A Case Study of Creating a Sustainable Marine Transportation Workforce

Zelda Burt

A thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
in partial fulfillment of the requirements for the degree of
Master's of Arts Communication

Thesis Supervisor: Dr. Peruvemba S. Jaya

Department of Communication
Faculty of Arts
University of Ottawa

Acknowledgements

I sincerely thank all the people at the Marine Institute of Memorial University of Newfoundland (Marine Institute) who have unreservedly welcomed me to learn more about how they do business. I acknowledge the many subject matter experts of the Marine Institute who have invested their valuable time, providing me with a significant amount of insight about the organization's best practices pertaining to student attraction, recruitment, retention, and sustainability initiatives to help ensure a viable marine transportation workforce.

I also extend my earnest gratitude to my supervisor, Dr. Peruvemba Jaya, for her undivided support, advice and guidance throughout this project. It has been a great honour and a pleasure to work with her, alongside my thesis committee members, including Dr. Rocci Luppicini and Dr. Rukhsana Ahmed. I appreciate all of the direction and recommendations made towards this piece of research. I also thank the University of Ottawa for allowing me the time necessary to complete this project while I had my firstborn, Olivia.

Last but certainly not least, I extend my deepest appreciation to my husband, Gordon, and my parents, Adriaan and Willa, who have supported, fully encouraged, and accompanied me not only in person, but in soul during this challenging, eye-opening, and very fulfilling experience. It has been a journey I will not soon forget.

TABLE OF CONTENTS

ABSTRACT

Many workforce-related shortages in the marine transportation industry can be attributed to low birth rates, high levels of upcoming retirements, and evolving occupational complexities of the industry. These challenges may soon place the marine transportation industry in a workforce crisis within some high-demand occupations. This explanatory case study examines how the Marine Institute of Memorial University of Newfoundland's learns and adapts its practices to more effectively attract, recruit, and retain students for a career at sea. The study applies organizational learning theory as a practical lens to better understand the phenomenon of learning at the organizational level, how it occurs, and the processes involved which enable transformation. The study looks at communicative and collaborative processes of members, including collective thinking, reflection on past experiences, and dialogue, which combined, enable changing conventional ways of thinking. The findings describe how the organization constructs solutions, how it learns and reacts to workforce complexities.

CHAPTER ONE: INTRODUCTION

Low birth rates and the aging population are two major challenges facing Canada (Martel et al., 2007). In Census 2011, seniors, including those 65 years and older, were identified as the fastest growing populace in the country, reaching numbers of nearly five million people (Statistics Canada, 2011). Census data in 2011 showed that seniors accounted for nearly 15 per cent of Canada's entire population, which was an increase of 14.1 per cent compared to the last count in 2006; this growth rate was more than double the 5.9 per cent increase for the country's total population (Statistics Canada, 2011). The numbers are staggering and it is anticipated to accelerate over time, which could pose an array of implications to society, including the labour force (Martel et al, 2007).

For example, Statistics Canada (2011) highlights that for the first time in history, Census 2011 data demonstrated that there were more individuals between the ages of 55 to 64, the age group typically retires from the labour force, compared to those between the ages of 15 to 24, the demographic that normally enters the labour force. Implications of an aging population means a slower labour force growth (Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities, 2012). Thus, it has been anticipated that retirements could exceed the number of new people entering the labour market, moving Canada from having a surplus in labour supply, to a deficit (Ray Barton Associates Ltd., 2008).

Labour shortages are not unique to a single organization or any particular industry; it affects every transportation industry in Canada (Ray Barton Associates Ltd., 2008). Labour shortages can be defined as having an insufficient number of workers available to meet the number of jobs available (Bartlett & Lao, 2014).

For the marine transportation sector, predicted retirements may translate into several consequences, including the loss of knowledgeable staff; ships, property at sea, and the environment being at higher risk due to the lack of seasoned and well-trained crew members; and the difficult task of finding replacement seafarers who are qualified to do the work safely (Transport Canada, 2004).

This thesis uses a case study approach (Yin, 2009) to better understand how projected labour shortages in the marine transportation industry guide the business practices of a single organization, the Marine Institute of Memorial University of Newfoundland (the Marine Institute), as it relates to the effective and sustainable recruitment and retention of student mariners. The Marine Institute is a post-secondary training institute that is situated in St. John's, Newfoundland and Labrador, and is recognized as a world-leading centre for ocean-related career education, training, technology transfer and applied research (Fisheries and Marine Institute of Memorial University of Newfoundland, 2016).

The International Maritime Organization (IMO), a United Nations specialized agency with the responsibility for the safety and security of shipping, as well as the prevention of marine pollution of ships, indicates that shipping is likely the most international of the world's industries, serving over 90 per cent of global trade by carrying large numbers of cargo cost effectively, cleanly, and safely ("Introduction to IMO," 2015). Furthermore, in Canada, Transport Canada (2012) in their annual report, *Transportation in Canada 2011*, notes that the Canadian water transportation industry is highly dependent on international trade, estimating that approximately 40 per cent of industry activity results from the international movement of goods or foreign passengers. Therefore, the marine transportation industry brings vital social and economic benefits to all Canadians, and particularly to those living in coastal communities since activities such as port and

vessel operations, shipbuilding, and tourism have long created jobs for coastal residents (Fisheries and Oceans Canada, 2010).

In today's global economy, millions of people around the world rely on ships and qualified seafarers to transport masses of commodities, fuel, foodstuffs, goods and products (Mitropoulos, 2010). To meet the modern world's needs, trading such as the import and export of goods would be impossible without the shipping industry (Lewarn, 2009). However, the nature of shipping is often times thought of an industry that runs in the background, where for most, ships and the professionals that operate them are out of sight, out of mind. Therefore, the global economy depends on the presence of qualified seafarers (Mitropoulos, 2010), as they "are the lubricant without which the engine of trade would simply grind to a halt" (p. 5).

Demographic trends and the associated labour shortages in the marine sector are only expected to increase over the coming years (Transport Canada, 2010), thereby creating pressures for both government and the marine transportation industry to fill vacancies for difficult to recruit, highly skilled and experienced mariners. As such, a priority for leaders in the marine transportation industry has become the livelihood of their workforce, and ultimately, the sustainability of marine organizations. If not already in some sectors, the marine industry may reach a workforce crisis, where organizations in the industry will need to adapt to change, and learn to innovate responses to meet projected staffing shortages.

Using the single case study of the Marine Institute, and to help focus and clarify the extent of the study, the case was bounded (Creswell, 2007) by time, where primary data collection through semi-structured interviews took place from April 2013 to May 2013, as well as bounded by location, the Marine Institute campus.

The Marine Institute has formed a number of partnerships with the marine industry, community colleges, and federal and provincial development agencies to help ensure that resources are used in ways to maximize the probability of meeting various mandates, and to help ensure responsible and sustainable marine practices in the marine transportation industry ("Industry Partnerships.")

According to existing literature, organizational sustainability is driven by effectiveness and adaptation (Hadders, 1997). In order for an organization to be sustainable, it requires knowledge of its impacts on the world, and it needs the capacity to learn and innovate a response (McElroy, 2006a). In an attempt to understand the importance of organizational sustainability, this research sets out to investigate and explain how the Marine Institute learns, plans, and adapts to its many environmental challenges, and how it creates solutions to respond to issues surrounding the shortage of qualified seafarers in the marine transportation industry.

Since the causes behind qualified seafarer shortages are multifaceted given the aging population (Statistics Canada, 2007), growing ties between global expansion in the marine mode (Transport Canada, 2010), the decline in the number of new entrants into the marine transportation industry, and the evolving complexities of access to training and certification requirements (Ray Barton Associates Ltd., 2008), it is a unique area of marine organization life that is worth examining.

The benefits of this case study is three-fold. First, this research is of particular significance to the marine transportation industry in light of reported shortages of qualified mariners that is expected to worsen steadily over time (Lewarn, 2009). This study highlights some of the many types of challenges and industry-related complexities the Marine Institute comes face-to-face with, and sets out to explain how these pressures influence the organization to become more effective in attracting, recruiting, training, and retaining their students. Thus, understanding the types of

complexities and pressures marine organizations like the Marine Institute are faced with, and exploring how they adapt to changing environments, is an important and timely research matter.

Second, contributing to organizational communication scholarship, this study aims to strengthen one's understanding of the occurrence of organizational learning through communicative processes, including dialogue, collective thinking and reflection practices (Sandine, 1996). By way of these processes, employees as a collective are able to create knowledge and ideas in a way that adds value to the organization – knowledge and ideas that enable the adaptation of organizational structures and practices based on new insights gained through collaboration.

Sandine (1996) contends that it is critical that information exchanged collectively by employees are converted into value-added knowledge, particularly for organizations that operate in environments that change rapidly, and where growing global pressures make surviving reliant on an organization's capability to understand, act on, and learn from the changes in their external environments and the organization's internal reactions to those changes. The implications for future research in organizational communication scholarship is therefore wide-ranging since the study explores various closely related theoretical aspects and concepts regarding organizational learning, adaptation, and survival as a result of an organization's environmental demands and pressures.

Third, this study aims to add insight regarding marine workforce planning initiatives and how like-minded organizations such as oceans teaching institutions, private marine organizations and marine associations could implement established and tested practices to help create a more sustainable workforce in the marine industry.

Overview of Thesis:

To explore the complexities the Marine Institute of Memorial University of Newfoundland is faced with when it comes to student recruitment and retention for seafaring careers, and how these

pressures influence the organization to adapt and learn, this thesis is divided into six chapters. *Chapter One* provides introductory information regarding the shortage of qualified mariners and its impact on the global economy, concluding with concepts of organizational learning theory and three key benefits of the study. *Chapter Two* reviews relevant literature and sketches the theoretical framework used. *Chapter Three* outlines in detail the methodological approach, data collection and analysis techniques employed. *Chapter Four* reports the findings of the research. *Chapter Five* furthers discussions in more detail. *Chapter Six* offers conclusions and implications of the research findings, and finishes with suggestions for possible directions for future research.

Chapter Summary:

Chapter One introduced the issue surrounding the shortage of qualified mariners in the marine transportation industry due to low birthrates, high projected retirements, and the low number of entrants. Without sufficient and qualified manpower, organizations within the marine transportation industry may experience problems as a result of mariner workforce shortages.

By examining the occurrence of organizational learning through employee collaboration and communicative processes, this study sets out to investigate how the Marine Institute adapts its business practices such as student attraction, recruitment, training, and retention efforts in order to survive in a continuously changing and complex environment, therefore positioning the research results to be timely for organizations coping in times of change.

Chapter Two reviews relevant literature, the theoretical framework used, and presents four research questions that help direct the research regarding how the Marine Institute learns as an organization and adapts in order to survive in a complex industry.

CHAPTER TWO: LITERATURE REVIEW

This chapter combines literature and concepts surrounding organizational communication and organizational life, as well as dispersed research which underpins themes of marine transportation workforce-related issues in modern-day society. The literature review aims to provide readers the necessary background as the study sets out in the following chapter to examine how the Marine Institute learns and adapts their daily business processes as they work towards strengthening the sustainability of their organization, as well as the marine transportation industry, which is interspersed with complex workforce-related challenges.

The literature review is divided into six segments, including understanding organizational communication; early origins of organizational communication; organizational learning; overarching workforce-related issues in marine transportation; organizational sustainability; and lastly, the theoretical framework used for this research.

Understanding Organizational Communication:

The term organizational communication is a multifaceted one, because it combines two phenomena, organization and communication. By themselves, these terms are very complex to understand, but then when amalgamated, the level of complexity increases even more (Mumby, 2013).

The concept of organization, for example, in its most simplistic form, is for humans to organize in order to achieve a particular goal; this is accomplished through concerted action with one another, where the foundation of the concerted action is communication (Papa, Daniels and Spiker, 2008). Examining organization "means explicating the shared rules, codes, and norms that order sequences of mutually interdependent action, and how continuous making and affirming of

behaviour by symbolic repertoires is used by organizing members to interpret communication" (Manning, 1992, p. 3).

While the notion of communication is not only the process of interacting with one another or creating meaning, it is also a means of "creating social realities in ways that are coordinated and actively managed" (Papa, Daniels and Spiker, 2008, p. 3). With these descriptions, organizations can therefore be regarded as forms of intricate and complex human endeavor, where they "may have a singular mission but many different reasons for actual existence, and these varying reasons and the forces arising from them may not enjoy a peaceful coexistence" (Papa et al, 2008, p. 1).

As such, combining these concepts enables the study of organizational communication to radically help change how human interaction and organizational life are understood, and it opens up exciting possibilities for further research and practice (Koshmann, 2012).

Early Origins of Organizational Communication:

In the study of organizational communication, origins regarding the notion of organization as machine can be traced back 300 hundred years ago to the beginning of the industrial revolution in Europe and North America (Hatch, 2011; Morgan, 2006). The introduction of machines in the industrial era transformed how organizations were managed, requiring businesses to adapt to the needs of machines in order to increase labour productivity (Hatch, 2011; Morgan, 2006).

However, developing with early theories of evolution, including the view around survival of the fittest promoted by Charles Darwin, emerged the notion of the organism metaphor, viewing organisms as living systems that depend on their abilities to adapt to their environments in order to survive (Hatch, 2011). Hatch (2011) writes that viewing organizations as biological, adaptive organisms draws attention to the dynamic of competition, dependence on resources supplied by

their environments, as well as to continuous demands for change. This line of reasoning sparked some of the greatest advances in organizational theory over the last seventy years because of problems associated with traditional schools of thought of organization, moving organizational scholars away from classical theories of organization (organization as machine), and closer to biology as a basis for understanding organizations' well-being and how they function (Morgan, 2006).

In the following section, various definitions and possible avenues of examining organizational learning is provided. Next, the researcher introduces the organizational learning model that has been employed in the case study of the Marine Institute, which aims to illustrate that organizational learning occurs through communicative process via the collaborative endeavors of an organization's members (Sandine, 1996).

Organizational Learning:

With vast changes in the current economic environment caused by globalization and technological advances, organizations around the world are required to make significant changes in order to adapt, survive, and be successful, emphasizing the need to become effective learning organizations (Schwandt and Marquardt, 2000). Business environments have become more volatile, with increasing competition, changes in demographics and advancements in knowledge, all of which have been contributing to a shift in the business climate, making it difficult to anticipate the environment of tomorrow (Prange, 1999). With progressively changing and challenging nature of environments, organizations have been looking to the idea of learning as a means to cope and to gain a competitive advantage over others (Prange, 1999; Wang and Ellinger, 2008).

In her book, Linda Argote (2013) writes that most researchers would agree that organizational learning denotes a modification that occurs in an organization's knowledge, where knowledge can include "both declarative knowledge or facts and procedural knowledge or skills and routines" (p. 31). Typically, organizational learning adds to, transforms, or reduces organizational knowledge, where theories of organizational learning attempt to understand those processes (Schultz, 2002).

David Klein (1998) indicates that organizations ultimately learn through their individual members or employees, which is why having knowledge of individual learning theories can enable a better understanding of learning at an organizational level. For example, Merriam and Caffarella (1999) offer four directions of individual learning, of which include the behaviourist orientation (changes in one's behaviour), cognitive orientation (mental processes of individuals), humanist orientation (concerns regarding human growth), and social/situational orientation (social interactions in group settings). As such, if organizations can learn through their individual members, organizational learning can be examined and measured in many different ways (Argote, 2013).

The concept of organizational learning has been researched and available in management literature for nearly twenty years (Easterby-Smith & Araujo, 1999). However, ideas around the learning organization gained some popularity in the 1950's as part of continuing debates between behaviorists and economists, with more research around organizational learning intensifying in the late 1980's and 1990's (Dodgson, 1993; Huber, 1994; Schultz, 2002; Prange, 1999; Wang and Ellinger, 2008). In his work, Schultz (2002) notes that it was during this time that the field of organizational learning "evolved into a diverse network of loosely interconnected cluster of ideas" (p. 5).

Easterby-Smith and Araujo (1999) indicate that the diversification of the field of organizational learning can be attributed to two principal developments, with the first being that the area had attracted considerable attention from scholars of different disciplines such as economics and sociology. Scholars from these types of backgrounds had traditionally less interest in the learning processes of organizations, which in turn contributed to making the theoretical field of organizational learning extremely disjointed because of opposing ideologies. Consequently, this formed competition over who holds the true or most ideal model of organizational learning. The second development Easterby-Smith and Araujo (1999) note surrounded consultants and organizations noticing the fashionable or marketable significance of organizational learning, where the ideal forms of learning or blueprints for organizational learning offered by competing theorists could be adopted by businesses to help them become learning organizations.

Schultz (2002) adds that the field of organizational learning has developed so much over the years with variations of theories forking out into different directions, therefore making it a "vibrant, active, rapidly expanding and immensely rich field," (p. 15). Dixon (1999) provides some examples of the diversity surrounding studying learning at the organizational level, which ranges from concentrating on an organization's relationship to its external environment, its internal efforts, an organization's adaptation, or its proactive stance of creating a desired future. Moreover, organizational learning research can also help draw attention on the learning of individual people, greater organizational units such as teams or the organization as a whole, management as key players in organizational learning versus looking members of the organization; it can examine the way an organization takes action compared to focusing on underlying assumptions (Dixon, 1999).

With such a vast variety of orientations of learning at the organizational level, some tensions exist due to competing views around the characteristics of learning organizations, how learning

takes place in organizations, and what role communication plays in organizations' tendencies to learn (Sandine, 1996). To demonstrate, selected definitions of organizational learning are presented below and are grouped together with those who share similar characteristics. This may help demonstrate not only the wide-ranging aspects of inquiry around organizational learning, but it also highlights the lack of consensus that exist around what constitutes organizational learning (Prange, 1999).

Information Processing and Behaviour Changing Abilities. Some definitions of organizational learning focus on changing behaviours or actions as a result of information processing, such as the description offered by Daft and Weick (1984) who view organizational learning as a process where knowledge about action outcome and an organization's environment is developed. Levitt and March (1988) indicate that entities are learning organizations when they encode inferences or lessons learned from the past into routines that guide behaviour change. Similarly, Huber (1991) maintains that "an entity learns if, through its processing of information, the range of its potential behaviours is changed" (p. 89).

New Knowledge Acquisition for Performance Improvement. Other theorists focus on the notion of gaining new insight, such as the definition offered by David Garvin (1993). Garvin (1993) places emphasis on the importance of gaining new knowledge, where he defines a learning organization as being competent of producing, obtaining and transferring knowledge, as well as being skilled at changing behaviours that incorporate the new knowledge and insights that have been gained. Fiol and Lyles's (1985) definition of organizational learning runs parallel with the idea of new knowledge, describing organizational learning as an action improvement method as a result of better knowledge and understanding.

Collectivity. The following definitions focus on employees of an organization as a collective. For example, Peter Senge (1990) interprets learning organizations where its members are said to recurrently expand their capacity to create desired changes, where new ways of thinking are cultivated, and where individuals continue to learn on how to learn together. Pedler, Boydell and Burgoyne (1991) also take a collective stance, defining that a learning organization enables learning of all of its members to promote continuous transformation of itself.

Despite the fragmentation around descriptions of organizational learning, Brian Sandine (1996) highlights the importance of organizations turning available information into valued knowledge. He adds that converting information that is value-added for the organization is crucial, especially for those organizations who reside in turbulent environments and where increasing global competition makes "survival dependent on the organization's capacity to attend to, interpret, act on, and learn from the consequences of external, environmental changes and internal responses to those changes" (p. 18).

However, with significant fragmentation among views of organizational learning, understanding the notion and putting it into practice can be a formidable undertaking for some. As such, in his work, Sandine (1996) sets out to examine the connection between communication and learning organizations, a subject that is of essence for organizations in today's global economy. Searching for what a learning organization is, Sandine (1996) attempts to recognize the strengths and weaknesses of various definitions of organizational learning, and meaningfully combines certain elements and ideologies where the outcome of his model emphasizes the communicative and collective nature of organizational learning.

In his attempt to answer how learning takes place in learning organizations, Sandine (1996), offers a framework for conceptualizing organizational learning as a communications phenomenon

which stems from dialogue, and is made possible through collective thinking and reflection processes. These processes support the creation of new knowledge, as well as the adaptation of organizational structures. However, Sandine (1996) states that in his framework, none of these processes are sufficient enough when standing alone, because what makes this framework unique compared to others is that it combines all three processes, where they operate as interdependents in an ongoing, recursive learning cycle. In the ongoing learning cycle, dialogue functions as the hub which in return, enables collective thinking and reflection processes in an organization.

In his model, Sandine (1996) emphasizes collectivity, meaning that teams are the core location where the greatest tendency for learning in an organization resides. Sandine (1996) goes on to say that teams use human resources that are present in the organization, they collaboratively apply their unique talents, expertise, abilities and education, all of which provides valuable insight into the three components (collective thinking, reflection, and dialogue) of organizational learning.

With the various orientations that exist in organizational learning theory, Prange (1999) criticizes the notion of organizational learning for being too metaphorical in nature, and that the theory has been heterogeneously applied throughout research. On the other hand, Prange (1999) acknowledges that the wide-ranging views of organizational learning theory could also be "interpreted as an indicator of theoretical progression" (p. 39). Like Prange (1999), Sandine (1996) too recognizes the diversity of existing organizational learning definitions, adding that "in aggregate they have unfortunately done more to confuse the issue than to clarify it" (p. 3). However, Sandine (1996) maintains that it is important for organizations to have a strong understanding of what organizational learning is, and that using the existing principles of organizational learning consistently, can help prepare organizations to meet demands and confront presenting issues.

In the following section, manpower-related issues in the marine transportation industry are discussed, which highlights some of the many complexities that exist in the changing and turbulent environments of marine transportation organizations. The complexities highlighted sets the stage for discussing the importance of organizational sustainability, and the need for organizations to search for solutions to problems, rather than focusing on specific results.

Overarching Workforce-related Issues in Marine Transportation:

The global shortage of seafarers has begun reaching significant quantities, and to all involved in the industry, this has become a true concern (Mitropoulos, 2008). Seafarers' in demand skills are essential not only for the operation of vessels, but also for the proper, safe, and effective operations of the broader maritime industry (Lewarn, 2009).

Lewarn (2009) states that although some countries have already started work to address labour shortages, it is predicted that vacancies, especially for critical positions such as ship officers, will continue to get worse as time goes by.

Little scholarly literature regarding crewing shortages in the marine transportation industry is available, and there is even less research about manning shortages pertaining to specific sectors within the marine industry (Rosenburg, 2015), such as those involving oil tankers, bulk cargo carriers, barges and ferries. Rosenburg (2015) writes that most of what has been written is often discussed as the marine industry as a whole and that the issue is "mostly the subject of industry publications and blogs" (p. 4).

Human resource planning, nonetheless, has been documented in literature as a key determinant of the marine transportation industry, where the industry and individual shipping companies

consider human resource strategies an imperative area of examination due to the high demand for international trade and shipping (Asyali, Cerit, Sag, and Zorba, 2010).

For example, over 2,200 marine transportation organizations, including ship-owners, operators, managers, brokers and agents around the globe are members of The Baltic International Maritime Council (BIMCO), the world's largest international shipping association (BIMCO, 2015).

Since the 1990's, every five years a jointly-commissioned maritime manpower survey by BIMCO and the International Chamber of Shipping is released, which provides comprehensive data regarding the supply and demand of seafarers on a global basis (BIMCO, 2015). This survey is recognized by the worldwide marine transportation industry (Strategic Directions Inc., 2003), whereby organizations in the marine transportation industry can use the data as a stepping stone to embark on further research. The information presented in these reports can help organizations with strategic human resource planning where crucial vacancies or needs are the greatest. In this context, human resource planning can be described as a systematic and ongoing action to ensure an organization has the right number and kind of people, in the right positions, at the right time, in order for an organization to meet its specified goals (Caruth et al, 2009).

2003-2010 in Canada: Trends and contributing factors to shortages. Canada is no exception when it comes to labour shortages in the marine transportation industry. For example, in 2005, federal, provincial, and territorial Deputy Ministers with the responsibility of transportation agreed to bring together a Transportation Skills Development Task Force under the Policy and Planning Support Committee (Ray Barton Associates Ltd., 2008). The Task Force produced a compelling report which included the results of trends, patterns in skills, and labour shortages affecting all modes of the transportation industry.

At the outset, the report indicates that due to low birthrates, coupled with the aging population, Canada is faced with major labour force challenges, including the marine sector. The marine sector requires experienced mariners to meet job demands and competency requirements. Thus, should this demographic trend continue, it is anticipated that the number of qualified mariners will not be sufficient to meet both the marine industry and government needs (Transport Canada, 2010).

As a result of looming retirements, a need has been established to build a pool of qualified and experienced mariners in various positions across the sector. To demonstrate, 56 per cent of the marine inspector workforce alone was expected to retire by 2013 (Ray Barton Associates LTD, 2008). However, retirements were not the only factor that was contributing to the labour shortage in the marine sector. Other challenging elements include ongoing recruitment demands due to technical and competency requirements (Transport Canada, 2010), difficulties upgrading certification (Roslyn Kunin & Associates Inc., 2005), and the amount of time required for marine training that will lead to proper certification and career progression (Ray Barton Associates Ltd., 2008; Strategic Directions Inc., 2003). Moreover, the labour shortage of qualified mariners is also driven by the global growth in the marine mode, the low number of new entrants in the industry due to students' reluctance to choose a career at sea, reduced access to training due to school closings, high costs for training and certification, and sea-time and training requirements (Ray Barton Associates Ltd., 2008; Roslyn Kunin & Associates Inc., 2005; Strategic Directions Inc., 2003). Thus, the reasons for the labour shortage in the marine sector are complex and wide-ranging, and in order to survive, marine transportation organizations will have to adapt to these challenges and construct solutions to help sustain the marine transportation industry.

2003 in Newfoundland and Labrador, Canada. The Marine Careers Secretariat, situated in Newfoundland and Labrador in Eastern Canada, is comprised of federal and provincial government

departments and agencies, post-secondary education and training institutes and members of the marine industry. The Marine Careers Secretariat holds the responsibility of researching and documenting careers in marine transportation to profile the importance of these industries in the local economy, and to contribute to addressing their human resource needs.

The Marine Careers Secretariat conducted a study of the labour demand and supply of marine occupations in 2003, summarizing at that point in time, Canada's marine industry directly employed approximately 18,000 people, with over two-thirds being in the transport segment and one third employed by shipbuilding and repair segment (Strategic Directions Inc., 2003). Combined, the study conducted by the Marine Careers Secretariat indicates that these segments in the marine industry handle approximately 224 million tons of cargo each year, contributing $2 billion to Canada's national revenue on an annual basis. Considering this demonstration of the economic benefit shipping brings to nations, and with the numbers of qualified seafarers reaching serious quantities on a global-level, the future of the international shipping industry which acts as the lifeblood of world trade could be endangered if not acted upon by organizations (IMO, 2015).

The 2003 study by the Marine Careers Secretariat concluded with recommended steps to enhance access to marine career opportunities specific to Eastern Canada, some of which include promoting marine careers to increase career choices for youth, women, aboriginals and others; identifying initiatives to encourage the marine industry to participate in cadet programs; creating more industry training opportunities which incorporate industry work placements or work-terms for students; creating a bigger focus on more urgent careers, such as marine engineering; developing programs focusing on gender awareness training; investigating best practices of other marine jurisdictions; and developing a strategic human resources plan for seafarers (Strategic Directions Inc., 2003).

2008 in Australia: Gaining a Better Understanding of New Generations. In their research Cahoon and Haugstetter (2008) reported on the pressing nature surrounding the shortage of seafarers on a global level for the Australian Maritime College. Cahoon and Haugstetter's (2008) work speaks to labour shortages as being rampant in all industries, where the impact of slow population growth and aging demographics burdens recruitment efforts, human resources development, and preserving corporate knowledge in organizations alike. The study used data from the 2005 BIMCO survey of the demand and supply of seafarers, which indicated a worldwide supply shortage of 10,000 ship officers, predicted to grow to nearly 27,000 by 2015 (Cahoon & Haugstetter, 2008). As background, ship officers by tradition, are the end result of cadets who endure a substantial combination of classroom and onboard vessel training over an average period of ten years, suggesting extensive human resource planning is required to fill these types of vacancies. "Cadet training can therefore be regarded as a backbone of the system by which seafarers are groomed to become ship officers (Ceasar, 2013, p. 6).

However, Cahoon and Haugstetter (2008) indicate that the numbers or astounding shortages of qualified seafarers are "only the most publicized challenge that is facing shipping" (p. 3). In their research, Cahoon and Haugstetter (2008) elaborate on the notion that in order to recruit new entrants more effectively, marine industry organizations must gain a better understanding of new generations due to their different work ethics, expectations, attraction to flexible work hours and less authoritative leadership styles, strong self-confidence levels, and a bigger focus on work/life balance, all of which were very different from their parents' characteristics - the Baby Boomers.

Additionally, Cahoon and Haugstetter (2008) maintain that in light of labour shortages, organizations should become more competitive when recruiting individuals for a career at sea, meaning that the industry should be promoted as being a viable and vibrant career choice for

newcomers. Like the Singapore Maritime Foundation, a private sector entity who acts as a bridge between the Singapore government and private marine sector to initiate ideas and drive proposals to boost development and growth in the marine industry, Cahoon and Haugstetter (2008) reference relationship building with like-minded agencies; providing scholarships and prizes to individuals; and working with partners to provide insights and advantages of working in the field as a few examples of promoting the marine transportation industry to prospective marine students and workers.

2012 in the Philippines: Females Participating in Seafaring Careers. Aiming to determine the participation of females in maritime professions, Magramo and Eler (2012) examined the number of Filipino women that were employed onboard vessels, hiring practices and policies of shipping organizations, as well as reasons why ship owners refused to hire women to work onboard vessels.

Margramo and Eler (2012) indicate that historically, society has traditionally suggested that a female's role was to stay at home to care for children. As such, seafaring careers were solely intended for males for hundreds of years; however, with feminist movements, access to education and more opportunities, the role of females in the workplace has changed (Margramo and Eler, 2012). Even though females have begun to be more involved in maritime careers, "they are mostly on the periphery," and it was not until the late 1990's when greater interest grew to train and recruit women, which came largely as a result of apparent shortages of officers within the world fleet (Margramo and Eler, 2012, p. 397).

Margramo and Eler's (2012) study highlights that at the time when the study was conducted, females in seafaring careers in the Philippines made up only one to two per cent of the maritime workforce, of which consisted mostly of women in steward departments. In the Philippines, Margramo and Eler (2012) indicate that still only a few shipping companies are hiring females to

become officers, but rather to groom them for office work as a result of being more organized and "more appropriate to work in the office after they have acquired the necessary training and knowledge of running a ship" (p. 400). Furthermore, Margramo and Eler's (2012) study highlights that although women in the Philippines are currently being accepted as cadets to be trained for ship officer positions, they "must be physically, emotionally and spiritually tough in order to overcome all kids of hindrances, obstacles and challenges", not to mention the "need to think and act properly in a profession that is male-dominated" (p. 400).

2015: The Global Fleet and New Seafarers - Preliminary Results of 2015 BIMCO/International Chamber of Shipping Report. From September 2014 to November 2014, BIMCO and the International Chamber of Shipping initiated their manpower survey study, which is based the input of shipping companies, national maritime administrators, and input from maritime professionals, including seafarers representing over 40 nationalities, lecturers at marine training and education institutions, unions and more (BIMCO, 2014). This survey directly engaged seafarers as a means to understand not only mariners' views on life at sea, but also their position on the shipping industry's workforce over coming years (BIMCO, 2014). The study's preliminary results indicate that key factors influencing seafarers' decisions to stay with their current employers included timely wage payments and career promotion opportunities, and that that indicators such as basic pay and Internet accessibility were the major improvements made over the last two years (BIMCO, 2014). The study's initial findings underscore the understanding of issues that are of high importance to mariners, which is key information for organizations who are attracting and recruiting younger generations for a career at sea.

2015 in China: Students' Motives for Considering a Career at Sea. In their work, Fei and Lu (2015) analyzed students' perceptions of a seafaring career in China. In the Chinese shipping

industry, Fei and Lu (2015) found that students who had a true or an accurate impression of their upcoming seafaring career while enrolled in a marine course or program were more likely to choose a seafaring profession and remain active in their career at sea longer. The study also highlights that while the most important factor for motivating marine students to choose a career at sea was high wages, being separated from family for long periods of time, available job opportunities ashore, as well as concerns surrounding children's development and schooling were highlighted as the three primary reasons why individuals did not choose a seafaring career or decided to leave their career at sea early (Fei and Lu, 2015).

2016 in Canada: New Proposed Career Models for Seafarers. Albert et al (2016) in their study found that although future deck officers expected their careers at sea to last only between 10 to 15 years, participants anticipated that the remainder of their careers will be spent on shore; this conflicts with the marine transportation industry's goal of attracting and retaining deck officers only as seagoing officers. Despite the marine transportation industry's efforts to retain these employees, shortages remain in this area; as such, Albert et al (2016) indicate that "it is time for the marine industry to propose new career models to attract young people and retain them in the industry as a whole and not only at sea" (p. 7). Albert et al (2016) also advocate that employers should anticipate an employee's wish to make career changes, and in order to do this, employers "must learn about their deck officers' lives, aspirations, projects, and so on, and accept a type of management that includes ambivalence" (p. 7). Since deck officers desire a career without boundaries, Albert et al (2016) offer an intricate solution by prosing a non-traditional career model that interweaves careers "within and across organizational boundaries," (p. 1), which takes into consideration both the individual and the organization, and allows employees to make career changes within and across the organization.

Succession Planning. When reviewing existing literature on the worldwide shortage of qualified seafarers, it becomes apparent then that a recommendation for the marine industry is to turn to succession planning as one avenue of ensuring the continuous supply of qualified mariners to fill in-demand positions of retiring and departing employees.

For example, in his work, Caesar (2013) advocates that due to peculiar aspects or challenges the shipping industry faces, succession planning becomes an imperative tool or solution to ensure the sustainability of skilled labour supply. Caesar (2013) notes various key challenges that are driving the need for effective recruitment and training strategies, including the aging demographics among ship officers; the lack of interest in a marine career among younger generations; and high attrition rates among cadet profiles. Some reasons for high attrition rates surrounded the lack of career advancement; the length of time it takes to groom cadets to become officers; unfavourable working conditions at sea; and the lack of commitment from shipping industry employers towards training seafarers (Caesar, 2013). As such, Caesar (2013) advocates that succession planning should be used as a strategic long-term approach to developing capacity and aptitude, and when this approach is adopted in the marine transportation industry, it can help sustain the sector and alleviate the shortage of qualified seafarers within key areas.

In her book, Christee Atwood (2007) defines succession planning as an ongoing process of identifying future leaders in an organization, and to help prepare them to fill leadership roles. In short, Atwood (2007) indicates that the succession planning process involves reviewing an organization's strategic plan, examining the labourforce market, planning for predicted trends, and developing individuals to replace leaders as they retire or decide to leave an organization.

Effective succession planning, however, should not simply look at management positions, but rather also include key persons from a variety of job categories, including professional, technical,

clerical and so on, to build bench strength and preserve specialized knowledge (Rothwell, 2005; Caesar, 2013). However, succession planning should not stand alone, but rather be used in conjunction with succession management, which focuses on daily efforts to help build talent. Combined, succession planning and succession management underscore the importance of developing internal talent to meet both the current and future needs of an organization (Rothwell, 2005).

Furthermore, Sabri and Sabri-Matanagh (2013) add that leadership development preparation and training are crucial for ensuring organizational sustainability, and that the impact of an aging workforce underscores the need for organizations to prioritize succession planning and incorporate developing leadership into their strategic planning initiatives. Nidomolu et al (2009) specify that the quest for sustainability has started transforming the competitive landscape, which is forcing organizations to change the way they do business, think about products, technologies, processes and business models.

The following subsection provides definitions of organizational sustainability, highlighting the importance of organizations who reside in turbulent environments, to think more innovatively.

Organizational Sustainability and Survival:

Over more recent years, the term, sustainability, has been gaining much attention in the public, where the subject has been of high importance on the legislative agendas of many governments and sustainability issues have become of more interest to mankind (MIT Sloan Management Review, 2009).

For an organization, sustainability translates into the process of continuation and employing the facets necessary to enhance activities in pursuit of a defined mission (Coblentz, 2002).

Organizational sustainability is therefore an ongoing process rather than a state of stagnancy; it can be achieved through various short, medium, and long-term plans, including having visionary leadership, commitment to the organization's mission, networking abilities, ongoing strategic planning processes, understanding what resources are available, and how such resources can be utilized (Coblentz, 2002).

Mel Wilson (2003) writes that corporate sustainability can be seen as a new and evolving corporate management paradigm, serving as an alternative to traditional organizational growth models. Although corporate sustainability acknowledges that growth and profitability are critical, it also underscores the importance of an organization to pursue goals related to sustainable development, including societal goals such as environmental protection, social justice and equity, and economic development. Wilson (2003) argues that corporate sustainability essentially borrows elements from sustainable development and corporate social responsibility.

There is, however, a widespread notion that the concept of sustainability provides no new treatment options of practical problems, and that for many, sustainability is an empty phrase because of the varied meanings attached to the concept (Voss & Kemp, 2006; Aras & Crowther, 2010). However, Voss and Kemp (2006) argue that the multifaceted concept of sustainability has fundamental implications for governing modern society, and that sustainability cannot be translated into a blueprint from which criteria can be derived and unambiguous decisions made to get there. Here, the term governance is understood as the result of the interaction of many actors who have their own particular problems, defined goals, and employed strategies to achieve particular resolutions (Voss & Kemp, 2006). Voss and Kemp (2006) argue that sustainability calls for new forms of problem solving, thus placing more emphasis on organizational processes and strategies to search for solutions, rather than focusing on particular outcomes.

In the following section, the researcher presents the theoretical aspects that have been applied to the case study of the Marine Institute.

Theoretical Framework:

Overall, the literature in the preceding paragraphs demonstrates that the marine industry and governments have faced challenges to recruit qualified mariners within in demand areas. Additionally, globalization has opened new markets for trade around the world, placing additional pressure on the marine transportation system in the areas of productivity, capacity, supply and demand, and most importantly, safety (Transport Canada, 2010). As such, qualified, highly skilled, and experienced mariners are necessary to maintain and improve safe marine operations in the industry. Since the reasons for the shortage of qualified mariners are quite complex, marine transportation organizations are required to plan for and adapt to workforce challenges by constructing solutions in order to survive and maintain a sustainable marine transportation industry.

Organizational learning theory offers an understanding for how organizations execute sustainability initiatives (Iarossi et al, 2011). As such, a good approach to study an organization's learning depends not only on the research questions posed, but also the study's empirical context (Argote, 2013). The relationship between an organization and its environment is a continuing matter, where in terms of learning, an organization's environment serves not only as a source of demands requiring an organizational response, but it also serves as a reservoir of knowledge from which the organization can draw upon (Sandine, 1996). Since the goal of this research is to shed light on how the organization learns, and how environmental challenges can help shape an organization's business practices, the notion of organizational learning serves as a practical lens to better understand and interpret the phenomenon of organizational learning and the processes organizations adapt in response to environmental challenges and demands.

While a large number of scholars have developed various theoretical frameworks in efforts to explain the phenomena of organizational learning, this study has employed Sandine's (1996) model of organizational learning, which combines three communicative processes that are constitutive of learning organizations. Sandine (1996) describes the first process, *collective thinking*, as a practice by which individuals with distinguished areas of expertise combine their knowledge so as to produce outcomes that they could not have otherwise produced. Typically, this new knowledge adds value to the organization, which involves idea evaluation, and idea extension. Next, Sandine (1996) notes that the *reflection* process includes looking back on previous experiences, which promotes the creation of new action based on insight gained, and where further action and observation of consequences generates new insight. Lastly, Sandine (1996) writes that the *dialogue* process encourages individuals to progressively suspend defensive exchanges and to rather probe for underlying reasons of differing perspectives in the form of discussion.

Sandine's (1996) model of organizational learning combines the above referenced processes in a manner that has previously been less clear by others. Essentially, these processes function as interdependent elements in an ongoing cycle of learning, where dialogue works as the hub, enabling both collective thinking and reflection processes in an organization. Sandine (1996) argues that without dialogue, neither collective thinking nor reflection processes could be possible.

Sandine (1996) notes that although it may seem that the practices of collective thinking, reflection and dialogue may be seen as discrete activities, it is best to view them in a recursive cycle of learning. By engaging all three processes as part of the learning cycle, organizations are in a better position to reduce their tendencies for dysfunctional adaptation based on prior experiences.

The above-mentioned theoretical perspective has not only been taken into account when drafting the interview questions, but it was also applied throughout the data analysis phase to assist

the researcher in identifying patterns, creating a strong understanding of the types of complexities the Marine Institute is faced with pertaining to effective student recruitment and retention, and their efforts to adapt to complexities. Applying this theoretical lens will help address the following research questions.

Research Questions:

The few studies in existing literature that have examined the shortage of qualified seafarers, have not explored what single seafarer training organizations in Canada are doing that makes them effective in attracting, recruiting, training and retaining students. Undoubtedly, this gap in research makes room to further explore the opportunities and success stories of training organizations such as the Marine Institute. Consequently, the following four research questions have been posed to help guide the findings of this body of work, including:

RQ1: How has the Marine Institute learned as an organization to adapt to the labour shortages of qualified mariners?

RQ2: How do industry challenges shape the Marine Institute's response strategies to more effectively attract, recruit, train, and retain qualified seafarers?

RQ3: How does the Marine Institute plan for initiatives to help contribute to a more sustainable marine transportation industry?

RQ4: How does gaining new insights about the Marine Institute's environmental challenges contribute to adaptation and organizational learning?

Chapter Summary:

To provide readers with a firm foundation of the concepts to be explored in this case study, *Chapter Two* shed light on understanding organizational communication, the evolution of

organizational communication, organizational learning, overarching workforce-related issues in marine transportation, and organizational sustainability. Next, this chapter laid out the theoretical framework that was used to examine the business practices of a single case study, and concluded with the research questions that have guided the research.

Chapter Three describes the methodology used for this case study, including the research design, data collection, data analysis and validation strategies employed.

CHAPTER THREE: METHODOLOGY

Trustworthiness:

Trustworthiness is a term that runs parallel with the concept of qualitative rigor (Morse et al., 2002, p. 5). Qualitative research has been questioned by positivists or the scientific paradigm for the reason that "their concepts of validity and reliability cannot be addressed in the same way in naturalistic work" (Shenton, 2004, p. 63). However, naturalistic methods are not inferior to scientific methods in attaining neutrality or objectivity "and may at times be better," and that regardless of any seeming objectivity of the researcher that may be lost, it is "more than compensated for by the continuously emerging insights that naturalistic methods produce" (Guba and Lincoln, 1981, p.127).

Case study research design principles incorporate several strategies that "promote data credibility or 'truth value'" (Baxter and Jack, 2008, p. 556). This research employed four criteria proposed by Guba and Lincoln (1981), along with techniques used to help ensure trustworthiness, shifting the "stress on the objectivity of the inquirer to the confirmability of the data" (p. 328). Guba and Lincoln's (1981) four criteria employed include *credibility* (which speaks to the truth value of the findings and runs parallel to internal validity in the positivist paradigm); *transferability* (which demonstrates that the findings have applicability in other situations or populations and runs parallel to external validity/generalizability in the positivist paradigm); *dependability* (which shows findings that are consistent and that can be repeated again and runs parallel to reliability in the positivist paradigm); and *confirmability* (the degree to which the study's findings are shaped by participants rather than by the researcher's own interests or biases, running parallel to objectivity in the positivist paradigm).

Using the four criteria and techniques to ensure trustworthiness, Guba and Lincoln argue that "the likelihood of biases going undetected under these circumstances would be slim indeed" (p. 328).

Case Study Design:

Qualitative case studies enable the study of complex situations within their own settings, drawing out valuable insights on program evaluation and developing interventions (Baxter & Jack, 2008). This study employs a qualitative case study as an avenue to explore and explain how a single organization, the Marine Institute, learns and adapts to complexities related to student attraction, recruitment, training, and retention in order to help ensure a sustainable marine transportation industry. An advantage of case study research is that it has its own rigor, closing in on "real-life situations and test views directly in relation to phenomena as they unfold in practice" (Flyvbjerg, 2006, p. 19).

To best fit the research needs of this unique case, the researcher used a mix of well-established tools and methods to preserve the study's credibility (i.e. study design, data collection and analysis methods) offered by case study methodologists, Merriam (1998), Stake (1995) and Yin (2009), in efforts to make the research design more compatible with the acquired knowledge, and "robust enough" to respond to the research questions (Yazan, 2015, p. 2).

This explanatory case study employs a single case design for a representative or typical case (Yin, 2009), where the objective is to capture everyday circumstances and conditions of the Marine Institute, and to better understand lessons learned as a result of mitigating commonplace challenges. Further, this study follows an embedded single case design as the case involves more than one unit of analysis (Yin, 2009). For example, even though this case is about a single organization, the

Marine Institute, the data collection and analysis also include several units to analyze, such as historical or anecdotal information about the Marine Institute, information about its workforce and student recruitment planning initiatives, organizational strategic priorities, current and former recruitment and retention initiatives, organizational development efforts, subject matter experts who have been interviewed, and lastly, descriptive contexts, such as the working and learning environments of student mariners. All of these additional units of analysis have been selected through sampling or cluster techniques (McClintock, 1985). Thus, this embedded case study serves as an empirical form of inquiry, which is rich in context, describing the many features and processes of the phenomenon which offers readers a greater understanding of the Marine Institute's case.

Sampling Strategies:

This case study captured information collected from participants though semi-structured, in-depth interviews, which was achieved through purposive sampling. Semi-structured interviews fit the purposes of this research because the interviews conducted depended on a set of questions that loosely guided the flow of conversation, giving those being interviewed more autonomy to speak freely about what was of interest to them (Hesse-Biber & Leavy, 2010).

As a qualitative technique, in-depth interviews involve conducting intensive individual interviews with a small group of individuals to "explore their perspectives on a particular idea, program, or situation" (Boyce & Neale, 2006, p. 3). In-depth interviews have also been labeled as one of the greatest tools in qualitative research (Patton, 1990). The decision to use in-depth interviews for this case study was based on the belief that the viewpoints and lived experiences of the interviewees were the most appropriate method to obtain detailed information. Additionally, using this sampling strategy enabled the researcher to select individuals, including the research site,

to purposefully inform an understanding of the research problems, as well as the central phenomenon of the study (Creswell, 2007).

Participants: Sample Size and Ethical Considerations:

Interview participants were recruited through a recruitment letter that was sent directly to the Vice President of the Marine Institute of Memorial University of Newfoundland (See Appendix A). Since the goal of this study was not to randomly select units with the intention of making generalizations, but rather to extract knowledge from persons with known or demonstrable experience and expertise in the areas of mariner recruitment, student work-term placement, organizational development, organizational sustainability, and communications, the researcher used a subgroup of purposive sampling, namely, expert sampling (Trochim & William, 2006), therefore allowing the study site to identify the subject matter experts. Seven subject matter experts in the areas of student recruitment and retention, seafarer training, student work-term placement, corporate affairs, marketing and communications, business development, and quality management agreed to participate in this research study, among whom, four were female and three were male. Since the research site is located in a relatively small community, the researcher did not collect additional personal details that could lead to potentially identifying the participants. Since the interview data did not require personal information as essential data, anonymity (Creswell, 2007) was offered to all participants by assigning numbers to participants in the report writing phase.

Rounds of semi-structured, in-person interviews of purposefully selected key participants were conducted with seven professional staff members of the Marine Institute. With case study research, the sample sizes are often small, and "the smaller the sample size, the more intense and deep are the data being collected" (Padgett, 1998, p. 56). These employees have each been heavily involved in the areas of student recruitment, placement, and retention, seafarer training, marketing and

communications, organizational and strategy development, corporate and external affairs, and quality management. Discussions set out to explore the relevancy and effectiveness of the Marine Institute's sustainability efforts and approaches to more effectively attract new entrants into the marine industry, as well as the types of complexities they face, and how they adapt to challenges to survive as an organization.

This research was approved by the Research Ethics Board (REB) of the University of Ottawa, as well as the Interdisciplinary Committee on Ethics in Human Research (ICEHR) of Memorial University of Newfoundland. Participants' consent was gained through a consent form, where the researcher reviewed the consent form with every participant prior to each interview, followed by obtaining signatures.

As a tactic to further strengthen the credibility of the case, participants were advised through informed consent (Israel & Hay, 2006) that their participation was completely voluntary, that they could refuse or discontinue their participation at any time (Guba and Lincoln, 1981), and that compensation will not be received for their involvement (see Appendix C for the Consent Form). Interviewees were also advised that there were no foreseeable risks to participate in the study; however, if they had any ethical concerns related to how they were treated or their rights as a participant, the contact information to Memorial University of Newfoundland's Interdisciplinary Committee on Ethics in Human Research (ICEHR) was supplied.

Data Collection:

The data for this study was acquired primarily from information obtained from participants through semi-structured, in-depth interviews. Once approval from the REB and ICEHR was received to proceed with the study, interviews were set up with participants at a time and location

that worked most conveniently for them, all of which ended up being in their offices on the Marine Institute's campus in St. John's, Newfoundland and Labrador. Interviews were conducted with seven purposefully selected subject matter experts, which lasted approximately 31 minutes to one hour and 40 minutes per person (See Appendix B for the Interview Guide). Combined, interview discussions totaled to eight-and-a-half hours of recorded time. The primary data collection initiatives took place at the Marine Institute over approximately a four-week period, ranging from April 2013 to May 2013.

Rigorous qualitative case studies explore and/or describe a complex phenomenon in the context of using a wide variety of data sources (Baxter & Jack, 2008). The researcher collected a range of data sources in efforts to report a thick description and to demonstrate to readers the applicability (transferability) of the case to other similar contexts (Baxter & Jack, 2008; Yin, 2009; Guba and Lincoln, 1981). As such, the researcher set out to review various forms of qualitative data, grouped into four general types of information (Creswell, 2007), including any observations, open-ended interviews, public or private documents, and any audiovisual materials.

The researcher reviewed 24 relevant documents (Creswell, 2007) throughout the research process, including community newspaper articles, public documents such as strategic plans, student recruitment materials, website content, relevant recorded trends and statistics, and other communications products and tools used to attract new student mariners (see Appendix D for table listing of documents reviewed). Each data type contributed to the researcher's understanding of the whole phenomenon. Baxter and Jack (2008) indicate that the convergence of multiple data sources adds strength to research findings, as the various strands of data are "braided together" to promote a greater understanding of the case itself (p. 554).

As the primary data sources, with participants' permission, interviews were recorded using a digital voice recorder (Hahn, 2008). As part of the semi-structured interview process, interview questions consisted of a mix of closed and open-ended questions (Klenke, 2008), covering a wide range of areas, leading to a better understanding of the types of complexities the Marine Institute comes face-to-face with relating to student attraction, recruitment, training, and retention (See Appendix B for Interview Guide). Data was collected from interviewees until a saturation point had been reached (Bazeley, 2013). The digitally recorded interviews were transcribed verbatim (King and Horrocks, 2010) by the researcher in efforts to become closely familiar with the data. A computer-based, word processing program was used to transcribe all of the interview materials. The number of transcribed pages produced per participant ranged from 13 to 37 pages, for a total of 178 pages of content for all participants. This detailed and carefully transcribed information helped the researcher to recreate all verbal and non-verbal content of the interviews, serving of great benefit to the researcher (Seidman, 2006) throughout the analysis and report writing phases.

The raw interview data (recordings) and the transcribed information, along with write-ups, summaries, data analysis and reconstruction notes which are discussed in the following subsections and in Chapter Four, all became part of the researcher's audit trail or the "residue stemming from the inquiry," a technique used to reinforce the study's dependability (Guba and Lincoln, 1985, p. 319).

Data Analysis Procedures:

Data collection and analysis occur simultaneously, and the type of analysis chosen depends on the type of case study conducted (Baxter & Jack, 2008). Analyzing case study evidence is the least developed and can be difficult to achieve (Tellis, 1997). However, Miles and Huberman (1984) refer to analytic techniques as rearranging or pulling data apart and putting the evidence back

together again in categories, creating flowcharts or data displays, charting the occurrence of events, and if applicable, using means, variances and cross tabulations to examine the relationships between variables.

Creswell (2007) indicates that case study data analysis involves making a detailed description of the case and its setting. During the data analysis phase, relationships will need to be teased out, issues will require probing, and data will require aggregation (Stake, 1995). As such, following the data collection procedures, the researcher was able to perform data analysis and interpretation (Creswell, 2007; Merriam, 1998, Stake 1995; Yin, 2009) as referenced in the succeeding paragraphs, adding to the dependability of the case.

Since qualitative research is interpretive research, the researcher is usually implicated in an extremely involved experience with the participants (Creswell, 2009). Seeing that a good portion of the data collection of this study was reliant on interviews, one role of the researcher was being an interpreter, whereby observations were made, subjective judgment was exercised, and data was analyzed and synthesized, taking into consideration personal consciousness (Stake, 1995). Being an interpreter enabled the researcher to identify patterns to help readers better understand the case.

Through categorical aggregation, achieved by sequencing and categorizing properties and key words, the researcher was able to sort through the data until meanings became clear (Creswell, 2007; Stake, 1995). One way of searching for meaning and recurring patterns in qualitative data is by coding data through a word or catchphrase that figuratively assigns a "summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data." (Saldaña, 2013, p. 3). The researcher used Saldaña's (2013) approach to descriptive coding to organize the data. To prepare for the coding process, the researcher thoroughly reviewed all interview transcripts to help strengthen her understanding of the data. Since the collection of data

was quite large, 178 pages of transcribed interviews, a spreadsheet was used to house and organize the data and memos in various tabs (Bazeley, 2013), all of which were part of the researcher's audit trail to ensure dependability of the study (Guba and Lincoln, 1981).

Furthermore, the researcher spent time on direct interpretation to help build explanation of the case. Direct interpretation involves looking at a single instance to draw valuable meanings from, and it can be easily achieved by asking the question, "what did that mean?" (Stake, 1995, p. 78). Here, the researcher took information from interviews as part of a single event, pulled it apart, and placed it back together again in more meaningful ways (Creswell, 2007). Direct interpretation took place during and after interviews, where the researcher purposefully looked for information of the Marine Institute to offer readers a thick description of events ensuring transferability of the case to other similar contexts. A thick description allows individuals to learn from the case either for themselves, or apply lessons learned to a population of other (similar) cases (Creswell, 2007); this also provided audiences with the opportunity to gauge the accuracy, completeness, and bias of the researcher's findings. This was achieved by presenting readers with a narrative account, a chronological presentation, personalistic descriptions, and placing emphasis on contexts, such as time and place.

To further strengthen the credibility of the findings, the researcher employed member checking (Guba and Lincoln, 1981; Stake, 1995; Yin, 2009), a process by which the researcher takes the facts and interpretations back to the participants, asking them to validate the accuracy of the captured information. This allowed the researcher to create a bond with the participants, and included them as valuable members of the study. Member checking was carried out by emailing a summary of the captured information to participants to verify the precision of information, offering them an opportunity to contest any misperceptions or correct any inaccuracies. This technique is often

referred to as the most credible technique to validate data of a research study (Lincoln & Guba, 1985).

Lastly, this study involved triangulation for establishing confirmability of the research, therefore ensuring that the information was accurately captured and correctly portrayed in the discussion section of the thesis. Triangulation (Guba and Lincoln, 1981; Bazeley, 2013; Craig, 2009; Creswell 2007) was used to cross-check if the data obtained from one interviewee, and the inferences drawn from the interview data, was comparable to information acquired from other interviewees and sources of data, therefore confirming the researcher's findings. Triangulation can also be described as the process of corroborating evidence from different individuals (Creswell, 2005), and helps ensure that the findings are the result of participants' ideas and experiences, and not the "preferences of the researcher" (Shenton, 2004, p. 72). Since the information gathered came from various sources, triangulation was a tactic used to confirm that the research was accurate and trustworthy, providing a "fuller and rounder understanding" of what occurred in the field, and helping the researcher keep biases in check when interpreted (Loh, 2013, p. 7).

Chapter Summary:

Chapter Three identified the criteria used to ensure trustworthiness; it also outlined the study design chosen, the methodology employed and the techniques used to analyze and establish confirmability of the data.

Chapter Four provides some operational detail of data analysis, strengthening the dependability of the case. A synopsis of the interview findings is also discussed within three principal themes, including *Theme One: Resistance to Having a Career at Sea; Theme Two: Best Practices;* and *Theme Three: Securing a Future for Marine Transportation.*

CHAPTER FOUR: RESEARCH RESULTS AND ANALYSIS

The data analysis phase began after all semi-structured, in-depth interviews had been transcribed verbatim. To address the research questions posed, and to add to the confirmability of the case, Saldaña's (2013) in-depth approach to a cycle of descriptive coding was employed, which "assigns labels to data to summarize in a word or short phrase – most often the noun - the basic topic of a passage of qualitative data" (p. 262). This method helped the researcher create an inventory of topics. A spreadsheet was used to organize the data and memos.

Interview data was coded until saturation has been reached (Bazeley, 2013), or when no new information was added to coding categories. Once data was coded, it was organized and assembled through three iterations of descriptive coding through code mapping (Saldaña, 2013), which refers to a full set of codes being reorganized into a selected list of categories, and condensed further into the study's central themes and concepts to address the research questions.

To demonstrate, as part of the researcher's audit trail to strengthen the case's confirmability, the researcher randomly listed all codes from the data set in a spreadsheet as part of the first iteration of coding, which consisted of a simple list of 32 codes. Next, the researcher categorized the initial codes, which was a process of comparing and sorting through the codes to see which codes best fit together. The codes were then collapsed into a total of seven emerging categories, namely *New Entrants*, *Improving*, *Resistance*, *Image*, *Strengthening the Future*, *Work-Terms*, and *Targeted Outreach*. For the third iteration of coding, the emerged categories were condensed even further into what became the three primary themes of the case study, which were renamed to *Theme One: Resistance to Having a Career at Sea; Theme Two: Best Practices;* and *Theme Three: Securing a Future for Marine Transportation*.

The following paragraphs explore the results of the semi-structured, in-depth interviews within the three primary themes of the case study.

Theme One: Resistance to Having a Career at Sea

A great deal of information was revealed when participants were asked to elaborate on the complexities the Marine Institute comes face-to-face with. *Theme One: Resistance to Having a Career at Sea*, captures information that has been divided into the following six subthemes.

i) One-of-a-kind Industry. It became apparent early on in conversations with participants that the marine transportation industry is one-of-a-kind, and that it cannot be compared to any other industry. For instance, Participant Six indicated that the diverse nature of the marine transportation industry is a complexity within itself, pointing out the many different types of sectors across the marine industry, such as cargo shipping, the offshore industry, the fishing industry, etc. Among these sectors, there is heavy competition with one another to attract qualified seafarers from the same pools to work onboard their vessels, making it a challenge to fill sought-after or hard-to-recruit-for positions, such as marine engineers.

As an example, Participant Four indicated that within the marine industry, there is a high demand for marine engineers because it is a challenging profession that takes many years to obtain qualifications for. The participant indicated that they found the high demands for marine engineers had partially to do with the looming retirements in the workforce, combined with the low numbers of graduating marine engineers. This situation can lead to creating human resource challenges for some marine transportation organizations if not enough students are produced to fill vacancies. In some cases, Participant Six indicated that there is such a dire need for marine engineers that some employers are going out of their way to attract students. "Some of these employers actually sponsor

students while in school. This type of Memorandum of Understanding may become more popular with in demand areas."

Participant Six indicated that marine engineering is a challenging four-year training program, and with looming retirements, especially for chief engineers, it takes approximately seven to eight years for a new entrant to get into a chief engineering position, due to class certificate requirements and sea time requirements which have to be obtained. "It takes a long time to groom someone to be a chief engineer onboard a vessel," said Participant Six. "This is a highly responsible position … but you need those people for vessels to sail."

On another occasion, Participant Four indicated that "everyone has a role to play" to help fix the challenge of the shortage of qualified seafarers. In that context, everyone includes the marine transportation industry, training organizations, provincial and federal governments, communities, schools, and the list goes on. "We need more marine engineers and more master mariners, and that takes time – seven or eight years minimum. If you can't get students onboard ships for work-terms, you are never going to get them to the higher level (positions) because they need the experience."

When it comes to having students participate in work-terms to gain experience, students need to go onboard a vessel and obtain what is referred to as *sea time* requirements. Participant Six indicated that "one cannot replicate that (experience) in the classroom." In order to receive successful certification from a program at the Marine Institute, students must meet certain Transport Canada requirements when it comes to sea time. As such, without the appropriate required amount of sea time, certification of mariners is not possible.

Obtaining the appropriate amount of sea time goes hand-in-hand with the issue of being away from home for extended periods of time. In the marine transportation industry, there is the concept

of *equal leave*, where individuals work shifts for 28 days on a vessel and 28 days off. Participant Six remarked that an individual may perceive this as a challenge and "that lifestyle may not appeal to an individual looking at doing a program." So for many training organizations, including the Marine Institute, recruiting students for careers that require heavy shiftwork or being away from family for extended periods of time often poses some difficulty.

On the other hand, some marine transportation industries use equal leave as a marketing tool. Participant Six highlighted that the offshore industry has turned the perceived difficulty around, and is currently using equal leave as a means to actually attract students, because some people may like having a lot of free time, such as 28 consecutive days off. The participant went on to say that new students who are looking for a career at sea are interested in equal leave, because personal time is a key motivator.

***ii) Medical Clearance and Certification*.** If it is not difficult enough to recruit individuals who finds the lifestyle and schedule of mariners appealing, for some, getting medical clearances can be problematic, and consequently, keep them from pursuing a career at sea. For example, Participant Three said that for some males:

> "a career at sea is the only one they had in mind. One complexity is the medical and they don't pass the colour-blindness test, not knowing they were colour blind. If you can't tell red from green, you can't tell which direction you're going in. This medical requirement is part of the admissions process (at the Marine Institute), which is sent in along with their (a student's) application."

Statistics Canada (2014) indicates that for the last 30 years, the proportion of seniors aged 65 years and older have increased in all provinces and territories across Canada, with Newfoundland and Labrador's population aging the fastest. In an interview, Participant Four acknowledged Newfoundland and Labrador's aging population, explaining that compared to the rest of the province, there are more young people in the north (Labrador) due to growing aboriginal

populations (Labrador and Aboriginal Affairs Office, 2007), as well as internationally. As such, to help mitigate the issue surrounding the shortage of mariners, the Marine Institute has to recruit from areas that have younger populations, such as from aboriginal communities, out-of-province, and internationally.

However, Participant Four pointed out a caveat surrounding certification requirements for foreign students, which fits with this subtheme. "The Marine Institute can offer seafarer programs, but Transport Canada will not issue certification to foreign students. International students can go back home and work, but cannot work in Canada. To be certified in Canada, you have to be a citizen." To validate this statement, Transport Canada (2013) indicates that foreign students can complete a Canadian marine training program, where at the end they will be issued a Course Completion program Certificate which can be taken back to the foreign student's country of residence for the issue of a Certificate of Competency by their own government. Furthermore, Transport Canada (2013) informs foreign students that upon completion of a Canadian marine training program, that a Canadian Certificate of Competency will not be issued by Transport Canada since as by law, a these certificates can only be issued to a Canadian Citizen or Permanent Residents in Canada. Transport Canada (2013) underscores that in order to obtain a job on board Canadian registered vessels, individuals must hold a Canadian Certificate of Competency, "for which being a Canadian Citizen/Permanent Resident is a prerequisite." Therefore, although the Marine Institute can work to train more mariners to help sustain the marine industry, unless they are natural born citizens, or if they immigrate or obtain documents to be eligible to work in Canada, obtaining certification from Transport Canada to work in Canada remains a complex situation.

iii) Uniqueness of Newfoundland and Labrador. As introduced in the previous paragraph, Newfoundland and Labrador has an aging population – where there are less young people and a growing number of older individuals residing in the province (Statistics Canada, 2014). Participant Six indicated that the aging population has affected some of the recruitment at the Marine Institute, causing their demographics to change, as there are more people from St. John's, Nova Scotia and across the country to recruit from. Instead of recruiting in rural areas, a very traditional recruitment area for the Marine Institute, the school is now getting younger individuals from the capital (St. John's) and out of province to attend the school, as it appears that there is a growing trend of younger generations moving away from rural areas in Newfoundland and Labrador, whether it be migrating to the capital, or moving out of province to seek other opportunities.

The weather in Newfoundland and Labrador is another complexity, where many days of the year consist of rain, drizzle and fog. Participant One pointed out that the location of the Marine Institute "is in the middle of an island, and the airport happens to be on a fog-bank." As such, some of the complexities of recruitment is getting on and off the island. Often, there are times where the weather does not allow flights to arrive or depart, leaving many stranded for days on end. Since the Marine Institute has recruiters who visit other areas of the province and Canada, not being able to leave due to extreme weather conditions can significantly slow the recruitment process down, which translates into missed opportunities. However, Participant One indicated that as a result, "the Marine Institute relies heavily on listening to feedback and learning from its recruiters to follow leads." Additionally, when it comes to recruitment, weather is a factor that can sway a student's decision to attend a university in other parts in Canada. For example, Participant Four indicated that weather is a complexity when it comes to recruitment. "If you get accepted in university, wherever, in Victoria, British Columbia (BC), and you are accepted to St. John's (Newfoundland

and Labrador), you will probably pick Victoria for weather reasons, right? So there are many challenges that way."

Understanding what the marine transportation industry is can also be a complexity in itself. As explained in earlier paragraphs, the marine transportation industry is a complex one due to the different sectors within the industry. Educating people about the industry is an ongoing task for the Marine Institute when it comes to attempting to attract and recruit individuals to enter the industry.

> "There will always be some different viewpoints of what the marine industry is, and even in Newfoundland, it's even *more* difficult because the marine industry for a lot of families and generations was fishing. It was not the shipping of goods, it was not the oil industry, and it's only the last two generations where the oil industry is a part of who we are," Participant Three said.

iv) Seasickness. In addition to sea time requirements that act as a complexity to recruiting future mariners, other reasons why students may decide against a career at sea is lifestyle issues like being away from home and seasickness. Throughout discussions held with participants, the word "lifestyle" frequently came up, meaning that being a mariner is a way of life. Participant Six said that working at sea is completely different than the average career on land because of being away from home for prolonged periods of time. Marine students need "to plan differently than a business student … you are on a ship. It's a lifestyle – a keyword we use here." The Marine Institute helps prepare students for this type of complexity during orientation sessions, so that there are no surprises. Additionally, to help students mentally prepare for a career at sea, the Marine Institute holds in-person question-and-answer sessions to talk about the lifestyle of being a mariner, and they have fellow graduates to come and speak to the students about their own personal experiences and complexities around seasickness.

Participant Six added that "seasickness is an issue" for some students, and it is one of many complexities for those who choose a career at sea. The Marine Institute has an orientation program

to educate students about the issue of seasickness and the amount of sea-time that is required to reach certification. Although the Marine Institute can educate students about the lifestyle of being a mariner and the seasickness that can often goes along with it, students may continue to withdraw from seafaring programs. To demonstrate, in an interview Participant One indicated that "some students may not even know they will suffer from being seasick until they are on their work-terms. Some students drop the program after they return from a work-term, or during their work-term." Participant Seven indicated that sometimes the students realize they thought this is what they wanted to do for a living, but they can't due to being seasick and they say "I can't handle this get me off this ship!" The worst cases are students who get extremely seasick and must drop the program. Although this is what they wanted to do, they physically cannot perform well due to being seasick.

On a different occasion, Participant Seven indicated that "academically, the student performs well, but they may not be well suited to work at sea. In those cases, the marine industry (employers of work-terms) will ask that the student be removed from the vessel (for safety reasons)." This adds to the complexities the Marine Institute as an organization faces, because although they are working diligently to get people interested in a career at sea, when they have recruited individuals who are actually willing, interested and passionate about pursuing that career choice, they physically cannot perform the duties due to circumstances outside of their control, such as seasickness.

***v) School Competition and Funding*.** Universities across Canada contend with one another to recruit students into various career options and programs. From a business standpoint, schools are each other's competition." In fact, from a marketing and communications perspective at the Marine Institute, Participant Three indicated that "when it comes to student recruitment, getting kids' attention is becoming increasingly difficult." On another instance, Participant Three mentioned that

reaching prospective students, 17 to 18 year olds, can be difficult as they have a lot of options being presented to them by schools who may have more funding to "sell" careers and programs to them.

> "… it's *extremely* competitive. Every university is pumping money into getting that one student anywhere across the country into their program. Thirteen years ago, it was unheard of other universities coming to Newfoundland to target students to come to their universities and join their programs. Since the past five years, it's a regularity, with frequent open houses, invites and targeted mailings to get students to other university programs," Participant Three said.

A big challenge for the Marine Institute is the "push nature" of extreme marketing. Participant Three said that "recruiters come back and say, 'did you see what *this* university did? *Holy cow*, how do we compete with *that*?'" Based on discussions with participants, other universities across the nation are using extreme guerilla marketing tactics "to get down to that one student, that one parent or influencer, teacher, or guidance counselor, because every student is a dollar to support funding for a particular school."

Participant Three added that "you have to be strategic and tactical in how you address students these days, because you only have a limited amount of time with them." Due to the push-nature of university recruitment, the Marine Institute had to evolve, adapt and change their website to a new content management system to a level that would support their growing needs. "It streamlined information, servicing more audiences now, including future students and their parents or influencers, so it's a one-stop shop for students, parents and industry," Participant Three added. "Influencers have a lot of sway (to a student's decision to attend school), so we cater to providing information to both parties. If you got one, you got the other."

When asked whether participants thought that the Marine Institute's initiatives to recruit can be improved, Participant Six said that there is always room for improvement. Participant Three added that "I wish we had more funding, more resources. We are one person deep in a lot of our activities

here." The Marine Institute has one marketing expert, one communications person and one graphic designer – and that is after the department has grown over the last few years. During that discussion, the availability of resources, human and financial, within the Marine Institute was brought up to gain a better understanding of where it comes from and if more can be obtained to help improve recruitment initiatives. Participant Three elaborated that:

> "there is only so much money going around. The way it works is that the university gets the budget from government, the budget pocket goes to the university, then the university indicates priority areas and share money with its campuses, who shares money to the departments. It's a long way down by the time it gets here."

As stated earlier by Participant Four, since the shortage of seafarers is everyone's responsibility, participants were asked if the marine transportation industry (i.e. employers) provides funding to seafarer training schools such as the Marine Institute, as a means to help support the sustainability of the industry itself. Participant Seven indicated that the Marine Institute does not have a mechanism at this point for gaining specific industry support, but that they get "large chunks of money from Industry for upgrades to the school throughout the year." So, although funding is not provided to get more students in the door, funds are provided from time to time to help support the school in how it provides training, enhancing the quality of education offered to attract students.

vi) Knowledge Gaps and Disorders. Education or knowledge levels of prospective students is another set of complexities the Marine Institute is faced with when it comes to recruiting the right individuals for seafaring programs. Participant Four indicated that "you need science and math courses to get into these programs. Not all high schools in rural areas offer a lot of science programs, so some students don't have all the science courses required to get into these programs." This means that although prospective students may be interested in a complex and challenging career such as seafaring, not having the foundation of science and math can prevent them from

entering the post-secondary school system. This poses the question whether earlier outreach to kids in junior or high school are required, which is discussed in the following subsection of this chapter.

Over more recent years, a fairly new challenge the Marine Institute has been facing when it comes to the sustainability of students at sea, or those seeking higher education, is the fact that more students are presenting with learning disabilities or difficulties, such as dyslexia or attention deficit disorder.

Participant Seven indicated that it can be difficult to identify learning disabilities upfront because even some students make the screening process because of good academic performance. Participant Seven called the situation surrounding learning disabilities a "big challenge" for the organization because some students can do well academically, but once they are on the ships, "employers don't want them." The situation then becomes delicate when students' parents or influencers call, indicating that their child does not have a job. When asked why employers did not want students with learning difficulties or disabilities, Participant Seven cited safety reasons since there is a greater risk to record charts with wrong information which could send ships in the wrong direction, and that students with learning disabilities "cannot be on the lookout if their attention is not there."

The Marine Institute has found that "some of the areas we chat with parents about a lot, are students who are coming in with learning disabilities or learning difficulties," Participant One said. When students present with a learning disability or difficulty, the Marine Institute involves the student's parents or influencers, as they have to be very honest about potential challenges that these students may be faced with, and be a "healthy advocate for the student ... because we are both fighting for the same team," Participant One added.

When participants were asked if Transport Canada was aware of the trending learning disability cases, Participant Seven indicated that they "meet with Transport Canada's Medical Examiner periodically" on this topic, but that "they are not ready to address that, they said that this will work its way through industry." However, for those who have learning disabilities or difficulties, the Marine Institute follows students closely to ensure they are set up for success, such as being accommodated for exams and following their overall performance. Participant One indicated that "retention will never be 100 per cent, and often times, a student's best decision is to drop. It's the process of being involved and ensuring students are making an informed decision to drop."

Theme Two: Best Practices

For the purposes of this study, participants were asked a series of questions surrounding the Marine Institute's business practices that relate to student attraction, recruitment and retention efforts, or any other critical initiatives that contributed to strengthening the marine transportation workforce. To tell a wide-ranging story of the Marine Institute's various practices, the information obtained from interviews for *Theme Two: Best Practices*, was examined and organized through eight subcategories including *Keeping Current*, *Purposeful Recruitment*, *Organizational Reputation*, *Profiling*, *Community Engagement*, *Close External Relations*, *Earlier Interventions*, and *Retention*.

i) Keeping Current. Attracting students to consider a complex career at sea can be a daunting task for training organizations such as the Marine Institute. The Marine Institute has learned from previous experiences that students have high expectations and are presented with so many career choices by competition. On the topic, Participant Three indicated that the Marine Institute:

> "… has to narrow it down to get them to a marine career. Students *know* they are in the drivers' seat, and will ask, 'what are *you* (the school) going to do to get me there, where am

> I doing my career, who am I going to be working with, what salary am I going to get?' We are going through *a lot* of funnels to get them to come here."

The Marine Institute has also recognized from past experiences, that students are paying clients who expect their wants and needs to be respected. Participant Two indicated that when it comes to student attraction, they have learned that "… you have to give them good service. Students have to be well treated and if they are well treated, then they are more likely to stay."

To treat students well also means to provide them with all the necessary information to make informed decisions about schooling. Participant Six indicated that the Marine Institute has learned that enrollments are higher for programs where students can relate better or more easily with a particular career that strikes a chord with them. For example, "people like the idea of working on Remote Operated Vehicles (unoccupied underwater robots that are connected to an operator through cables), and with shows on the Discovery Channel, people have a better understanding of the line of work and capabilities required." With this being said, the Marine Institute makes sure that students' expectations are clear when it comes to the expertise required to work onboard vessels, and that there are no surprises that may lead to them dropping out of marine programs. Participant One said that to help ensure the success of students, as part of the orientation process, the Marine Institute sets clear expectations to prospective students and those going through orientation about the standard of education and what is expected in the first year, which "lays out the courses, the level of course work required and the hours of input."

Additionally, although it may seem mundane, the Marine Institute has come to understand that having modern amenities such as Internet and cellular service are factors that can sway a student's decision for considering a career at sea. Participant Six added that access to such amenities is:

> "… an expectation (to newer generations). With this type of technology, their expectation is that it is available to them at work. If you have an old fleet operating in rural or in the Arctic that do not have these amenities, it is going to be more challenging to recruit people to work on such vessels."

Participant Six added that keeping current with the digital age is important, and that modernization at the Marine Institute has helped with student interest in marine careers. Not only are modern amenities on vessels important aspects for future mariners, but so are modernized classrooms equipped with D2L, which is a learning management system that enables instructors to manage classes, accept grade and assignments online, stream lectures, and personalize learning experiences for students (Barmak, 2015). In an interview, Participant Seven indicated that the Marine Institute has adapted to the needs of students in such a way that their:

> "classrooms are smart-rooms, which are networked and equipped with computers and various types of monitors and screens. Most instructors do their lectures supported through D2L. There have been many changes over the last decade to modernize classroom learning. It's much more electronic and interactive. D2L opens up access to more electronic tools, enabling communication with students that we didn't have in the past."

In another instance, Participant Seven indicated that over recent years, instructors collectively "jumped on the bandwagon to modernize the education environment at the Marine Institute." The organization encouraged staff through dialogue to get involved with modernization processes. "Once it started, *everyone* wanted to be in those modernized rooms, so more technology and upgrades started happening," the Participant Seven continued.

With classroom and education modernization, Participant Seven indicated that the Marine Institute is making great strides in online learning, where the Marine Institute hopes to become the leader in the country. By evolving and adopting new ways of teaching, the Marine Institute is helping set the standard for online learning, getting people from all over the world to sign up for their courses. "This is what gives the Marine Institute the competitive advantage over other

schools, because not every school can invest in the type of technology to make online learning and examinations secure," Participant Seven explained. Online learning also makes it easier for the Marine Institute, because they can "incorporate multiple subject-matter experts, sources of information, and deliver it all in one place, in one package, making the coordination and delivery easier for faculty and students."

ii) Purposeful Recruitment. The Marine Institute Recruitment Office is officially responsible for the coordination and attraction of students to the Institute. For background, the Marine Institute's undergraduate recruiter targets high school students, while mature students are often reached out through career centres and university partners from across Canada, ranging from British Columbia to Newfoundland and Labrador. The Marine Institute's success as an organization depends not only on the success of their students, but also on those who are well-suited for a marine career. As such, this combination can make the Marine Institute's recruitment process with prospective students from across the nation a difficult task to accomplish. Participant One indicated that:

> "the Marine Institute is not just in the numbers game when it comes to recruitment. We aim to recruit the student who *will* succeed. Recruitment is a complex process and doing it simply to fill numbers would be a fruitless activity if you don't look for the student who will be successful."

However, when it comes to the Marine Institute's recruitment numbers, they are diverse, in the sense that "the Marine Institute not only looks at the number of first year admits or new intakes, but also the second plus years' retention. The goal is to sustain the Marine Institute's four year enrollment numbers (i.e. graduating students), not just first year enrollment," Participant One commented. Participant One explained that there is no point in setting unrealistic numbers if the school cannot accommodate all the students. For instance:

> "in terms of enrollment projection, obviously the recruitment goals have to match our enrollment goals, and those enrollment goals are set institutionally. So, I'm not going to work in isolation and say how many people we need to get in a specific program. That is what makes the recruitment office really engaged in the process, because when those enrollment goals are set, we are able to set our recruitment goals," Participant One added.

Therefore, although there is a growing need for qualified mariners in the marine transportation industry, the Marine Institute can only work at a particular capacity to accommodate new entrants. Their goal is to keep students interested in a marine career, and more importantly, help them be successful throughout their education journey of four-years and beyond.

iii) Organizational Reputation. With serious competition amongst universities and marine training organizations across Canada, what sets the Marine Institute apart from the other organizations to sustain their recruitment initiatives is their distinguished status. Participant Four said that "what we (the Marine Institute) have going for us is our reputation. The Marine Institute is known world-wide for what we do, we are very specialized in marine and fisheries (programs), that's what we do."

The Marine Institute's recruitment office is responsible to recruit for its complex and diverse programs for seafarers, ranging from technical certificates to masters degrees. Participant Three indicated that:

> "our strengths (to recruit) have always been our nautical marine engineering programs because of the calibre of people, the history we have - the years and years of history of producing top quality students - and also the word of mouth about that, especially in Newfoundland. *That* is remarkable. If we ever lost that strong word-of-mouth, I would say we would be in serious trouble."

Therefore, although competing schools may have more funding to attract students through elaborative marketing initiatives, an organization's respectable reputation and word-of-mouth

referrals can leverage student attraction and recruitment activities. This is one factor that sets the Marine Institute apart from competing organizations. Participant Three added that:

> "the Marine Institute keeps word-of mouth-going through 'storytelling' through our *Bridge Magazine*, news stories on our website, as well as partners putting content on their websites (i.e. government and Industry), leading to free advertising. Stories highlight how students were once 'green behind the ears' when they walked in, and how they walk out with fantastic careers at sea."

iv) Profiling. When participants were asked what tactics they use to attract the right students for marine careers, it became apparent that the Marine Institute strategically "tells stories," or profiles graduated students as success cases. Based on previous successful storytelling initiatives, these profile stories have now become part of the Marine Institute's recruitment materials. The Marine Institute's marketing and communications team has adapted to be more proactive in telling the organization's stories compared to years ago, which have evolved based on working together with the recruitment office. "Before it was very reactive, asking the media if they wanted to do a story. Now it has changed, we started our own magazine in 2003-04, where we tell our own stories proactively," Participant Three explained.

However, the Marine Institute drills down even further to specific markets when telling their stories, customizing content to particular audiences. For example, students who were recruited originally from Ontario will be profiled in the Ontario market, students originally recruited from British Columbia will be profiled in the British Columbia market, Newfoundlanders in the Newfoundland market, and so on. The Marine Institute has learned that students appear to be interested in learning more about individuals that they can relate to, as such, their storytelling initiatives are customized to reach particular groups of students.

As a result of successful outcomes, telling and re-telling of stories have become an effective tactic as part of recruitment activities to the point where marine industry wanted to join in on the

momentum. For example, partners in the marine industry began sharing in the Marine Institute's storytelling process in efforts to reach more prospective students to join mariner programs. Participant Three further explained that the marine industry is publishing the Marine Institute success stories in their national newsletters. When asked why the process of storytelling was so successful, Participant One said that using student profiles as part of recruitment materials make a big difference in recruiting because students are able to relate to a particular profile. Parents or influencers are often the ones who care about the world-class, credible programs that meet industry standards, but by using customized profiling, students become more engaged and connect with the individual that is being profiled.

> "Students really need to see what they are going to do," Participant One said. "We have often used alumni in our recruitment materials, so if we are going to a certain home town, and we know an alumni is in that community, we bring that alumni in the presentation with us because realistically, they are the faces of success, they are why our programs work."

Based on the outcome of discussions, a barrier that was uncovered related to the unfortunate situation where society has a misperception about a career at sea, and that one major reason is that being a mariner has traditionally been viewed as a career in a male dominated industry.

When participants were asked if the organization has other targeted outreach initiatives to change that perception, Participant One mentioned that over the last five years (2009-2013 and onward), the Marine Institute has been trying to get more women in the door. Although the end result was the same, to profile more females, the positions for why females are included in recruitment campaigns varied slightly. "They are *fantastic* people in industry," Participant Three said. It was brought forward by Participant One that based on previous experiences, the Marine Institute has purposefully begun profiling really *productive* female students as a recruitment effort.

> "Including women is not with *intent* to put out a campaign targeting females, but it is really about logically including a diverse set of profiles that would allow people from a variety of

> different backgrounds, women included, to be really attuned to the opportunity that they can have as being a mariner. It enables these individuals to visualize or attempt to see themselves in similar roles," Participant One added.

In another instance, Participant One said that "the goal is to highlight that it is a reality that women can be mariners, and not *only* a mariner, but a really, really *good* mariner. They can't just do the job, but they do the job *very* well *and* enjoy the job!"

Additionally, during events, such as *Oil and Gas Week* in Newfoundland and Labrador, an awareness week held collaboratively with marine transportation industry partners, exceptional students, some of whom are female, are often used as guest speakers to motivate prospective students to consider a career at sea. Participant Three added that industry is working harder to address accommodating women on ships, in the sleep quarters, etc., because they want to showcase females who are working in the industry and who can do it well.

Since parents and influencers are invested in their children's career options, profiling females as productive and successful mariners helps with the recruitment process. Participant Three indicated that "if parents come in and say their daughter wants to go on a tanker ship, how can she be accommodated, we can now point to sample employers who can accommodate women. This is how we get the message down to the grassroots level."

v) Community Engagement. As part of the interview questions, participants were asked about engagement activities of the organization, and who holds the responsibility for engaging the public in marine career options. The answer to that question sounded loud and clear, which was that *everyone* at the Marine Institute is responsible for engagement, whether it's indirectly or directly in their day-to-day duties.

When asked to describe engagement initiatives, Participant Four said that at the Marine Institute, engagement involves relationships with external agencies, such as industry, government, community groups, and more. A big emphasis during discussions was placed on relationship-building in and outside the organization, collaboration, and also significant work with aboriginal groups. With that comes a lot of face-to-face, in-person interaction, despite the digital age we live in today.

> "Face-to-face relationship building has been a constant at the Marine Institute for over 26 years. You gotta go *there* (in person). There is a place for flashy print materials and brochures and websites, but it's all about relationship building, and *that* is personal. You have to get to know the people. You need to know who is responsible for what, and spend a lot of time with them, and that is what makes a difference," Participant Four explained.

Furthermore, to help combat the challenge surrounding the lack of employees required to come into the marine transportation sector, the Marine Institute has recognized from experience that there is an opportunity to work closely with aboriginal groups to do training for those who go work onboard vessels. "We have very strong relationships with aboriginal communities," Participant One said, "and a lot of success" Participant Four added. In another instance, Participant Four mentioned that:

> "There is no cookie cutter approach to engaging people and organizations to become interested in a career at sea. It is very dependent on the organization you are working with, and it really comes down to strong relationships."

The Marine Institute's recruitment office also leverages the capital of one of their staff members who has strong relationships with aboriginal communities. The Marine Institute does a lot of engagement activities and relationship building in Nunavut and Labrador, as well as other parts in Canada, and using the strong ties the Marine Institute's staff has with aboriginals "… gives the Marine Institute the foyer to connect with the elders and influencers of prospective aboriginal students," Participant One said. On this topic, Participant Four mentioned that "we make it our

business to foster *good* relationships, and we know aboriginal groups very well, we know their priorities, so that their objectives can be met."

Participant Four gave the example of "land claim" agreements, and how the Marine Institute use that as a means to know their audiences' needs. A "land claim" agreement is a type of aboriginal claim in Canada that deals with uncompleted business of treaty-making, often arising in areas within Canada where aboriginal land rights have not been dealt with by past treaties or through legal matters. In these instances, modernized treaties are negotiated between the aboriginal group, Canada and the province/territory ("Land Claims," 2015). As such, through collaboration and discussions with one another, the Marine Institute makes it their business to know what aboriginal groups' priorities are for economic development. "If there is interest in the fisheries and marine transportation side, we make *sure* they know about our services, so that they know who to turn to (for training, programs, and research)," Participant Four said in an interview. In another instance, Participant Four added that the Marine Institute actually goes into aboriginal communities to engage them and deliver personalized training there if people cannot come to the Marine Institute for training, underlining how flexible the Marine Institute has to be.

When asked if the Marine Institute was satisfied with their engagement and recruitment efforts, the importance of intimately knowing audiences' needs was highlighted as being a top priority.

> "There is always room for improvement; nobody is perfect. For our core industries that we serve and our mandate, we do a pretty good job. Our industry knows us well, and we know them well," Participant Four said confidently.

vi) Close External Relations. In addition to working closely with community partners such as aboriginal groups, the Marine Institute has very close business relationships with industry partners, parents or influencers of students, and university partners, all of which are critical to successfully recruiting students for mariner careers.

To help gauge the level of involvement and collaboration from industry, Participant Four said that the Marine Institute works closely with industry in a number of ways to plan for filling future vacancies. Some examples of industry's collaboration with the Marine Institute include ongoing work on an Industry Advisory Board and an Industry Advisory Committee, where various programs are discussed in detail and reviewed annually or semi-annually, every two to three years. This process helps industry partners provide input to discussions surrounding future planning for mariners, providing advice to the Marine Institute surrounding strategic issues, including recruitment issues. On this topic, Participant Seven indicated that based on previous Industry Advisory Meetings, industry members will return to the Marine Institute and provide feedback based on what is working well, and what is not. "They will give feedback based on differences they saw in students' performance from previous years, good or bad. They let us know if what we are doing makes sense, if they are doing a good job, if either of us are missing out on opportunities, and how programs can be improved," Participant Seven elaborated.

The importance of collaboration between industry partners, government and the Marine Institute as a training organization was highlighted as discussions with participants continued. For example, "industry's role is to educate the public on why marine transportation is an important part of the economy. Once that message is out there, and when people are interested in marine transportation, the Marine Institute's role comes in to help people enter into those careers," Participant Three explained. The Marine Institute has learned from previous experiences that a tactic that helps students enter into seafaring careers is to include "influencers" in the recruitment and orientation activities of the organization. An "influencer" was described by Participant One as a parent, a spouse, a grandparent, siblings, cousins, or whomever is influencing the student's decision of taking on post-secondary education. Participant One elaborated and said:

> "It is everyone's process, not just their (the student's) process of making the decision to take on post-secondary education, or a mature student making the transition from one educational institution to another."

As such, engaging students and their influencers helps ensure successful enrollments and transitions to the Marine Institute. Participant One added that the Marine Institute has identified parents or influencers as being very much part of the recruitment process based on discussions within their teams. "The amount of contact parents and influencers have with the Marine Institute during the recruitment process is critical. Connecting these individuals with the information they need helps build healthy relationships." Participant One elaborated on the topic, and pointed out that influencers are so critical to the recruitment process that they are included in family orientation and tours of the facility.

> "Our Vice President actually takes his key and walks people around. Influencers know exactly who to ask the important questions to. Building strong, *personal* relationships with students and their influencers is a top priority for the Marine Institute. This process has been a very effective tool," Participant One said.

When it comes to offering students a robust career at sea, healthy relations between the Marine Institute and industry partners are required to facilitate successful work-terms for students. The Marine Institute is a conduit to industry, serving 30 to 40 employers in the industry through co-op programs. Participant Six indicated that the Marine Institute acts "as a contact point for students and alumni to employers in the marine sector. Students keep coming back to seek higher education and complete needed training. So they don't just leave and say goodbye, I'll never see you again." While on this topic, the recurring theme of in-person, face-to-face relations came up again. "The Marine Institute goes and speaks with students in person regarding work-term placements. They usually (employers) interview students in-person, on campus," Participant Six said, because in-

person contact is important when it comes to student interaction and setting them up for successful careers.

Since Newfoundland and Labrador has a declining demographic, the Marine Institute has to recruit students from across the nation, which translates into the need to have good relationships with other universities. Based on previous experiences, the Marine Institute has found that although there is tough competition amongst schools to recruit students, networking with university partners and informing them about the Marine Institute's programs is very critical to the recruitment process. A benefit to the Marine Institute's programs is that they are very career specific, especially for careers at sea. Participant One indicated that "this is how the Marine Institute acknowledges an option for a student who have interest in a career at sea, because many university students often consider switching to a different program as their interests change or matures." Therefore, having strong relationships with other universities is essential for recruitment at the Marine Institute because if a student decides to switch programs, a referral can come from other universities.

***vii) Earlier Interventions*.** To enter into Marine Institute programs, one requires a science and math background; as such, the organization has found that reaching out to young people earlier in efforts to help them better prepare for considering marine careers has been a fruitful experience. For example, during interviews, individuals were asked whether earlier interventions are needed as part of the Marine Institute's recruitment efforts. Participant One indicated that:

> "it's been interesting to watch the school system in Newfoundland and Labrador. One of the things we have attempted to do here is to connect with students as they are making decisions around what courses to take in high school. If they don't pick the academic route as early as in Grade 9, they are unlikely to be able to further their post-secondary studies (for marine careers). So that is a very early decision that is not career specific, but is purely academic. We are encouraging students to do the highest level of math and science they can, encouraging (them) to really be active and acknowledging that they need to be doing these courses if they would like to make a successful forte in post-secondary."

Due to the geographical spread of Newfoundland and Labrador, courses that are available in city high schools may not be available in rural parts of the province. As such, students in rural areas are often encouraged to study math and science courses via distance, which has been a fairly new arrangement through the Department of Education in recent years.

Additionally, in an interview, Participant One indicated that the Marine Institute does what is referred to as *seed planting* with young people, where they attempt to connect with high school students where career courses are offered in the school systems. In fact, Participant One added that since 2008, at the change of leadership in the Marine Institute's recruitment office, their outreach to high schools for career presentations has actually been solidified through consistent contact and relationship building. "Schools have been responsive to our presentations because we give students insight into what careers at sea will look like, and the programs offered at the Marine Institute that will be able to lead them there," Participant One added. The Marine Institute is also able to reach rural students with their career presentations. "No one is disadvantaged by the opportunities … and we are able to follow-up with students via e-mail and Skype. If there is just one student in a rural area who is interested in a career at sea … we are able to still implement that face-to-face relationship with students" Participant One said.

The Marine Institute measures their success of the outcome of their visits with junior high and high schools by encouraging students to fill out contact cards and most importantly, with the relationships that have been formed. Participant One indicated that as relationships mature, the Marine Institute sees some of the same teachers and schools requesting career presentations over time. "If we see that same teacher and same school come back after three years, obviously we are maturing a relationship with that specific contact; we obviously met some need that they have."

Contact cards from career presentations are tracked and logged by the organization, where mail-outs and further outreach to those students would come from those contact cards.

Additionally, to make young people more aware of career opportunities at sea, an alternative way of how the Marine Institute reaches out to them is by offering summer camps. For example, Participant Four indicated the Marine Institute offers a Remote Operating Vehicle (ROV) program to get young people interested in career opportunities earlier on in life. "We are looking at trying to initiative a ROV program in one or two aboriginal communities in Labrador to get students and kids involved in ROV competitions, and make them aware of the career opportunities." Participant Four added that "there is *always* a need (for more outreach and younger ages), you can't do too much of it. One of our challenges is that students or prospective students are bombarded with universities and companies to 'promote their widgets' for the simple reason that there are great career opportunities out there." Participant Four indicated that based on discussions, they have found that changing the image of a career at sea in a young person's mind is one of their ongoing challenges:

> "there is a *need* to explain the industry to young people since it has changed so much over the years. It used to be that a career at sea was meant for a man, not a woman. The image used to be rusty oil bucket that is floating on the ocean, but now if you go on-board tankers and supply vessels, they look like floating hotels with your own washroom and a common lounge area. I've been on board the tankers, you got to take off your shoes to go into the lounge, and they won't allow you to go in with your shoes on."

viii) Retention. When asked if the Marine Institute conducted exit surveys with students who have decided to leave a seafaring program, Participant One said that they have been thinking and talking about exit mortality rates as a means of gaining feedback from students who have dropped out. However, the consensus from collaboration and discussions with staff was that conducting surveys of this nature may not always get the type of information organizations such as the Marine Institute requires to make more meaningful changes. Participant One said that:

> "Hindsight is sometimes 20-20 if it's honest feedback, but often times mortality rates are not effective if students are telling you what you *want* to hear. To be effective, the Marine Institute would really have to go down and look at the number of students who dropped not out of academic nature, but also those who had issues on work-terms. An exit survey may not get down to the root cause."

Although the Marine Institute was currently working on what they wished to report on for retention purposes in 2013, they had other means of gaining feedback from students before they decided to drop out of a program. Aside from issues such as medical clearance, seasickness, and learning disabilities as discussed earlier in this chapter, participants were asked what other common reasons for dropping out of mariner programs were. Participant One said that the most common reason is "academic difficulty." When asked if the Marine Institute had any plans in place to check on students' progress throughout the term, Participant One elaborated by saying that at approximately four to six weeks for first year students, the Marine Institute schedules a faculty advisory meeting before the last day to drop classes in the first term, a process mandated by the Marine Institute. During this process, "faculty advisors are able to deal with various situations, advise on academic issues," and refer students to supports where necessary, Participant One added.

In another instance, Participant One indicated that the Marine Institute is very proactive when it comes to retention before it's too late. For example, every program at the Marine Institute has a program chair, who is "integral in identifying students who may be at risk or in trouble," Participant One said. If students are having trouble with courses, and if the chair considers it critical, the Marine Institute *will* follow-up with a phone call to the student to explore issues that can be intervened on. Participant One also indicated that Transport Canada has a requirement of the Marine Institute to have an attendance policy for its programs. Through this protocol, the Marine Institute can also proactively follow-up with students who are missing classes to determine why, and assist them with putting a plan in place for resources and supports.

When participants were asked if they felt the checks and balances they had in place to retain students were meeting industry needs, Participant Five concluded that segment of the interview with "I think the system we have in place identifies and would identify pretty *quickly* if we were not meeting industry needs. We work pretty tightly with industry."

Theme Three: Securing a Future for Marine Transportation

During interviews, participants were asked to speak to the organization's various efforts to plan for the future and their work underway to help strengthen the marine transportation workforce. *Theme Three: Securing a Future for Marine Transportation,* has been organized into four subcategories, including *Social Responsibility and Safety*, *Planning*, *Quality Control*, and *Learning*.

i) Social Responsibility and Safety. Although the university recruitment climate is very competitive amongst schools, as a training institute, the Marine Institute has an advantage over other education facilities due to the type of marine programming that they offer. "If you are going into a marine career, look to us, because we are seen as a leader with industry in Canada, accredited by Transport Canada," Participant Three said. The Marine Institute is very unique in terms of the breadth of programs offered around the oceans. Nautical Science and Marine Engineering are the primary programs that train seafarers at the Marine Institute. "In connection to all of Canada, we are the largest most comprehensive school for the marine industries," Participant Three explained. Holding that standard, also comes with a large and complex accountability - a social responsibility – and that is to produce qualified seafarers to help sustain the marine transportation industry.

The Marine Institute places students in work-terms to help them gain real-world experience. As a way of adapting to industry needs to produce more qualified seafarers, the process of placing students into work-terms has become more formalized over the years. Employers (industry) are

placing a bigger emphasis now on giving students work experience "as a way to groom them upon graduation for hire," Participant Six explained. "Some of the top employers are investing more time and effort into recruiting (students for work-terms), knowing that the students today are their officers and managers of the future," Participant Six added. However, the marine transportation industry has a social responsibility to the Marine Institute as well; it goes both ways. The marine transportation industry is very supportive of working with the Marine Institute to help students gain experience, Participant Three explained that not only does the school meet a Transport Canada requirement for sea-time by having these partnerships in place, but that it is also:

> "a social responsibility for industry to assist the school (to place students to get experience). It's the benefit to the province and to the country of training people generally and having a workforce ready. So it's part of our human resources strategy I would argue."

However, the situation for the Marine Institute gets more complex. Participant Six explained that Transport Canada has rigid regulations, and coupling that with sea-time and vessel tonnage requirements for students to be able to safely sail out, the Marine Institute has to continuously adapt its work-term placement options with their established employer base. If the Marine Institute does not keep up with the required changes, they would not be able to provide the appropriate training environments for students to graduate with all essential requirements established by the Federal Government and industry leaders. "The Marine Institute constantly monitors regulations, because we need to adapt and change our efforts to meet requirements," Participant Six added. "Change is constant at the Marine Institute. The biggest impact to our marine students is the changes to Transport Canada certification requirements," Participant Five added. Furthermore, Participant Five also explained that "Transport Canada has strict guidelines in what it is they want us to teach." Participant Six explained that the offshore growth in the oil and gas sector has created or enhanced a safety culture in the industry, setting a standard for the industry across the board. Increased safety

means new teachings and continuous change and collaboration. When it comes to change, "we (the Marine Institute) are really an action-oriented institute," Participant One said. The Marine Institute has "added programs to our curriculum to accommodate new regulatory amendments and requirements, Participant Seven added.

Participant One pointed out that with change being constant, it forces the Marine Institute to continuously work together with one another to adapt its efforts to meet strict requirements; however, the Marine Institute has to be strategic to what they are reacting to.

> "It is one thing to be reactionary to everything, and it is one thing to being strategic to what you are reacting to. It's impossible to be reactionary to everything in the market that changes. We have to be really strategic and smart about how we monitor and how we react to certain industry demands, community demands, student demands, because things are changing all of the time. One thing that the Marine Institute is really good at is being very inclusive when it comes to decision-making; its part and parcel of strategic planning," Participant One added.

ii) Planning. Based on their strategic plan, *Vision 2020*, the Marine Institute's vision is to be a world oceans institute that sets the standard for education training and research (Fisheries and Marine Institute of Memorial University of Newfoundland, 2010), where the goal is for Newfoundland and Labrador to be very prominent in the oceans economy. When it comes to planning for the future as an institution, Participant Two noted that at the Marine Institute, "the conditions for success include all of the infrastructure, people and processes. So that means, buildings, people HR department, etc."

The Marine Institute is a member of the *Society of College and University Planning*, an American organization whose members are higher education leaders that hold the responsibility of integrated strategic planning on their campuses. Integrated strategic planning essentially engages all of the institute, such as academic affairs, student affairs, finance, communications, business development, faculty, students, external partners, and more ("Society of College and University

Planning.") Participant Two added that the Marine Institute is a leader when it comes to planning. "We have not found any organization which are close to us" when it comes to planning. In another instance, Participant Two explained that as a leader in planning, the Marine Institute has even presented their Strategic Plan, *Vision 2020*, to other schools, sharing and showcasing how they perform comprehensive planning and quality oversight processes.

Due to the complex nature of mariner careers, planning is essential to secure a future and qualified marine transportation workforce. Planning at the Marine Institute takes place on an annual basis, where during April to June of every year, school units within the Marine Institute have retreats and planning workshops to review and discuss the year that has passed, look at the strategic plan, what the Marine Institute intends to do or implement, and work together on plans about how they are going to carry out initiatives the following year. When it comes to strategic planning, "*everyone* is involved" in the process, Participant Two explained. Each of the schools during retreats identify their own priority areas, and the Marine Institute considers content to put forward in the August planning session.

In August, the Marine Institute takes the results from all school units' planning workshops in a strategic planning workshop, where "about 55 people are involved in the strategic planning workshop," ranging from managers, academic leaders, chairs of programs, senior faculty, and so on, Participant Two added. "Changes at the Marine Institute are based on evidence, and changes are planned. If you don't have a vision of what you want to do, you start to drift off," Participant Two said. As part of the August planning session, the Marine Institute looks at where the organization has been for the past year, and the overall vision and goals for the organization, and builds a plan for the following year based on the content put forward that came from earlier discussions. In the fall, the Marine Institute's executive committee and senior managers then use the insights gained to

make adjustments and allocations in their budget to identified priority areas. "There is acknowledgement of including staff into the process, because usually when you are involved, you start to find value in the process," Participant One said. "We report back to the organization so that everyone gets a chance to hear what is happening," Participant Two added.

iii) Quality Control. Due to diverse industry needs for marine programming and training, the Marine Institute has adopted International Standards Organization (ISO) standards, more commonly known as a quality management system. More specifically, the Marine Institute is registered to ISO-9001, which is set by the *Canadian Standards Association* and is recognized internationally. Participant Five indicated that having an internationally recognized quality standard sets the Marine Institute apart from other universities. "We are one of two or three other post-secondary institutions in Canada that is registered to this standard," Participant Five said.

Essentially, this extensive quality management system controls what processes and procedures the Marine Institute uses for programs and training, and it ensures that the Marine Institute can demonstrate what they said they did, as part of regular auditing processes that help ensure compliance to quality. Additionally, this quality management system is externally registered, giving the Marine Institute "the discipline to maintain a high standard in education. Not many education institutions have that discipline," Participant Five added. The process to obtain such an extensive quality management system was first initiated in 1995, and officially registered in 2001 following in-depth collaboration and training with staff at the Marine Institute. The Marine Institute's initiative to adopt ISO-9001 was as a result of the marine transportation industry's changing needs; the industry required the Marine Institute to have a strong quality management system in place for a specific project in order to do business. So, if there are major changes in industry, the Marine Institute must continuously adapt to meet the needs of the clients they serve.

When it comes to checking for quality control, the Marine Institute is audited seven times a year, every three years. Additionally, the Marine Institute also has internal auditing processes, which occurs every six months of every area within the Marine Institute. Then, as explained by Participant Five, the Marine Institute is also audited by Transport Canada every five years, who looks at the overall quality management system, program and procedures, and they speak with individual faculty members asking them to match every learning objective with either a text book, PowerPoint or other teaching tools they have, and evaluate it. This tells Transport Canada what the Marine Institute is doing to demonstrate they are meeting objectives Participant Five explained.

"The management team at the Marine Institute are fantastic here. We are at ten years now, so have a very mature quality management system," Participant Five said proudly. Since everyone at the Marine Institute shares the same responsibilities of recruitment and providing quality education, all information about the Marine Institute's quality management system, including the procedures for each department or program area, is housed on their Intranet, accessible to all staff, faculty and management.

As a requirement of the quality management system the Marine Institute has in place, they have to perform a management review of the system, "which is everything (we do)," Participant Five said. "The Marine Institute has to have objectives in place, and show evidence that we are meeting the objectives. One of our objectives is to ensure effective learning opportunities for the Marine Institute as an organization, which is relevant in today's ocean industry," Participant Five added. To ensure effective learning opportunities, the Marine Institute gains feedback from students based on their course appraisals. As part of this process, all feedback obtained from students gets tabulated, where every instructor has an opportunity to see the feedback. Participant Five explained that the data obtained gets captured and summarized by program area and year of study, which is

communicated to the program chair. The Marine Institute does a management review twice a year, so this feedback is discussed in detail among staff at the meeting. The Marine Institute's target is to score 80 per cent on all questions, and anything less than that is red flagged and investigated.

***iv) Learning*.** In an attempt to better understand how the Marine Institute learns as an organization, Participant Four said that "internally, we follow our own processes and do business cases to measure if we are doing everything we are supposed to do, and if we *are* doing the right things, what is effective, and what is not." The details of this information, however, "is not published as that is competitive intelligence from within," Participant Four elaborated.

As a means to learn from lived experiences, the Marine Institute also provides feedback sessions or evaluations to students at different points in time in students' education careers, as well as with the Marine Institute staff and members of the marine transportation industry. Participant Six said that the Marine Institute learns to adjust and shape their programs and processes based on input from industry, feedback gathered from students and other sources. "We meet about it, and evaluate it," Participant Six added. The Marine Institute also learns from feedback gained based on students' experiences on board vessels or work-terms with employers. "Every time a student returns from a work-term, they have an evaluation form that is completed on the student's progress."

Participant Five indicated that sometimes, new students present to the Marine Institute believing that they are academically prepared for entering marine-related study programs, when in reality, do not have the necessary math and science backgrounds or readiness. Based on feedback and evaluations from previous lived experiences, the Marine Institute has put tools online like math samples for students to practice, "we've put into place a help centre, a writing centre, and a faculty advisory program … if you have an issue, there is no trouble getting help," Participant Five added.

Feedback on Work-terms. In an interview, Participant Six said that the Marine Institute gains feedback on work-term experiences directly from students in the form of a debriefing form. This is part of the Marine Institute's quality management objectives. When asked about the details that came out of the evaluation results, Participant Six added that the evaluation feedback itself was classified information, "it is internal and is documented and reviewed periodically." Participant Five added that:

> "Course evaluations is a tool the Marine Institute uses to get feedback from students every year, every course, every term. Each question provides the Marine Institute with a percentage of how they performed. If an area is scoring consistently below 80 per cent, the Marine Institute breaks the data down and put accommodations in place."

When asked about trending statistics around student work-term placements, Participant Five said that student placement rates are also tracked and evaluated. Participant Five explained that if the objective number of required new students for a program are not met, then the Marine Institute investigates the program to see why the numbers may be trending a certain way. This is one way the Marine Institute can better understand and learn whether at the crux of it all, it is an industry-related issue, or a Marine Institute-related program issue that may be trending numbers a certain way. Participant Six added that the details of these discussions are also strictly internal information, but that the fact remains that the Marine Institute learns through consistent evaluation and feedback mechanisms that they have in place from students, with industry and between employees.

Feedback after First Year. When it comes to recruitment evaluation, the Marine Institute learns from students by gaining their feedback after they have completed their first year of studies. "The essence of recruitment is not only to look at graduate success, but to ask questions such as 'how did they make the logical decisions to come to the Marine Institute?' Using that feedback when going back to those areas to recruit is very valuable," Participant One explained.

Feedback from Staff. The Marine Institute's recruitment office learns from feedback obtained from staff in informal ways, meaning, not necessarily through physical evaluations, but from face-to-face collaborations and reflections, stemming from their ability to create and build strong relationships with faculty and with one another. Participant One said that changes in programs came from listening to faculty and engaging different departments. For example, when it comes to trying to better understand student mortality rates:

> "we simply asked the question to faculty, the registrar's office and retention office *several* times, '*how* many leave the program and *why*?' At the Marine Institute, all departments work in partnership to achieve a common goal," Participant One added.

When asked why there is not a formal evaluation for faculty or staff to obtain feedback, Participant One indicated that learning to change or to improve takes time, adding that:

> "I think you can do a good job, but there is always trying to constantly improve. We have moved from relationship building to building practice from what we have learned, and to really *formalizing* some of those relationships with partners. There is a fine line between overburdening process and engaging effective practice."

Feedback from Industry. As a means of learning, the Marine Institute works at different levels with the marine transportation industry to determine their future needs. Participant Three indicated that most of the Marine Institute programs have advisory committees bringing people and expertise from industry, both nationally and locally. Participant Three elaborated by saying that:

> "Those people (industry) meet with us regularly. We say, 'ok, you've *seen* our curriculum, you've *seen* our students when they come out of work-term, you *see* them when they graduate.' And we ask, '*what's* happening in industry?' We plug all that together and ask 'Are we *still* ahead of the game? Are we maintaining standards? Is there somewhere where we *need* to improve?' They tell us that on a regular basis."

The marine industry also provides feedback to the Marine Institute through core evaluation forms on individual students following work-terms. Participant Seven explained that if industry had several students from one class who did not have knowledge in a particular area, that feedback will

be provided so that changes can be made for the very next round of students. Due to the close relationship the Marine Institute holds with its industry partners, "if there are real problems, it's a phone call (from industry), they'll let us know if there are issues," Participant Seven added.

Chapter Summary:

Chapter Four explored the findings of interview data, obtained from in-depth, semi-structured interviews with seven content experts of the Marine Institute. The study findings revealed three primary themes, with *Theme One*: *Resistance to Having a Career at Sea*, including six subcategories that bundled related issues, challenges and mitigation actions together. *Theme Two*: *Best Practices,* subcategorizes eight sections regarding the various initiatives the Marine Institute undertakes to engage and recruit future mariners. *Theme Three*: *Securing a Future for Marine Transportation*, is accompanied by four subcategories exploring the organization's efforts to be resourceful and help strengthen the marine transportation industry's future workforce.

Chapter Five addresses four research questions, and provides a discussion of the study's findings using Sandine's (1996) organizational learning theory, a practical model to interpret the phenomenon of organizational learning and the processes by which organizations learn.

CHAPTER FIVE: DISCUSSION

The findings delineated in *Chapter Four* revealed three primary themes and a number of interesting subthemes that emerged from interview discussions surrounding how the Marine Institute learns and adapts to its continuously changing and complex environment. However, the information require examination through a theoretical perspective in order to relate them back to organizational communication and learning. As such, the findings of this case study are discussed in relation to Sandine's (1996) organizational learning model which contributes to a better understanding of the occurrence of organizational learning, and how it inspires change in organizations. The research questions below are discussed using information drawn from nine subthemes contained within the case study's three primary themes.

RQ1. The first research question asked how has the Marine Institute learned as an organization to adapt to the labour shortages of qualified mariners. To better understand how the Marine Institute learns or attempts to learn, participants identified many of what Sandine (1996) refers to as features of learning, which includes collaboration, looking at evidence-based practice, evaluating previous experiences, monitoring the environment, brain storming, making sense of information, listening to each other, engaging in informal interactions, having discussions through meetings and workshops, and through various evaluation and feedback mechanisms the organization has in place.

From interview discussions, participants also indicated that the organization learns to adjust and shape its programs and processes based on input and discussions with the marine industry, students, and other sources. As referenced in *Theme Three: Securing a Future for Marine Transportation*, under the subtheme, *Learning*, employee groups meet about feedback received and evaluate the feedback in efforts to make changes or enhancements. Furthermore, *Theme Two: Best Practices*, under the subtheme, *Close External Relations*, highlights how the Marine Institute works with

marine transportation industry partners to determine future needs for mariners. This collaboration between the Marine Institute and their industry partners brings people from various backgrounds and areas of expertise together both nationally and locally, to discuss, evaluate and problem solve in efforts to improve where necessary. Although many of these features of learning seem to occur naturally and automatically at the Marine Institute, they can examined by using Sandine's (1996) organizational learning model.

Sandine's (1996) model includes three communicative processes that appear to be constitutive of learning organizations, including collective thinking processes, reflection on past action, made possible through dialogue. The dialogue process acts as the central feature, because without dialogue, neither collective thinking nor reflection process would be of much value if operating alone. Consequently, Sandine (1996) presents his model as communicative processes working together in a recursive cycle of learning.

Collective thinking. Sandine (1996) writes that collective thinking is a process where individuals with differentiated areas of expertise combine their knowledge to produce outcomes they could otherwise not have produced only by themselves. Take for instance the process of the Marine Institute meeting with their industry partners on advisory committee meetings. These meetings bring various areas of expertise to the group, who each have their individual knowledge and understanding of issues. The knowledge and understanding of individuals can then be assimilated with contributions from other members in the group. During this process, a sense of understanding is generated which is facilitated through dialogue between individuals, but understanding is only achieved through reflection.

Reflection. Sandine (1996) describes the reflection process as looking back on past actions that promotes the creation of new action based on that insight, where *further* action and observation of

the consequences then generates new insight. Sandine (1996) points out that this process is suggestive of John Dewey's (1910) description of reflective thinking, where individuals realize new information, create new action based on that insight, take new action, and then gain further insight by observing the consequences of that action. An example at the Marine Institute of such a reflection process includes the following scenario.

Based on unfavourable outcomes of a particular marine co-op program, the Marine Institute had to consider restructuring student work-terms based on feedback received in efforts to improve the experience for co-op employers and for the greater benefit of students. Students in their first and second year of study, as part of a three year program, finished their course work at exactly the same time of year – in the summer. This translated into all of the students being available for work-terms in the summer, but it also meant that students were not available for work-terms in the fall or winter. As a result, the Marine Institute changed their work-terms structure to meet the marine industry needs for co-op students, and it made it easier for the Marine Institute to place students with employers throughout the year, instead of trying to find employment for all of the students in one season. Following this action, and based on more feedback, observation and new insights gained, the Marine Institute had to make further changes to improve matters even more, because what they have found was that students who were placed in the winter seasons had more difficulty with seasickness especially in the offshore areas where the environment is less hospitable. As such, to ensure students could obtain their sea-time requirements, the Marine Institute restructured the work-terms again for the first and second year programs by alternating them instead.

In this scenario, the unfavourable outcomes as described above, acted as what Sandine (1996) refers to as the new information that was received through feedback mechanisms. Based on that insight, the Marine Institute took action to restructure the work-term in efforts to improve. The

Marine Institute then gained further insight by observing the consequences of that action, and based on new insight gained, created new action to restructure the program again, which resulted in the alternation of work-terms for first and second year students.

However, Sandine (1996) notes that productive reflection cannot be assumed, pointing out Kofman and Senge's (1993) identification of reactiveness and complications associated with organizations always being reactive to changes in their environments. For example, organizations that react to issues as their principal response strategy may find it challenging to learn, since the organization is looking for ways to make problems go away, rather than bringing forward new knowledge.

In an interview, Participant One at the Marine Institute indicated that with change being constant, it forces individuals to continuously work together to adapt their behaviours. However, Participant One stated that the organization cannot be reactionary to everything as the market changes, and that as an organization, they have to carefully react to continuous change, industry demands, community demands, and student demands through knowledgeable decision-making and strategic planning. Sandine (1996) notes that the reflection process help combat the problem of reactiveness in organizations, where he clarifies that learning is less about solving problems and more about testing and creating a higher order methods and tools. Furthermore, Sandine (1996) explains that both reflection and collective thinking processes are significant tools that enable the creation of new knowledge and adapting organizational behaviour, and that dialogue can improve the likelihood of successful reflection and collective thinking.

Dialogue. In his model, Sandine (1996) describes the dialogue process as the hub which facilitates both collective thinking and reflection processes, and what Isaacs (1993) defines as a process where people slowly suspend their defensive interactions. Sandine (1996) suggests that as a

result, the nature as well as the climate wherein communication happens are important aspects as part of the dialogue process.

During interviews, a common topic that came up was the accessible, high caliber, and supportive relationships that staff at the Marine Institute have with one another, all of which they claimed, stems from the fantastic management team, working together in partnership, sharing the same goals for recruitment, and providing a quality education to students. Additionally, as discussed in *Theme Two: Best Practices*, under the subtheme, *Close External Relations*, participants spoke frequently of fostering strong relationships not only inside the organization, but also externally. Participant Four indicated that face-to-face relationship building has been a constant at the Marine Institute for over 26 years, providing the impression that building strong and healthy relationships with one another is a way of life at the Marine Institute. From interviews, it was ascertained that the Marine Institute acquires new knowledge obtained from one another in more informal ways, meaning from regular, in-person, and face-to-face interaction with individuals with whom they share relationships with. Participants also noted that changes in their programs come as a result of actively listening to each other, and engaging one another to take part in the conversation where they can exchange ideas, information, and simply talk about their experiences, all of which are part of the organizational climate at the Marine Institute.

Thomas Harris (2002) writes that organizational climate is a reflection of how employees perceive they are being treated by the organization. Harris (2002) indicates that because perception often determines reality in organizations, employees' feelings about management or friendliness for instance, "become critical to the effective operation of the organization and function as affirmations of the organization's culture. Whereas culture describes the relatively enduring organizational features, climate refers to the immediate environment and surrounding atmosphere" (p. 101).

Moreover, Sandine (1996) notes that a dialogic climate is one where members of an organization can feel free to express ideas, evaluate each other's contributions, and disclose information, and is supported by factors other researchers have described as being conducive to dialogue, such as, but not limited to openness, honesty, encouragement of participation, commitment, and trust (Gibb, 1961; Redding, 1972). Climates, Harris (2002) indicates, tend to be nurturing. Sandine (1996) also emphasizes that groups are more likely to think collectively when the atmosphere is one of trust, safety and respect for others' contributions, and that "without dialogue, the truly collective nature of learning would elude organizations" (p. 11).

RQ2. The second research question asked how industry challenges shape the Marine Institute's response strategies to more effectively attract, recruit, train, and retain qualified seafarers. In an effort to respond to this question, the barriers of the marine industry which negatively impacted attraction and recruitment initiatives of the Marine Institute had to be uncovered first. This process then led to uncovering at least five actions the Marine Institute has adjusted to better confront the industry and environmental-related challenges they have been faced with. The initiatives the Marine Institute has adopted can also be examined within the context of collective thinking, reflection and dialogue processes at the Marine Institute.

First, based on interview information, the Marine Institute has indicated that students have been observed and understood as being in the driver's seat when it comes to university recruitment. As a result, based on previous experiences and discussions with staff and students, the Marine Institute has been adapting to cater to the observed needs of students.

For example, as mentioned in *Theme Two: Best Practices*, under the subtheme, *Keeping Current*, interview participants stated that students have high expectations of universities and training organizations, and that students are paying clients who want their wants and needs to be

respected. As such, the Marine Institute believes in providing students with good service by keeping current with the digital age as much as possible. In discussions on modernity and the digital age, participants noted that new generations of students want access to more contemporary amenities; as such, the organization has adapted to the needs of students by outfitting their classrooms with modernized equipment in efforts to provide a higher quality of service. Classrooms have been modernized to be smart-rooms, which are networked and equipped to be more electronic and interactive than ever before.

As part of Sandine's (1996) model of organizational learning, the process of reflection promotes the creation of new action based on insights gained, where monitoring one's environment is a key component of reflection. Thus, by monitoring students' wants and needs, and by collectively thinking and talking about the implications of modernization as a group, keeping current with the digital age has become an important factor to more effectively attract and retain students. Modernization has helped not only gain student interest in marine careers, but based on interview discussions, it has also provided the organization with a competitive advantage over other universities and training institutions.

Second, as part of their student attraction and recruitment initiatives, the Marine Institute has adapted to become more proactive in telling the organization's stories compared to years ago. For example, based on reflection on various recruitment initiatives, teams at the Marine Institute have come to realize that they have more success with proactively telling their own success stories compared to inviting others to do so, such as the media. As a result, as discussed in *Theme Two: Best Practices*, under the subtheme, *Profiling*, the Marine Institute has started to report their success stories in their own magazine, which in turn started gaining interest from industry partners, becoming another avenue for promoting marine careers. The Marine Institute has experienced so

much success from storytelling that profiling students' positive stories has developed into a tool that is now being used as part of their regular recruitment materials.

Furthermore, based on collective thinking and dialogue processes between individuals, the Marine Institute has found that students are interested in knowing more about individuals that they can relate to when considering career choices. In his work, Sandine (1996) indicates that when individuals combine their expertise in a collaborative fashion, their potential for creativity and performance increases. As a result, the Marine Institute has adapted in such a way to customize their outreach materials to reach more specific groups of students, including women. This method of promotion has helped to address the misperception about marine careers being mostly geared towards males. Interviewees have also indicated that over the last seven years, the Marine Institute has been trying to recruit more women to the Institute, and that profiling successful female graduates enables prospective students to visualize or attempt to see themselves in similar roles, which in return, attracts more female students.

Third, to help combat the challenge surrounding the lack of qualified seafarers in the marine transportation industry, as referenced in *Theme Two: Best Practices*, under the subtheme, *Community Engagement*, the Marine Institute has recognized that through collaboration and reflection processes, a great opportunity exists to work closely with aboriginal groups. This process involves monitoring one's environment and a lot of face-to-face, in-person interaction, despite the digital age of today's society. The industry demands have shaped the Marine Institute's response strategies in such a way that they have leveraged the strong ties a staff member has with aboriginal groups, giving them an avenue to connect with elders and influencers of potential aboriginal students. Based on previous fruitful experiences, the Marine Institute has recognized that they can gain great advances such as attracting more students and business opportunities by simply fostering

good relationships with community groups and knowing what these community groups' needs are for economic development.

Fourth, as mentioned in *Theme Two: Best Practices*, under the subtheme, *Close External Relations,* based on previous successful experiences, the Marine Institute understands that having close relations with parents/influencers of students and other universities (albeit their competition), are critical to the successful recruitment of marine students. For example, the Marine Institute has adapted their processes to now include a student's parents or influencers as part of the recruitment and orientation process, for the reason that it helps ensure more successful transitions and enrollments. The Marine Institute has come to understand that the amount of time spent with parents and influencers are critical during the recruitment process because it helps build healthy and personal relationships – a tactic that has become key to more effectively attract and recruit students.

Due to Newfoundland and Labrador's declining demographic, the Marine Institute recruits students from across the nation, which also means that interaction is required between universities. Based on collaboration and reflection processes between recruitment teams and senior management, the Marine Institute has found great value in fostering good relationships even with their competitors. As part of their recruitment strategies, the Marine Institute has adapted in such a way to purposefully inform other universities of their programs, in the event of students desiring a switch in programs. As such, having good relationships even with their competitors, the Marine Institute may generate referrals and attraction of new students.

Finally, as introduced in *Theme One: Resistance to Having a Career at Sea*, under subtheme, *Knowledge Gaps and Disorders*, and as further discussed in *Theme Two: Best Practices*, under the subtheme, *Earlier Interventions,* the Marine Institute monitors its environment in an effort to help promote marine careers. For example, the Marine Institute continuously observes the school system

in the province, attempting to connect with students as early as Junior High School. Since having a strong math and science background is a prerequisite to enter into a marine program at the Marine Institute, younger students are encouraged to take the highest level of math and science possible, to help guide their academic route towards considering marine careers in future.

Additionally, the Marine Institute has identified a need to clarify and explain the marine industry to young people, in efforts to help change the stigma that a) a marine career is not only meant for a man, but that females can also be very successful and productive workers in the marine industry, and b) more modern amenities such as Internet accessibility are available on vessels compared to years ago. Since the Marine Institute has identified that there is always a need to do outreach at younger ages, they have been adapting to respond to industry challenges by offering summer camps to younger generations in an effort to generate more interest in marine careers at earlier ages.

RQ3. The third research question asked how does the Marine Institute plan for initiatives to help contribute to a more sustainable marine transportation industry. To address this question, participants were asked to elaborate on the planning processes for the organization. When participants spoke about their planning procedures, it became clear that due to the complex nature of marine careers, planning collaboratively is key, and that it is considered an essential tool that brings various groups together to evaluate and discuss their successes and opportunities for future growth and development.

As discussed in *Theme Three: Securing a Future for Marine Transportation*, under the subtheme, *Planning*, Participant Two indicated that when it comes to planning, it is the combination of all of the infrastructure, people, and processes at the Marine Institute that contributes to their

success. As such, a common theme that came out of discussions relating to planning was how the organization engages people in the planning process, underscoring the importance of teamwork.

The Marine Institute's recruitment goals and contributions towards sustaining the marine transportation industry are viewed as shared responsibilities among staff. Since it is believed that they all share the same goals and responsibilities, everyone is also included in the planning process for the Institute. For instance, it was stated in interviews that the Marine Institute carries out what is referred to as *integrated strategic planning*, which involves all of the institute, including the faculty, staff, students and external partners, and more, in one way or another.

Sharing common responsibilities fits with Sandine's (1996) argument that teamwork is integral to an organization's learning process. As part of an interview, Participant One indicated that there is an acknowledgement of engaging staff and including them in the process so that they start to find value in the process. In his research, Sandine (1996) notes that collective thinking permits the organization to bring specialists or knowledge workers together in a collaborative effort, where all members are mutually responsible for outcomes. Sandine (1996) also highlights Katzenbach and Smith's (1993) work around teams sharing a mutual responsibility rather than an individual responsibility, and that together, all members are accountable for the outcome of a particular mission.

Planning at the Marine Institute takes place annually during April to June every year. During this time, school units of the Marine Institute have retreats and planning workshops to reflect on and discuss the year that has passed based on information obtained from staff, students, industry partners and the environment that are external to the organization. By looking at the organization's strategic plan, groups then work collaboratively and devise ideas on how they are going to implement new initiatives or make changes. Working together to extend ideas in group settings

links back to Sandine's (1996) notion of collectivity, which is the integration of diverse ideas and viewpoints in a manner that performance can be improved. As cited in Sandine (1996), Steward and Thomas (1990) make reference to *dialogic listening*, a process by which participants concentrate on the co-production of insights, ideas and solutions. Sandine (1996) also writes that the power of collective action can help increase the potential for more creativity and better performance of the organization.

Furthering the preliminary phases of their planning processes, in August of every year, the Marine Institute takes the results obtained from school units' planning workshops from the April to June sessions into another strategic planning workshop, which typically consists of the collaboration of approximately 55 experts, ranging from management, academic leaders, program chairs to senior faculty members. In this planning session, facilitated through dialogue, the group reflects back on the organization's performance over the past year, while considering the overall vision and goals for the organization. Based on new insights gained, the group works collaboratively to bring together a plan to carry out initiatives or changes for the following year. The process of reaching decisions collectively fits with what Sandine (1996) refers to as idea extension, an action part of the collaborative thinking process. Sandine (1996) highlights Aubrey Fisher's (1970a) work around decision-making in group settings, stating that groups do not make decisions, but rather, decisions emerge cumulatively during group interaction.

Lastly, in interviews, participants indicated that the outcomes of the strategic planning meetings are always reported back to the entire organization, which is another means of engaging staff in discussions as well as in the overall decision-making process which will lead to new innovations or change within the organization. This fits with Sandine (1996) argument that decisions and ideas should be developed and applied through recursive and collaborative interaction, where concepts

and ideas can be further shaped by different views of individuals. Thus planning at the Marine Institute can be understood through collective thinking, reflection and dialogue processes, which are components of what Sandine (1996) describes as a recursive cycle of learning.

RQ4. The fourth research question asked how gaining new insight about the Marine Institute's environmental challenges contributes to adaptation and organizational learning.

Sandine (1996) writes that an organization's environment acts as a reservoir of knowledge where members of the organization can draw from. However, the significance lies in turning that information into knowledge that has value for the organization. Being able to convert knowledge from one's environment through collective thinking, reflection and dialogue processes can therefore help learning organizations challenge traditional ways of thinking and doing business, as well as help reduce an organization's tendencies to learn and routinize unsuccessful practices. Sandine (1996), however, notes that while adaptation may be an important factor for sustaining organizational stability, it is continual improvement and new knowledge creation "which so pervades the organization that it becomes a characteristic organizational practice" (p. 4). As such, combined, Sandine's (1996) three communicative processes focus on the creation of new knowledge and value added ideas, which leads to refashioning the organization by adapting organizational practice and structures based on those insights gained.

In an interview, Participant One indicated that learning to adapt for improvement is a timely process. As an organization, the Marine Institute has over the years, progressed from forming relationships to building effective practice based on the new insights gained from their environment, and from really listening to and working with each other. From other similar discussions with interviewees, continual collaboration with its members, active listening, and learning from one

another were common characteristics and practices of the Marine Institute. Below follows two examples of continual collaboration and knowledge creation among the organization's members.

As mentioned in *Theme One: Resistance to Having a Career at Sea*, under the subtheme, *Uniqueness of Newfoundland and Labrador*, an interview participant indicated that often times, the Marine Institute's recruiters are not able to return to the province from recruitment trips due to inclement weather conditions. As a result, it has become a routine practice for the organization to depend greatly on listening to, learning from, and acting on recruiters' insights and knowledge remotely when it comes to following leads to recruit prospective students. Based on ideas that are exchanged and knowledge transferred between members, other members can follow through with leads in a timely manner, avoid missed opportunities, and help ensure business continuity.

Additionally, in *Theme Two: Best Practices*, under the subtheme, *Close External Relations*, an interview participant provided an example on the organization's continuous work with its industry partners on advisory boards and committees. The participant explained that the ongoing collaboration helps enrich further discussions among members regarding the future planning of seafarers, strategic and recruitment issues. Through these meetings, industry members provide feedback on the latest outcomes achieved which came as a result of previous discussions. In turn, members continue discussions on newly identified opportunities, and collaborate again on how programs and processes can be further improved.

These examples fit with Sandine's (1996) emphasis on the communicative and collaborative nature of organizational learning, as well as how members can co-create desired results. Sandine (1996) elaborates that individuals with distinguished areas of expertise combine their knowledge with other members to co-produce results that else could not have been fashioned on their own. Sandine (1996) adds that perhaps, the most critical part of collective thinking is the transformation

process of tacit knowledge into explicit knowledge that can be shared with other members of the organization, where tacit knowledge of members can be described as hands-on skills, special know-how, intuitions, and hunches of individual members (Choo, 1995; Nonaka, 1991).

Thus, the process of gaining new insights about the Marine Institute's environment has enabled the organization to not only adapt its practices to endure organizational stability, but it also facilitates communication and collaboration among members, and the ongoing transformation of the organization. As a result, the insights gained from the organization's environment has helped strengthen and develop the relationships both inside and outside the organization, and the maturation of relationships has allowed information to continuously flow between the organization, its members, and its environment.

Chapter Summary:

This chapter discussed participants' responses which incorporated Sandine's (1996) model of organizational learning as the theoretical framework. More specifically, Sandine's three communicative processes that are constitutive of learning organizations, including collective thinking, reflection and dialogue, were applied to nine subthemes of the case study. The discussion outlined the barriers which negatively impact student attraction, recruitment and retention initiatives of the Marine Institute. In return, discovering the barriers led to a greater understanding of how the Marine Institute learns as an organization, adapts, and plans to more effectively attract, recruit, train and retain marine students to sustain the marine transportation industry.

The concluding chapter provides a summary of the study findings, limitations, benefits, and directions for further research.

CHAPTER SIX: CONCLUSION

The purpose of this study was to explore how the Marine Institute learns to adapt to the labour shortages of qualified mariners; how industry challenges shape their response strategies to more effectively attract, recruit and retain qualified seafarers; how they plan for initiatives to help contribute to a more sustainable marine transportation industry; and how gaining new insight about their environmental challenges contribute to adaptation and organizational learning.

The researcher's personal interests to focus the study in a marine setting developed from working at Transport Canada Marine Safety in Ottawa, Ontario from 2009-2011. In addition, the researcher relocated shortly thereafter to a small marine community in rural Newfoundland and Labrador in 2011, which increased accessibility to the research site and participants, enabling the provision of a thick description of events as part of the case.

Using a single case study design, semi-structured, in-depth interviews were conducted with seven purposefully selected subject matter experts from the Marine Institute. The study employed Sandine's (1996) framework of investigation, which views organizational learning as a communication phenomenon rooted in dialogue, and made possible by collective thinking and reflection processes which are components of a recursive learning cycle. The findings revealed that through these three communication processes, the non-stop creation of new knowledge shaped the organization's response strategies to environmental challenges, enabling the Marine Institute to adapt their business practices and efforts in such a way to more effectively attract, recruit, train and retain students for pursuing a career at sea.

First, the data revealed that some of the common challenges that impacted the organization's attraction, recruitment, training and/or retention efforts included:

- *the unique complexities associated with the marine transportation industry*, including the nature of shipping requiring individuals to be away from home for extended periods of time; seasickness can be a deterrent for some to continue working at sea; and necessary sea-time requirements can be difficult to attain, especially for reasons such as seasickness which are out of one's control;

- *difficulties in obtaining medical certification from authorities*, which are prerequisites to taking up marine studies at the Marine Institute;

- *the unique characteristics of Newfoundland and Labrador* can negatively influence student recruitment for the Marine Institute, such as impeding and harsh weather conditions preventing recruiters from leaving the island at times; and the province's growing aging population, where more young people are leaving the province to pursue other opportunities;

- *university-related challenges*, including the desire for additional funding to better promote marine careers; and the cutthroat recruitment competition among universities and training institutes nationally; and

- *knowledge gaps* in math or science backgrounds among younger generations, making prospective post-secondary students less prepared for taking up marine careers; as well, more students are displaying *learning disabilities* at post-secondary levels compared to years ago, making it either difficult for these students to enter into a marine program or to continue their programs.

Second, the study findings revealed that through collective thinking, reflection, and dialogue processes among teams at the Marine Institute, realization and the non-stop creation of new knowledge happens in recursive cycles. By obtaining new knowledge from insights gained, the

organization constructs creative solutions based on collective expertise and evidence, which enables them to adapt and create new practices to better support student attraction, recruitment, training, and retention activities. The case study revealed at least five actions the Marine Institute has adjusted over recent years to better confront industry and environmental-related challenges, which include:

- *knowing and understanding the needs and expectations of students*, the Marine Institute can advance technologically and provide world-class, modernized service and education delivery, giving them the competitive advantage over other universities and training organizations;

- *profiling successful females in their recruitment materials*, the organization can attract more females compared to years ago, and in turn, correct the stigma attached to the marine industry of being a workplace for males only;

- *leveraging the capital of having strong ties to aboriginal communities*, the Marine Institute makes it their business to know community needs for economic development, which in turn can help attract prospective students and future business;

- *building strong relationships with students, families/influencers, and university competitors*, because it helps ensure more successful enrollments, transitions and referrals to marine programs; and

- *monitoring the school system and reaching out to demographics at younger ages*, the Marine Institute can help guide students to take academic routes in math and science, easing the process of being more prepared and to consider a career at sea.

Third, due to the complex nature of marine careers, study findings highlighted that planning collaboratively is integral to the organization's success, which means engaging all of the staff, faculty and management in discussions and the decision-making processes of the organization. Collaborative planning is an essential tool that brings various expert groups together to evaluate and discuss the organization's successes and opportunities for future growth and development.

Fourth, the study shows that members of the organization can draw information from its environment, where through collective thinking, reflection and dialogue processes, the information can be converted into knowledge which can inspire the adaptation of organizational practices. The study also underscores the importance of fostering and maturing relationships internal and external to the organization because it enables the continuous flow of information between the organization and its environment, which can enable ongoing cycles of learning.

Limitations:

Several limitations should be taken into account when evaluating the study. For instance, the sample size was limited to seven subject matter experts who work at the Marine Institute, and therefore, may be perceived as only including one perspective and not the views of lower-level employees or those on the frontlines. Additionally, the sample quality of interviews may have been affected due to the selection process and sampling strategy used, and may therefore not be representative of all staff who work at the Marine Institute. However, the participants were recruited via expert sampling, and were more senior employees with many years of experience, which adds to the credibility of their responses.

Staying within the scope of the study, students from the Marine Institute were not interviewed, which means that likely not all challenges/barriers faced by students would be reflected in the study.

However, even including a small group of students randomly into the sample size may not have provided insight that that was completely representative of the entire student body. For instance, to make data representative, the researcher would have needed to include a diverse set of students, such as males and females from different years of study, students with sea time experience, students of aboriginal descent, and perhaps some with learning disabilities, as each type of student experiences different complexities based on their personal circumstances and status. Including students in the participant sample would have changed the scope and time boundaries of the study.

Another limitation surrounds the defined boundaries of this specific case (including only the Marine Institute campus) and the dependability of experience of individuals, which may or may not allow for naturalistic generalizations (Stake, 1995) for the reason that certain aspects may not always be applicable to all marine training institutes in Canada.

Furthermore, the repetitive nature of categorization in the data analysis process may be considered forceful by some, since depending on one's interpretation, instances of data or closely related concepts could have had the potential to fit under more than one category. As such, readers would need to decide what aspects of this case could be applicable to other related cases based on the thick description of contexts presented in the interview results.

It should also be noted that only a restricted amount of literature has been available concerning the shortage of qualified mariners, as well as the limited amount of information available regarding steps marine training organizations are taking to help remedy the situation surrounding the recruitment and retention of student mariners.

Lastly, from a theoretical perspective, organizational learning theory faces criticism because of its significant fragmentation and being metaphorical nature among researchers; however, its

diversity can be viewed as an indicator of theoretical advancement towards creating a better understanding of how, what and why organizations learn (Prange, 1999).

Benefits and Implications:

This study offers several beneficial insights to like-minded organizations, shedding light on processes that enable organizational learning, as well as the business practices used and adapted by a single marine training organization as a means to better attract, recruit, train and retain student mariners. Organizations who share similar environments, industries, or complexities as the Marine Institute could employ comparable efforts, programs and sustainability initiatives noted in this case study that have been demonstrated to provide positive outcomes. In light of this study, the following implications are offered.

i) Implications for Organizational Learning. This study has aimed to strengthen the understanding of organizational learning, and has assessed the impacts of its occurrence using the case of the Marine Institute. The study outcomes underline the importance of both the communicative and collective characteristics of organizational learning in four ways. First, building and maintaining relationships are viewed by members as being integral to the survival of the organization. Second, members feel free to participate in and engage one another in decision-making processes. Members also recognize each other's specialized skills and through collaboration, are able to convert tacit knowledge (special know-how and insights) into information that adds value to the organization. Third, face-to-face interactions are vital and necessary in the process of relationship building with an organization's members, partners, and client base, despite today's digital age; and fourth, lessons learned from an organization's environment and the consequent actions are continuously re-examined by its members and external partners to help ensure stability and the most effective practices possible. However, the conditions for success lie in

what is engrained in an organization's philosophy or culture, where members believe in its supportive and visionary leadership team, and that the organization offers a climate that is trusting and non-judgmental, helping members feel safe, share, listen to, and extend the ideas of others during the cycle of learning.

ii) Implications for the Sustainable Recruitment of Seafarers. In the realm of sustaining the marine transportation industry with new qualified seafarers as seasoned members leave or retire, this study offers implications for professional practice pertaining to the recruitment initiatives. For years, working in the marine industry has been widely understood as being male dominated, isolated in the background, and with little access to modern amenities. The marine transportation industry's negative image has been impacting the attraction of new entrants on a global level, competing with other well-paying careers that are more glamorous than working at sea. To restore a positive image of the marine transportation industry, marine organizations need to continue highlighting the modernization of vessels and training environments, access to amenities while away at sea, and profiling productive model students and employees in the industry to help attract traditional candidates such as young males, but also females and minority groups who may have interests in having a marine career.

However, with the complex environment the marine industry poses, organizations have to adapt to ensure *effective* organizational practice. To avoid counter productivity, marine training organizations have to be careful not to adapt to everything or be too reactionary; adapting organizational practices have to be carefully considered to ensure mutually fruitful experiences for the school, students, and the marine transportation industry. Recruiting students to only fill vacant seats in schools will not ensure the sustainability of the marine transportation industry. Training for marine careers are challenging in nature due to the math and science backgrounds that are

necessary, harsh working conditions (seasickness and weather) at sea, and the length of time it takes to receive certification for in-demand positions. As such, to ensure the success of students and to produce graduates who will go on to fill forecasted vacancies in top positions as seasoned members depart, training organizations have to recruit the right type of candidates. These candidates have to be accepting of, and truly understand what the lifestyle of being a seafarer entails, as well, they must have the aptitudes necessary to follow through with their marine academic careers from beginning of enrollment to graduation. Moreover, marine training organizations should continue educating school-aged children about the marine industry and career possibilities, encouraging them to take the highest course levels of math and sciences available to be able to consider a career in marine transportation when seeking higher education.

However, two areas of concern exist that appear to have no easy solution, with the first being that anecdotally speaking, the Marine Institute has been seeing more students with learning disabilities compared to years ago. If this is true for one marine training organization, it could be true for others as well. It remains unknown how the rising numbers of students with learning disabilities will impact graduation numbers to fill forecasted vacancies, future recruitment practices of training organizations, the examination, or certification of mariners. Second, in Canada, marine training institutions have been recruiting young international students as a means to sustain the global shipping industry. However, these efforts may not be enough to sustain Canada's marine needs for the reason that Canadian Certificates of Competency will not be issued by Transport Canada as by law, these certificates are only issued to Canadian Citizens or Permanent Residents of Canada. What this means for the sustainability of the Canadian fleet and workforce remains a complex discussion for industry leaders, partners, and organizations.

Implications for Future Research:

Several potential research opportunities exist as possible extensions or digressions of this study. First, the research is possibly value-added for institutions who may be searching for methods to improve the effectiveness of their establishments through organizational learning. This case study could serve as a stepping stone for future research by helping other organizations strengthen their understanding of what constitutes organizational learning and how it occurs (Sandine, 1996). As well, to measure the impact of learning organizations, longitudinal studies could be carried out using Sandine's (1996) conceptualization of learning.

Second, since women have become more widely recognized as being productive and very capable workers in the male-dominated marine industry, profiling successful females have become a tool in student recruitment practices for the Marine Institute. As such, feminist theory in communications scholarship could be used as a lens in future studies to better understand gender as a communicative process, with the objective of promoting social changes that are not only important to the well-being of women, but to organizations and industry being studied.

Third, reaching out to minorities such as aboriginal peoples have become a tool to recruit future mariners for the Marine Institute, which helps to sustain the marine transportation industry. As such, cultural diversity and its relationship with organizational performance in like-minded organizations could be further examined.

In conclusion, rapid changes and turbulent business environments bring many challenges for organizations across many different sectors, imposing change and new approaches of doing business in order to survive. Organizational learning theory brings not only fresh approaches for better understanding learning at the organizational level and how it occurs, but it also emphasizes the communicative and collaborative characteristics that help inspire adaptation, help maintain organizational stability, and enable transformation.

REFERENCES

Albert, M. N., Dodeler, N. L., & Guy, E. (2016). From a Seafarer's Career Management to the Management of Interwoven Sea-and Shore-Based Careers. *SAGE Open*, *6*(1), 2158244016634146.

Aras, G., & Crowther, D. (2010). *A Handbook of Corporate Governance and Social Responsibility*. Surrey: Gower Publishing Limited.

Argote, L. (2013). *Organizational Learning Creating, Retaining and Transferring Knowledge* (Second ed.). New York: Springer.

Atwood, C. (2007). *Succession Planning Basics*. Alexandria, VA: ASTD Press.

Asyali, Ender, Yusuf Zorba, A. Güldem Cerit, and O. Kamil Sag. (2010). *Global Economic Crisis and the Impact on Human Resources Strategies for Seafarers*. Retrieved from Pirireis University (Turkey) website: http://www.pirireis.edu.tr/en/wp-content/uploads/showcontent0007.pdf (date accessed, July 14, 2015).

Bartlett, R. and Lao, H. (2014). *Labour Market Assessment 2014*. Retrieved from the Office of the Parliamentary Budget Officer website: http://www.pbo-dpb.gc.ca/web/default/files/files/files/Labour_Note_EN.pdf

Barmak, S. (2015, March 19). How the "Netflix of education" is using big data in the classroom. *Canadian Business*.

Baxter, P., Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. The Qualitative Report, 13(4), 544-559. Retrieved from http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf

Bazeley, Patricia. (2013). *Qualitative Data Analysis: Practical Strategies*. Thousand Oaks, CA:

Sage Publications.

BIMCO. (2014). BIMCO / ICS Manpower Report 2015: Preliminary results of new seafarer survey shows majority are content with life at sea [Press release]. Retrieved March 19, 2016 from https://www.bimco.org/News/2015/04/13_Manpower_2015_prelim_results.aspx

BIMCO. (2015). Retrieved from BIMCO website: http://www.bimco.org

Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input* (pp. 3-7). Watertown, MA: Pathfinder International.

Caesar, L. (2013). Sustaining the supply of ship officers: Making a case for succession planning in seafarer recruitment. *Universal Journal of Management, 1*(1), 6-12. doi:10.13189/ujm.2013.010102

Canada. Parliament. House of Commons. Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities. (2012). *Labour and Skills Shortages in Canada: Addressing Current and Future Challenges*. Ninth Report. 41st Parliament, First Session. Available at: http://www.parl.gc.ca/content/hoc/committee/411/huma/reports/rp5937523/humarp09/humarp09-e.pdf

Cahoon, S.,& Haugstetter, H. (2008). *Shipping, shortages and Generation Y*. Retrieved July 31, 2015 from http://www.he-alert.org/filemanager/root/site_assets/standalone_article_pdfs_0605-/he00760.pdf

Caruth, Donald L., Gail D. Caruth, and Stephanie S. Pane. (2009). *Staffing the Contemporary*

Organization: A Guide to Planning, Recruiting, and Selecting for Human Resource Professionals. Third ed. Westport: Praeger.

Choo, C.W. (1995). *Information Management for the Intelligent Organization: Roles and Implications for the Information Professions*. Digital Libraries Conference (March 27-30, 1995; Proceedings p. 81-99). Singapore: National Computer Board of Singapore.

Coblentz, J. B. (2002). Organizational Sustainability: The Three Aspects that Matter. Washington, DC: Academy for Educational Development.

Craig, Dorothy Valcarcel. (2009). *Action Research Essentials*. San Francisco, CA: Jossey-Bass.

Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five Approaches*. (2nd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W. (2009). *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*. (3rd ed.). Thousand Oaks, CA: Sage.

Dixon, Nancy M. (1999). *The Organizational Learning Cycle: How We Can Learn Collectively*. 2nd ed. Hampshire: McGraw-Hill.

Dodgson, M. (1993). *Organizational learning: a review of some literatures*. Organization Studies, 14 (3), 375-394.

Easterby-Smith, M., & Araujo, L. (1999). Organizational Learning: Current Debates and Opportunities. In *Organizational learning and the learning organization: Developments in theory and practice*. London: Sage Publications.

Feagin, J., Orum, A., & Sjoberg, G. (Eds.). (1991). *A case for case study*. Chapel Hill, NC: University of North Carolina Press.

Fei, J., & Lu, J. (2015). Analysis of students' perceptions of seafaring career in China based on artificial neural network and genetic programming. *Maritime Policy & Management*,

42(2), 111-126.

Fisher, B. A., (1970a). Decision emergence: Phases in group decision making. *Speech Monographs*, 37, 53-66.

Fisheries and Marine Institute of Memorial University of Newfoundland. (2010). *Vision 2020. Retrieved from* Marine Institute's website: https://www.mi.mun.ca/media/mi/vision2020/files/StrategicPlan.pdf

Fisheries and Marine Institute of Memorial University of Newfoundland. (2016). *About Us*. Retrieved from website: https://www.mi.mun.ca/aboutus/

Fisheries and Oceans Canada. (2010). *Marine transportation*. Retrieved from website: http://www.dfo-mpo.gc.ca/oceans/industries/marinetransportation-transportmarine/index-eng.htm.

Fiol, C.M. and Lyles, M.A. (1985). Organizational Learning. Academy of Management Review, Vol. 10, p. 803-813.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219-245.

Garvin, David. (1993). Building a Learning Organization. *Harvard Business Review*. 71, 78-91.

Gibb, Jack. (1961). Defensive Communication. *Communication Journal of Communication.* 11(3), 141-48.

Guba, E. G., & Lincoln, Y. S. (1981). *Effective evaluation: Improving the usefulness of evaluation results through responsive and naturalistic approaches*. Jossey-Bass.

Hadders, H. (1997). The Adaptive Quadruple Bottom Line Scorecard: Measuring organizational sustainability performance. *Ecology*, 1-18.

Hahn, Christopher. (2008). *Doing Qualitative Research from your Home Computer*. London: Sage Publications.

Harris, Thomas E. (2002). *Applied Organizational Communication: Principles and Pragmatics*

for Future Practice. 2nd ed. New York: Psychology Press.

Hatch, Mary Jo. (2011). *Organizations: A Very Short Introduction*. New York: Oxford University Press.

Hesse-Biber, Sharlene Nagy, and Patricia Leavy. (2011). *The Practice of Qualitative Research*. 2nd ed. Thousand Oaks: SAGE Publications.

Huber, George P. (2004). *The Necessary Nature of Future Firms: Attributes of Survivors in a Changing World*. Thousand Oaks, CA: Sage Publications.

Iarossi, J., Miller, J. K., O'Connor, J., & Keil, M. (2011, June). Addressing the sustainability challenge: Insights from institutional theory and organizational learning. In *First International Conference on Engaged Management Scholarship*.

IMO. (2015). *A campaign to attract entrants into the shipping industry*. Retrieved from www.imo.org/en/OurWork/HumanElement/GoToSea

"Introduction to IMO." *IMO*. International Maritime Organization, 2015. Web. 8 Aug. 2015. http://www.imo.org

"Industry Partnerships." *Fisheries and Marine Institute of Memorial University of Newfoundland*. Industry Partnerships, 2015. Web. 11 Sept. 2015.

Isaacs, W. N. (1993). Taking flight: Dialogue, collective thinking, and organizational learning. *Organizational dynamics*, *22*(2), 24-39.

Israel, M., & Hay, I. (2006). *Research ethics for social scientists*. Sage.

King, N. &, Horrocks, C. (2010). *Interviews in Qualitative Research*. London: SAGE Publications.

Klein, D. (1998). *The Strategic Management of Intellectual Capital*. Boston, MA: Butterworth-Heinemann.

Klenke, Karin. (2008). *Qualitative Research in the Study of Leadership*. Bingley, UK: Emerald Group Publishing Limited.

Koshmann, M. (2012). *What is organizational communication?* Retrieved from University of Colorado Boulder website: http://comm.colorado.edu/docs/what_is_org_comm.pdf

Labrador and Aboriginal Affairs Office. (2014). *Northern Strategic Plan for Labrador*. Retrieved from http://www.laa.gov.nl.ca/laa/northern_strategic_plan/index.html (Accessed December 29, 2015).

"Introduction to IMO." *IMO*. International Maritime Organization, 2015. Web. 8 Aug. 2015. http://www.imo.org

"Land Claims." Government of Canada. *Aboriginal Affairs and Northern Development Canada*. 15 Sept. 2010. Web. 10 June 2015. Retrieved from https://www.aadnc-aandc.gc.ca

Levitt, B., and March, J. G. (1988). Organizational learning. Annual Review of Sociology, 14, 319–340.

Lewarn, B. (2009). *A review of some solutions to the shortage of maritime skills*. Retrieved from http://www.amc.edu.au/sites/default/files/MTPC+Occasional+Paper+1_0.pdf.

Lincoln, Y.S., Guba, E.G. (1985). Naturalistic Inquiry. Beverley Hills, CA: Sage.

Loh, J. (2013). Inquiry into issues of trustworthiness and quality in narrative studies: A perspective. *The Qualitative Report*, *18*(33), 1.

Magramo, M., & Eler, G. (2012). Women seafarers: Solution to shortage of competent officers. *International Journal on Marine Navigation and Safety of Sea Transportation*, *6*(3), 397-400.

Martel, L., Caron-Malenfant, E., Vézina, S., & Bélanger, A. (2007). "Labour force projections for Canada, 2006-2031." *Canadian Economic Observer*. Vol. 20, no 11-010-XIB. p. 18-30. http://www.statcan.gc.ca/pub/11-010-x/11-010-x2007006-eng.pdf (accessed

November 20, 2015).

McElroy, M. (2006a). *The Sustainability Code: A Policy Model for Achieving Sustainability in Human Social Systems*. Hartland: Center for Sustainable Innovation. Retrieved from http://www.sustainableinnovation.org/The-Sustainability-Code.pdf.

McClintoc, C. (1985). Process Sampling: A method for case study research on administrative behavior. *Educational Administration Quarterly*, 21, 205-222.

Merriam, S. B. (1998). Qualitative research and case study applications in education. San Francisco, CA: Jossey-Bass.

Miles, M., Huberman, M. (1984). *Qualitative data analysis: A source book for new methods*. Thousand Oaks, CA: Sage Publications.

MIT Sloan Management Review. (2009). *The Business of Sustainability: Results and insights from the first annual MIT Sloan Management Review Global Sustainability Survey*. 2009 (Fall), 2-12.

Mitropoulos, Efthimios, M. (2008). *"Go to Sea!" A Call for More Seafarer Recruitment*. *IMO News*, (4). Retrieved from http://www.imo.org/en/MediaCentre/MaritimeNewsMagazine/Documents/2008/IMONewsNo408_web.pdf

Mitropoulos, Efthimios, M. (2010, September 23). *World maritime day 2010 year of the seafarer*. *IMO News*, (3), 5. Retrieved from http://www.imo.org/MediaCentre/NewsMagazine/Archives/Pages/2010.aspx

Morgan, G. (2006) Images of organization, Thousand Oaks, CA: Sage.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, *1*(2), 13-22.

Mumby, D. K. (2013). *Organizational Communication: A Critical Approach*. Thousand Oaks: Sage Publications.

Nidumolu, R., Prahalad, C. K, & Rangaswami, M. R. (2009). *Why Sustainability is Now the Key Driver in Innovation*. Harvard Business Review. 2009 (September), 57-64.

Nonaka, I. (1991). The Knowledge-creating Company. In *The Economic Impact of Knowledge* (pp. 175-202). Boston: Butterwork-Heinemann.

Padgett, D. (1998). *Qualitative Methods in Social Work Research: Challenges and Rewards*. Thousand Oaks, CA: Sage Publications.

Papa, M. J., Daniels, T. D., & Spiker, B. K. (2008). *Organizational Communication: Perspectives and Trends*. Thousand Oaks: Sage Publications.

Patton, M. Q. (1990). *Qualitative evaluation and research methods (2nd ed.)* Newbury Park, CA: Sage Publications.

Pedler, M., Boydell, T., & Burgoyne, J. (1991). *The Learning Company: A Strategy for Sustainable Development* (2nd ed.). London: McGraw-Hill.

Prange, C. (1999). Organizational Learning - Desperately Seeking Theory? *Organizational Learning and the Learning Organization*. London: Sage Publications. 23-43.

Ray Barton Associates Ltd. (2008). Final Report. Trends and Patterns in Skills and Labour Shortages. Orleans, ON: The Council of Ministers of Transportation. Retrieved from http://www.comt.ca/english/LabourSkills.pdf

Redding, W. Charles. (1972). *Communication within the Organization; an Interpretive Review of Theory and Research*. New York. Industrial Communication Council.

Rosenburg, M. (2015). *Managing Mariner Shortages in the Tugboat Industry*. California Maritime Academy Library. Web. 26 Aug. 2015. https://csum-dspace.calstate.edu/handle/10211.3/73298

Roslyn Kunin & Associates Inc. (2005). *Occupational Profiles of Selected Occupational Groups in the Marine Sector of B.C.* Retrieved from www.rkunin.com.

Rothwell, William J. *Effective Succession Planning: Ensuring Leadership Continuity and Building Talent from within*. New York: AMACOM, American Management Association, 2005. *Google Books*. Web. 14 Aug. 2015.

Sabri, S., & Sabri-Matanagh, S. (2013). *Organizational Development and Strategic Change*. Victoria: Academics Publishing.

Saldaña, Johnny. (2013). *The Coding Manual for Qualitative Researchers*. Thousand Oaks: Sage Publications.

Sandine, B. (1996, November). *Communication and the learning organization*. Paper presented at the meeting of the Speech Communication Association, San Diego, CA.

Schultz, M. (2002), "Organizational learning." J. A. C. Baum (Ed.), The Blackwell Companion to Organizations, Oxford: Blackwell Business, pp 415-441.

Schwandt, David R., and Michael J. Marquardt. (2000). *Organizational Learning: From World-class Theories to Global Best Practices*. Boca Raton, FL: St. Lucie.

Seidman, Irving. (2006). *Interviewing as Qualitative Research: A Guide for Researchers in Education and the Social Sciences*. 3rd ed. New York: Teachers College.

Senge, Peter M. (1990). *The Fifth Discipline: The Art and Practice of the Learning*

Organization. New York: Doubleday/Currency.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, *22*(2), 63-75.

"Society for College and University Planning." *Society for College and University Planning*. N.p., n.d. Web. 06 May 2013. <http://www.scup.org/>.

Statistics Canada. (2007). *Labour Force Projections for Canada 2006-2031*. Canadian Economic Observer. Statistics Canada Catalogue no. 11-010. http://www.statcan.gc.ca/pub/11-010-x/11-010-x2007006-eng.pdf (accessed March 21, 2012). Monthly.

Statistics Canada. (2011). *The Canadian Population in 2011: Age and Sex*. (Catalogue no. 98-311-X2011001). Retrieved from http://www12.statcan.gc.ca/census-recensement/2011/as-sa/98-311-x/98-311-x2011001-eng.pdf (accessed November 20, 2015).

Statistics Canada. (2014). *Canada's Population Estimates: Age and Sex, 2014*. (Catalogue no. 11-001-X). Retrieved from http://www.statcan.gc.ca/daily-quotidien/140926/dq140926b-eng.pdf (accessed December 29, 2015).

Stake, R. (1995). *The art of case study research.* Thousand Oaks, CA: Sage.

Strategic Directions Inc. (2003) *Canada Marine Careers Opportunities in the Marine Transportation and Offshore Petroleum Industries in Eastern Canada*. Report prepared for the Marine Careers Secretariat. Government of Newfoundland and Labrador. Retrieved from the Executive Council website: http://www.exec.gov.nl.ca/exec/wpo/publications/mcs_report.pdf

Tellis, W. (1997, July). Introduction to case study [68 paragraphs]. *The Qualitative Report*

[Online serial], *3*(2). Retrieved from http://www.nova.edu/ssss/QR/QR3-2/tellis1.html

Transport Canada. (2004). *Strengthening the Circle of Responsibility*. *Inter-Regional Action to Eliminate Sub-Standard Shipping.* (TP no. 14327 E). Retrieved from: http://www.tc.gc.ca/media/documents/marinesafety/2004report_1.pdf.

Transport Canada. (2010). *The New Wave - Marine Safety Strategic Plan, 2009-2015.* Retrieved from http://www.tc.gc.ca/eng/marinesafety/tp-tp13111-strat-828.htm.

Transport Canada. (2012). *Transportation in Canada 2011. Comprehensive Review*. (Cat. no. T1-23A/2011E-PDF). Retrieved from: https://www.tc.gc.ca/media/documents/policy/Transportation_in_Canada_2011.pdf.

Transport Canada. (2013). Marine Training, Examination and Certification: Questions Frequently Asked Regarding: Certification and Training. Retrieved from http://www.tc.gc.ca/eng/marinesafety/mpsp-training-examination-certification-faq-1052.htm (accessed December 30, 2015).

Trochim, William, M. (2006, October 20). *The research methods knowledge base*. Retrieved from http://www.socialresearchmethods.net/kb.

Voss, Jan-Peter, Kemp René. (2006). Sustainability and Reflexive Governance: Introduction, in: In Voss, J.P., D. Bauknecht, & R.P.M. Kemp (Eds.), *Reflexive Governance for Sustainable Development*, Edward Elgar, Cheltenham, pp. 3-28.

Wang, Y. and Ellinger, A. (2008). Organizational Learning and Innovation Performance: A Review of the Literature and the Development of a Conceptual Framework and Research Hypotheses, Academy of Human Resource Development International Research Conference in the Americas, Panama City, FL, Feb 20-24.

Wilson, B. M. (2003). Corporate sustainability: What is it and where does it come from? \ Corporate sustainability: What is it and where does it come from? *Ivey Business*

Journal, *67*(519), 1-6.

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. The Qualitative Report, 20(2), 134-152. Retrieved from http://www.nova.edu/ssss/QR/QR20/2/yazan1.pdf

Yin, R. K. (2009). Case Study Research: Design and Methods. Los Angeles, CA: Sage.

APPENDIX A:

Université d'Ottawa | University of Ottawa

Département de communication | Department of Communication
Pavillion Desmarais
55, av. Laurier Est,
11e étage
Ottawa, ON
K1N 6N5

Desmarais Building
55 Laurier Avenue East,
11 th Floor
Ottawa, ON
K1N 6N5

RECRUITMENT TEXT

From:

Zelda Burt
Student Researcher
Department of Communication
Faculty of Arts
University of Ottawa

Peruvemba Jaya
Thesis Supervisor
Department of Communication
Faculty of Arts
University of Ottawa
613-562-5800 ext. 2538

Date: February 7, 2013
To: Vice President responsible for the Marine Institute of Newfoundland
Subject: A Case Study of Creating a Sustainable Marine Transportation Workforce

I am a student at the University of Ottawa who is working towards completing my Masters of Arts Degree in Communication, with a focus on Organizational Communication. I am undertaking an explanatory case study, inspired by labour shortages that are affecting the marine transportation industry. The purpose of the case study is to learn how the Marine Institute of Newfoundland has been adapting its efforts to attract, recruit, train and retain student mariners to address the labour shortage problem.

With this study, I would like to conduct interviews with subject matter experts about the Marine Institute's sustainability practices to help strengthen the marine transportation workforce. Ultimately, this research will aim to describe and explain the Marine Institute's real-life interventions, program implementations, and program effects to attract prospective students, and recruit qualified seafarers in the industry. My research will include using organizational learning theory as a lens to provide a greater understanding about how like-minded organizations plan for and carry out various sustainability initiatives to survive in their changing and challenging environments.

My intention is to gain the opportunity to interview employees/subject matter experts of the Marine Institute that play a key role in organizational and strategy development, and including workforce planning for qualified seafarers, student attraction, recruitment, training, placement, and retention efforts. I intend to interview each person twice at different points in time, where I can share interpreted information with interviewees to ensure information was accurately captured. It is anticipated that each interview will take approximately 30 minutes or less. Please see attached a list of desired subject matter experts to take part in the interview process.

I would be glad to work with participants at times and locations that would be convenient for them. It is anticipated that interviews will run from February to April, 2013.

It would be greatly appreciated if you can provide me with a list of contacts to interview, which closely matches the attached list of areas of expertise. Please feel free to distribute this solicitation letter to subject matter experts or potential interviewees. My contact information can be shared directly with the potential participants for further follow-up, where I can be reached via e-mail to address any questions about the research project.

I will follow-up with you within a few weeks to confirm the participant list. Your time and participation as an organization is greatly valued, as this research will ultimately help explain how the Marine Institute constructs solutions, learns to adapt to change, understands marine workforce complexities, and shares knowledge with other key players in the industry. This research will add new knowledge in the field of Communication, and may propose change in how like-minded organizations design and implement sustainability efforts to help create a stable marine transportation workforce.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at icehr@mun.ca or by telephone at 709-864-2861.

Yours sincerely,

Zelda Burt
Enclosed: Interview List of Desired Areas of Expertise

Interview List of Desired Areas of Expertise:

Number of Experts	Area of Expertise	Number of Interviews per individual
1	Student / Seafarer Recruitment and Placement	2
1	Seafarer Training	2
1	Corporate and External Affairs	2
1	Student Retention	2
1	Marketing and Communications	2
2	Business Development / Organizational and Strategy Development	2

APPENDIX B:

Université d'Ottawa | University of Ottawa

Département de communication | Department of Communication
Pavillion Desmarais | Desmarais Building
55, av. Laurier Est, | 55 Laurier Avenue East,
11e étage | 11 th Floor
Ottawa, ON | Ottawa, ON
K1N 6N5 | K1N 6N5

INTERVIEW GUIDE

This is an Interview Guide for interviews about understanding how the Marine Institute of Newfoundland and Labrador is adapting its ongoing efforts to attract, recruit and retain student and/or qualified mariners to help address the labour shortage issue in the marine industry. Questions may vary slightly based on the subject matter expert's area(s) of expertise.

General:

1. State your name and area of responsibility with the Marine Institute (MI).

Background and History of MI:

1. What are the main characteristics of MI, or how would you describe MI generally?
2. What are the characteristics of the real-life working environments of graduates in the marine transportation workforce?
3. What are the characteristics of MIs student placement services?
4. Who at MI are the primary advocates for strategic efforts as it relates to student placement services? (what are their roles?)

Process for Assessment and Development: (based on area[s] of expertise)

1. Tell me about:
   a) (for Student Placement expert) the process of how students are placed into various programs at MI?
   b) (for Student Development and Engagement expert) the engagement efforts involving student attraction, recruitment, and placement to help sustain the marine transportation workforce at MI?
   c) (for Student Services, Recruitment and Retention expert) the strategic efforts to recruit and place students at MI?
   d) (for Corporate Services and External Affairs expert) how Corporate Services / External Affairs / Business Development are involved with student attraction, recruitment, training and retention efforts at MI?
   e) (for Marketing and Communications expert) the process of marketing and communications are involved with student attraction, recruitment and retention efforts at the Marine Institute?
   f) (for Quality Assurance expert): How MI's Quality is involved with student attraction, recruitment, training and retention efforts at the MI?
   g) (for head of School of Maritime Studies) how you are involved in student attraction training at the Marine Institute?
2. How were these placement processes decided on?

a. pragmatic (to do it better?)
b. strategic (to gain advantages?)
c. inherent (an obvious next step?)
d. pedagogical (to improve learning?)

3. Who are involved in getting these processes put in place / approved?
4. Are the processes based on data / evidence or historical practices? If none of these, what are they based on?
5. What situation caused these processes to be put in place? i.e. what is its purpose, and what caused that purpose to be fulfilled?)
6. What type of information does your department report on concerning (based on area[s] of expertise):
    a. student placements?
    b. engagement efforts?
    c. efforts to attract, recruit and/or retain students?
    d. strategic efforts to attract, recruit, train and/or retain students?
    e. marketing and communications efforts to attract, recruit and retain students?
    f. how you keep track of goals for improvement?
    g. efforts to train students?
7. What is done with that information? (i.e. who sees it, what is done with it?)
8. How does reporting information relate to any of the MIs strategic priorities to help sustain the marine transportation industry workforce?
9. Tell me about how your department plays a role in advocating for necessary organizational changes re how the MI (based on area[s] of expertise):
    a. places students?
    b. engages interested individuals for a career at sea?
    c. helps to sustain the marine transportation industry and helps to recruit and retain students?
    d. helps to sustain the marine transportation industry?
    e. markets the organization to help sustain the marine transportation industry?
10. If applicable, give me an example of when recommendations were put forward from your department, how it was received, and if that made a difference in the successes of the organization.

Solution or Quick Fix:

1. Based on area[s] of expertise, are the current
    a. student placement practices working? Why or why not?
    b. development and engagement practices working? Why or why not?
    c. efforts to attract, train and retain students working? Why or why not?
    d. efforts from a business development perspective working regarding engaging, attracting, training and retaining students working? Why or why not?
    e. marketing and communications efforts to engage, attract, recruit and retain students working? Why or why not?
    f. Efforts in your department to improve or change how it is recruiting, attracting, training and placing students working? Why or why not?
    g. Efforts in your department to train students working? Why or why not?
2. Is there room for improvement? If so, what are they?
3. Have the above methods in your department changed from years before (2005 to current)?

4. If changed, what caused these practices to change over time? (reasons / challenges / industry changes etc.)
5. If changed over the years, what practices remained constant and why? (i.e. what is working)
6. If changed over the years, are the current methods better than before? Why or why not?
7. If not changed at all over the years, why would that be?
8. Based on area(s) of expertise, how does the MI's successful _____ compare with other, similar training institutions nationally/internationally?
    a. student placements;
    b. development and engagement efforts;
    c. student recruitment and retention initiatives;
    d. business development initiatives;
    e. marketing and communications efforts;
    f. quality improvement initiatives;
    g. maritime studies.
9. Based on area(s) of expertise, how does the MI work with government and or other agencies to help _____ to help sustain the marine transportation workforce?
    a. place students in programs;
    b. engage individuals in programs;
    c. recruit and retain students in programs;
    d. engage, attract, recruit and retain students in programs;
    e. improve quality initiatives;
    f. train students in programs.

Perceptions:

1. Based on area(s) of expertise, what are /or do you know what your department's perceptions are of the MI's efforts to successfully_____? How do you know this is the case?
    a. place students;
    b. engage individuals;
    c. attract and retain students;
    d. train students.
2. Based on area(s) of expertise, what are / or do you know what government's perceptions of the MI's efforts are to successfully _____? How do you know this is the case?
    a. place students;
    b. engage individuals;
    c. attract and retain students;
    d. train students.
3. Based on area(s) of expertise, what are / or do you know what staff's perceptions of the MI's efforts are to successfully _____? How do you know this is the case? (i.e. meetings, surveys, reports?)
    a. place students;
    b. engage individuals;
    c. attract and retain students;
    d. train students.
4. Based on area(s) of expertise, what are / or do you know what students' perceptions of the MI's efforts are to successfully _____? How do you know this is the case? (i.e. meetings, surveys, reports?)
    a. place students?

b. engage individuals;
c. attract and retain students;
d. train students.

5. Based on area(s) of expertise, what are / or do you know what the community's perceptions of the MI's efforts are to successfully _____? How do you know this is the case? (i.e. consultations, media reports?)
    a. place students?
    b. engage individuals;
    c. attract and retain students;
    d. train students.

Complexities:

1. Based on area(s) of expertise, what complexities does your department come across with regards to _____? (i.e. what common issues are you faced with / what are the challenges)
    a. student placement;
    b. development/engaging students to be interested in a career at sea;
    c. student recruitment and retention;
    d. business development and corporate affairs;
    e. attracting new entrants (marketing and communications);
    f. quality improvement;
    g. training.
2. Based on area(s) of expertise, in your department, what type of guidance is provided to students to _____?
    a. place them into the right program area to avoid drop-outs?
    b. engage them in the right program area?
3. Would MI benefit from gaining feedback from students regarding why they stay or drop out of programs?
4. Does your department play a role in following-up with students who have dropped out of programs? Why or why not?
5. Is this a practice that has been in place since 2005 or earlier? How did this practice come about?
6. If this practice is in place, what information/feedback is collected from students so that the organization can learn why students drop out and/or stay in programs?
7. If this practice is not in place, why is nothing being collected to find out what students are thinking?
8. Based on area(s) of expertise:
    a. What are the complexities of working in the marine transportation sector and why?
    b. Are proactive discussions held with students about the complexities of working in the marine transportation sector?
    c. If so, when are these discussions being held? (i.e. individual, groups?)
    d. Has MI adapted any of its attraction, recruitment, training and retention efforts as a result of lessons learned and/or feedback received from students/communities/staff/external agencies?

Organizational Fit:

1. Do current efforts to _____ fit into the organizational vision and/or grand plan to help sustain the marine transportation workforce? Why or why not? If so, how?
    a. place student mariners in programs;
    b. engage students;
    c. recruit and retain students;
    d. develop business;
    e. market and communicate;
    f. improve quality;
    g. train.

2. Based on area(s) of expertise, do the organization's efforts to place, engage, recruit and retain, train students, marketing and communications initiatives, and quality improvement initiatives fit with other workings that may involve government / communities / external agencies? Why or why not. If so, how?

3. Do the organization's efforts referenced above fit with the organization's vision and related policies? Why or why not. If so, how?

Relevant Documents:
My study will involve reviewing relevant documents and data types from 2005 to current (2013) to provide any background and trending information about the Marine Institute's sustainability efforts to help support the marine transportation workforce.

What documents and records, public or non-public with the Marine Institute's permission), can be shared with me to help supplement data for my study?

APPENDIX C:

Université d'Ottawa | University of Ottawa

Département de communication | Department of Communication
Pavillion Desmarais
55, av. Laurier Est,
11e étage
Ottawa, ON
K1N 6N5

Desmarais Building
55 Laurier Avenue East,
11 th Floor
Ottawa, ON
K1N 6N5

CONSENT FORM

Title of the study: A Case Study of Creating a Sustainable Marine Transportation Workforce

Zelda Burt (Researcher)
Department of Communication
Faculty of Graduate Studies
University of Ottawa

Peruvemba Jaya (Thesis Supervisor)
Department of Communication
Faculty of Graduate Studies
University of Ottawa
613-562-6800 ext. 2538

Invitation to Participate: I am invited to participate in the above-mentioned research study to be conducted by the student researcher, Zelda Burt and her Thesis Supervisor, Peruvemba Jaya.

This form is part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you should understand enough about its risks and benefits to be able to make an informed decision. This is the informed consent process. Take time to read this carefully and to understand the information given to you. Please contact the researcher, Zelda Burt, if you have any questions about the study or for more information not included here before you consent.

It is entirely up to you to decide whether to take part in this research. If you choose not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

Purpose of the Study: The purpose of this case study is to learn how the Marine Institute of Newfoundland and Labrador is adapting its ongoing efforts to attract, recruit and retain student and/or qualified mariners to help address the labour shortage issue in the marine industry.
Data will be collected on how the Marine Institute adapts to changing and challenging organizational circumstances in the area of seafarer recruitment, how it constructs solutions and learns to understand current and future workforce complexities in the marine industry, and how it shares knowledge with like-minded agencies internally and externally of the organization.

Participation: My participation will consist essentially of two interviews, approximately 30 minutes in length each, which will be conducted in person, during which I will answer the researcher's questions with regards to my knowledge of any of the following:

- student attraction and/or outreach;
- student and/or seafarer recruitment;
- seafarer training;
- student placement;
- student retention;
- communications, marketing and Business development initiatives specific to attracting students / qualified seafarers; and
- organizational and strategy development.

For each interview I choose to participate in, I will sign a new consent form. The interview has been scheduled on (date)_____ at _____ (time). I will be asked to participate in interviews to address a range of questions pertaining to my area of expertise in the area(s) of student and or qualified seafarer recruitment efforts. The researcher may record audio to accurately capture information for the purpose of data collection. With my consent, video footage may also be recorded for quoting purposes and/or for possible use of the student's final thesis defense. Should I agree to be audio and/or video recorded, I understand that that protecting my anonymity would be limited, as the video footage or audio content may reveal my identity to which I have given permission to.

Risks: My participation in this study will entail that I volunteer information about the Marine Institute's practices, procedures, or policies with regards to seafarer training and recruitment efforts. There are no foreseeable risks to participate in the interviews. However, I have received assurance from the researcher that every effort will be made to minimize any risk by stopping the interview questions at any time. With my consent, I understand that my professional title may be used, or that an accurate area of expertise can be negotiated for the purpose of data collection and/or being quoted.

Benefits: My participation in this study will allow for a more in-depth study about the sustainability practices which learning organizations design and implement, as a result of environmental changes and challenges. This research will help explain how the Marine Institute constructs solutions, learns to adapt to change, understands marine workforce complexities, and shares knowledge with other key players in the industry. This research will also add new knowledge in the field of Communication, and may propose change in how like-minded organizations design and implement sustainability efforts to help create a stable marine transportation workforce.

Confidentiality and anonymity: I have received assurance from the researcher that the information I will share will remain confidential. Only the team of the researchers (Thesis Supervisor, Thesis Committee, and the Researcher) will have access to information I provide. Through the use of secure data storage, the researcher will prevent any other individuals outside of the research project to gain access to the information I provide.

Anonymity will be protected if I do not wish to reveal my identity during interviews. Should I choose not to have my identity revealed, the researcher has given me the assurance that my anonymity will be protected, and that my name or other possible identifiers will not be recorded on the interview answer sheets, or be mentioned in the end-result or final written portions of the study.

However, should I provide permission for audio/video to be recorded during my interview, I understand that the researcher will not be able to guarantee the protection of my identity, as my name or other possible identifiers as a subject matter expert may be used in the published study, or in the researcher's thesis defence.

Conservation of data: The data collected during the interviews, both hard copy and electronic data will be kept in a secure manner. The data will be conserved on a hard drive from the start of the data collection period extending up to a minimum of five years (2018). A copy of all original data will also be securely stored on the University of Ottawa's campus (in the researcher's Thesis Supervisor's office) for the full conservation period.

Voluntary Participation: I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed.

Consent:

I, _____, understand that my signature on this form means that:

2. I have read the information about the research.
3. I have been able to ask questions about this study and that I am satisfied with the answers to all my questions.
4. I understand what the study is about and what I will be doing.
5. I understand that I am free to withdraw from the study at any time, without having to give a reason, and that doing so will not affect me now or in the future.
6. Should I choose to withdraw from the study, I understand that any data collected from me up to the point of my withdrawal will be destroyed.

Acceptance: I, _____, agree to participate in the above research study conducted by Zelda Burt, with the Department of Communication at the University of Ottawa, which research is under the supervision of Thesis Supervisor, Ms. Peruvemba Jaya.

- ☐ I agree to be audio-recorded during the interview.
- ☐ I do not agree to be audio-recorded during the interview.
- ☐ I agree to be video-recorded during the interview.
- ☐ I do not agree to be video-recorded during the interview.
- ☐ I agree to the use of quotations and that my name to be identified in any publications resulting from this study.
- ☐ I agree to the use of quotations but do not want my name to be identified in any publications resulting from this study.
- ☐ I do not agree to the use of quotation.

The proposal for this research has been reviewed by the Interdisciplinary Committee on Ethics in Human Research and found to be in compliance with Memorial University's ethics policy. If you have ethical concerns about the research (such as the way you have been treated or your rights as a participant), you may contact the Chairperson of the ICEHR at **icehr@mun.ca** or by telephone at 709-864-2861.

If I have any questions about the study, I may contact the researcher or her supervisor. If I have any questions regarding the ethical conduct of this study, I may contact the:

Protocol Officer for Ethics in Research
University of Ottawa
Tabaret Hall, 550 Cumberland Street, Room 154
Ottawa, ON K1N 6N5
Tel.: (613) 562-5387
E-mail: ethics@uottawa.ca
There are two copies of the consent form, one of which is mine to keep.

Participant's signature: (Signature) Date: (Date)

Researcher's signature: (Signature) Date: (Date)

APPENDIX D:

uOttawa

Université d'Ottawa | University of Ottawa

Département de communication | Department of Communication
Pavillion Desmarais
55, av. Laurier Est,
11e étage
Ottawa, ON
K1N 6N5

Desmarais Building
55 Laurier Avenue East,
11 th Floor
Ottawa, ON
K1N 6N5

LIST OF DATA SOURCES REVIEWED

Data Sources Reviewed	Number of Items Reviewed
Interviews	7
Description of Key Performance Indicators and Quality Objectives	1
Primary Enrollment Analysis Chart 2001-2013	1
All Programs, Diplomas and Certificate Enrollment Analysis Chart 2001-2013	1
Student Appraisal of Diploma and Certificate Programs Chart 2006-2012	1
Report on Telephone Survey Results on Quality of Service Provided	1
Report on Comment Cards - frequency and nature of suggestions and complaints 2008-2012 (including cleanliness, cafeteria, registration, program and student issues)	1
Description of Management Review Process (purpose, scope and definitions)	1
Description of Planning Cycle Process (purpose, scope, responsibilities, and procedure)	1
Description of Internal Quality Auditing (purpose, scope, procedure, and responsibilities)	1
Fisheries and Marine Institute of Memorial University of Newfoundland website	1
Marine Institute Strategic Plan, Vision 2020	1
(PDF) Marine Institute Pre-arrival Webinar Fall 2015 (Key contacts, campuses, international office, checklists for permits and visas, housing, registration, mentors, health insurance, orientation and welcome sessions, and getting involved.)	1

Marine Institute View Book (Overview, How to recognize a MI grad, Programs, Living in NL, Tuition and finances, Scholarships and Awards, Becoming a Student, High School Equivalent Chart, International Students, Essentials for Parents and guardians)	1
Marine Institute Bridge Magazine (Winter 2010 - 2013)	3
News Articles: • *Genoa Design CEO says 'outlook nothing but optimistic' Mount Pearl-based company lands ship design contract, expects to hire 75 new employees* (CBC News, June 28, 2015); • *People on the Move, Announcements - December 2015* (University Affairs, December 8, 2015); • *Oil price slump now slowing down students at Marine Institute* (CBC News, February 22, 2016); • *Oil sector offered unique experience: MUN Student* (The Telegram, February 22, 2016); • *Construction progresses on new simulator* (The Telegram, October 8, 2014); • *Students navigate through nautical skills competition* (The Telegram, January 27, 2014); • *WISE (women in science and engineering) words offered on careers* (The Telegram, October 24, 2013); and • *New recruits targeted - Students from Junior High to post- secondary asked to consider industry* (The Telegram, February 28, 2012)	8
Total	**31**