultural knowledge as I interact with people from different cultures.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

5. I consciously reflect on how culture affects beliefs, attitudes and behaviors.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

6. I often generalize my cross-cultural experiences as a guide for my

intercultural interaction in the future.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

7. I feel with my experience in sailing on international ships grows, I become more comfortable interacting with people from different cultures in different working settings.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

8. I know generally my beliefs, attitudes and behaviors are influenced by my national culture.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

9. I understand the responsibility of my roles onboard and have my own standards about my work performance.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

10. I know the legal and economic systems, arts, customs, religious beliefs and cultural values of other national cultures.
a. Highly inaccurate
b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

11. I believe seafarers' own professionalism, cultural values and beliefs influence their seafaring decisions and communicative behaviors (e.g. asking questions, incident reporting, participating in group activities, offering comments).

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

12. I believe some aspects of the onboard vessel organizational factors (leadership style, cultural climate, organizational processes) may alienate and discourage seafarers from certain national cultures.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

13. In my seafaring experience, management level onboard seem interested in learning how their behaviors may discourage seafarers from certain cultural or ethnic groups.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

14. I understand that seafarers from different national cultures might have different understanding about safety and safety culture, which would influence their performance of their assigned duties and tasks.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

Part II Influencing Factors

1. I know the rules (e.g. vocabulary, expressions, grammar) of English as the working language on board to cope with verbal communication under different working situations and life circumstances.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

2. My English skills enable me to change my verbal behavior (e.g. accent, tone, choice of words and expression) when a cross-cultural interaction requires it.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

3. I prefer to speak English in working situations even though my colleagues may be my national fellow.

a. Highly inaccurate

b. Moderately inaccurate

c. Slightly inaccurate

d. Neither accurate nor inaccurate

e. Slightly accurate

f. Moderately accurate

g. Highly accurate

4. What was your last education?

a. High school

b. Vocational training

c. College/diploma

d. University/bachelor degree

e. Master's degree or above

5. The MET Institution or training center I attended have adequately address cultural issues by providing relevant courses.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

6. My study experiences at MET Institution or training center have provided me intercultural activities to help me become knowledgeable about the possible problems or situations associated with various intercultural interactions in seafaring.
a. Highly inaccurate
b. Moderately inaccurate
c. Slightly inaccurate
d. Neither accurate nor inaccurate
e. Slightly accurate
f. Moderately accurate
g. Highly accurate

7. How long have you been sailing on international ships?
a. Less than 5 years
b. 6-10 years
c. 11-15 years
d. More than 15 years

8. What is your rank?
a. Support level
b. Operational level
c. Management level

9. I have experience of study abroad, degree or training programs.
a. Yes
b. No

10. I used to live or am living in a foreign culture as a migrant.
a. Yes
b. No

11. My spouse or I have close friends/relatives who come from a different

culture from mine.
a. Yes
b. No

✧ If there is anything you would like to comment aside from the given contents, you shall feel free to share. I appreciate your contribution.