"EMPLOYEE ENGAGEMENT IN THE MARITIME INDUSTRY: A PREDICTOR OF PERFORMANCE, SAFETY AND RETENTION AMONGST INDIAN OFFICERS"

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Declaration

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

Signature :

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Date : 20th January 2013

THESIS COMPLETION CERTIFICATE

This is to certify that the thesis on **"EMPLOYEE ENGAGEMENT IN THE MARITIME INDUSTRY: A PREDICTOR OF PERFORMANCE, SAFETY AND RETENTION AMONGST INDIAN OFFICERS"** by **Yogendra Bhattacharya** in Partial completion of the requirements for the award of the Degree of Doctor of Philosophy (Management) is an original work carried out by him under our joint supervision and guidance.

It is certified that the work has not been submitted anywhere else for the award of any other diploma or degree of this or any other University.

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SYNOPSIS

The last decade has seen the international maritime industry coping with increased losses due to ship casualties, accidents, environmental pollution incidents and the like that can be traced back to human factors. The weak freight markets of the past few years have added to the woes of ship owners who must seize any advantage available to remain competitive. At the same time, the industry is also suffering from a shortage of quality officers, partly caused by the negative image being acquired by it in the face of these incidents. The shortage of experienced and quality officers is alarming as it directly impacts the performance, safety and retention of seafarers. Not only has the industry become unattractive to potential newcomers, existing seafarers are also leaving a sailing career to settle in safer jobs ashore. This has resulted in an increase in horizontal mobility of officers between employers, and combined with the general exodus does not portend well for shipping. The industry thus needs to reinvent itself and position it as a career of choice for the youth of today.

Similar problems are also reported from shore based industries, and these are being tackled by focusing more on employees as the source of competitive advantage. Numerous practices are being developed and followed effectively by human resource practitioners to enhance the performance of employees and utilize their full potential. One of the recent practices developed and successfully implemented is the concept of 'Employee Engagement'.

The construct of Engagement is a recent addition, having been conceptualized by Kahn in 1990 [1]. Since then it has undergone rigorous testing and analysis by academics as well as practitioners, making it a popular concept in human resource management today. Engagement refers to the physical, emotional and cognitive commitment employees have to the job and organization. Engaged employees have a bond with the employer, are involved and enthusiastic about their work, use discretionary effort and willingly go the extra mile for the organization. Numerous studies have shown positive linkages between Engagement and business outcomes such as productivity, performance, safety,

turnover, and customer loyalty. Engagement can be measured and enhancement programs across industries have also resulted in benefits to organizations at both individual and organizational levels.

The purpose of this study was to measure the engagement of Indian Merchant Naval officers serving on board ships and analyze if this can be used to predict their performance, safety and retention levels. The data was collected through a structured and validated questionnaire, group administered to respondents. A total of 433 responses were collected for statistical analysis.

Factor analysis was used to validate the questionnaire and also identify factors underlying engagement, performance, safety and retention. The factors extracted were similar to the drivers of the four variables identified through literature, thereby validation the questionnaire used.

The analysis of data revealed that average about 11% of officers scored highly on engagement, 6% on performance, 13% on safety and about 9% retention. The bulk of the sample reported average level scores. Correlation analysis reported a high positive correlation between engagement as the independent variable, and performance, safety and retention as dependent. Engagement explained 61.7% of the variance in performance scores, 62.6% of safety and 65.7% of retention. Regression analysis also revealed that the data fitted well with the proposed model. Senior officers were also found to be more engaged than junior officers, although the correlation coefficient indicated only a small sized effect. On the other hand, engagement was not found to be significantly correlated with length of service with the current employer, disproving the findings in shore based industries.

An analysis of the results indicated that engagement did exist in the maritime industry, although it appeared more of ‘job engagement’ than ‘organizational engagement’; officers were connected more with the job than the shipping company. Engagement was also found to be highly and positively correlated with performance, safety and retention leading to the conclusion that enhancing engagement levels of officers would result in elevated performance, better safety and increased retention. An analysis of the factors extracted

through factor analysis also provide an understanding of what drives engagement, performance, safety and retention of officers.

The findings of the study have many practical implications. Firstly it provides a validated instrument that can be used to measure engagement in the maritime industry. The study also conclusively proves that engagement has a direct impact on performance, safety and retention of officers, and enhancing engagement will increase levels of other three variables. The drivers and barriers of engagement, performance, safety and retention are also identified, along with a comparison on how shipping companies fare on these drivers and barriers. Some of the findings from literature were disproved relating to engagement increasing with position and rank, as well as with tenure. Shipping companies wishing to capitalize on the benefits of employee engagement can formulate best practices based on these drivers, through which officers can be fully engaged resulting in gains from better performance, reduced safety incidents, and the costs associated with high employee turnover.

LIST OF TERMS AND ABBREVIATIONS

The following terms and abbreviations have been used in the study:

Abbreviations:

BIMCO: Baltic and International Maritime Council

DWT: Deadweight – the approximate quantity of cargo any ship can carry

Gt: Gross tonnage – a measure of the cubic capacity of ships

IMO: International Maritime Organization, the wing of the United Nations regulating the maritime industry

ISF: International Shipping Federation, the federation of international ship owners

ISM: International Safety Management Code, a code developed by the IMO for the safety management on ships

MCA: Maritime and Coastguard Agency, UK

OECD: Organization for Economic Cooperation and Development

P&I Club: Protection and Indemnity Club, arrange third party insurance cover for ships

Terms:

Bulk Carrier: a ship designed to carry bulk cargoes like ores, grain etc

Tanker: a ship designed to carry liquid cargoes such as crude oil, chemicals, refined products, vegetable oils etc

Container Ship: a ship designed to carry cargo in containers

Seafarer: any person working on board ships, used interchangeably with officer in the present study.

Officer: refers to ships staff that have certificates of competency issued by the Marine Administration of the country and are qualified to serve as Watch Keeping Officers on Board seagoing vessels, e.g., Chief Officer, Second Engineer etc. In the study, officer has been used interchangeably with seafarer.

Rating: refers to crew members on board who are not certified, e.g. Seamen, Oilers, Cooks, and Stewards etc.

Senior Officer: means the Captain, Chief Officer, Chief Engineer and Second Engineer on board any ship.

Junior Officer: refers to the Second Officer, Third Officer, Radio Officer, Third Engineer, Fourth Engineer and Electrical Officer on board any ship.

Vessel: is any craft used on the seas, and here refers to a 'ship'.

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CHAPTER 1: INTRODUCTION

The sea has never been friendly to man. At most it has been the accomplice of human restlessness – Joseph Conrad

1.1 OVERVIEW

The first chapter provides a background on the construct of employee engagement, its relevance in today's industries in retaining talented employees and thereby improving bottom line results. An introduction to the shipping industry presents an overview of this generally invisible enabler of international trade, its growth and the present day challenges faced by it. This will provide the justification for adopting employee engagement practices in the shipping industry and identify the gap in literature leading to the significance of the study. The chapter ends with an outline of the thesis.

1.2 EMPLOYEE ENGAGEMENT IN A NUTSHELL

The last decade has seen unprecedented changes in the way industries operate worldwide. The existing social, political and geographical boundaries are disappearing, forcing organizations to continuously review and modify their operating strategies in order to remain viable. This boundary-less environment brings with it many opportunities as well as challenges which must be capitalized upon in order to succeed in this ever more competitive world [2]. In their continuous search for competitive advantage, organizations are changing over to more advanced technologies, new sources of raw materials, newer markets for products and services as well as new sources of manpower supply. Internally too, to ensure improved organizational effectiveness, strategies relating to organizational change, management styles, information technology, and human resources are being periodically revised in an attempt

to seize whatever business advantage there is to be gained.

It has, however, been realized that in this rapidly changing world, competitive edge can only be achieved by attracting, developing and retaining human talent. Even though most organizations proclaim that people are their greatest assets [3], the present day industrial environment underscores this statement and makes it more relevant than ever. Organizations that cannot provide the optimal environment needed by employees to stay, develop and grow are liable to lose their talented people.

This need to retain talent has forced a rethink from the traditional human resource view that considered employees a cost to the organization. This search for competitive advantage and continuous change has compelled organizations to explore human resource management as a means of providing organisational success [4]. Strategically it is important to have the right talent in pivotal positions as they can make differences to revenues, and also provide innovation, creativity and organizational effectiveness [5].

In this changed environment, one of the major transformations has been the disappearing psychological contract between the employer and employee, wherein the job was for life [6]. Employees today have their own priorities and needs and are not hesitant in leaving organizations if their requirements are not fulfilled. This results in a continuous churn of employees, much to the detriment of the organization and its operations.

Organizations across the world have come to realize that the key to generating and maintaining business success lies with their employees - their flexibility, innovation and willingness to contribute above the normal call of duty. Strategic human resource management practitioners as well as researchers have realized that the competitive advantage organizations hope to create and sustain are only possible through the dedication, creativity, abilities and innovation of the work force they employ, making them the most productive assets. These assets and their capabilities have been considered “valuable, rare, inimitable, and non-substitutable” [7].

However, retaining talent is not enough, they must be provided an

environment that fully utilizes their capabilities, fosters creativity and innovation, promotes the use of "discretionary effort" and encourages them to go the "extra mile" voluntarily. In other words, employees must be "engaged". As Kaye & Jordan-Evans [8] have very aptly stated that today, it is not only the retention of talented employees that is important, they must be fully engaged by involving them emotionally and rationally in their work roles.

'Employee engagement' as a construct is broad in its reach and incorporates a range of existing constructs including job involvement, job satisfaction, organizational commitment, loyalty, extra role behaviour etc. Engagement was conceptualized as personal engagement by Kahn in 1990 [1], and occurs when employees harness themselves to their work. Engagement results in people employing and expressing themselves physically, cognitively, and emotionally during the execution of their work. Employees who are engaged voluntarily put in effort to meet organizational needs, take initiative, support and reinforce cultures and values, stay vigilant and focused, and believe that they can make a difference to outcomes [9]. From a practical perspective, engaged employees feel ownership of the organization, are proud, loyal and committed to it, investing more than what is normally required [10 - 12].

Engagement has usually been equated with organizational commitment, both intellectually and emotionally [13 – 15]. It has also been considered as the thread that binds employees with the organization; when employees are genuinely interested in the success of the organization, they will willingly go the 'extra mile' [16]. Research by practitioners over the last decade has shown that employee engagement is positively correlated with organizational success and financial outcomes, as well as employee outcomes [13, 17]. Studies also show that engagement is linked to positive outcomes such as improved business performance, increased profits, reduced turnover, better health and safety, and advocacy of the organization etc [18].

Surveys of employees worldwide have revealed various aspects of engagement. Blessing White [19] have found that less than one third of employees worldwide (31%) are engaged while 1 out of every 5 (17%) is disengaged. Watson Wyatt [20] concluded from their surveys that employees

with high engagement levels are more likely to be top performers as compared to their less engaged peers, outdoing them by a ratio of 2:1. Their absenteeism levels are also one fifth that of lesser engaged employees, are more supportive of change initiatives, and nearly three quarters receive better than expected performance reports. Gallup [21] has also reported that employee turnover among engaged employees is 51% lower, absenteeism 27% lesser, while productivity and profitability are 18% and 12% higher respectively.

Although there are some reservations (as discussed in Chapter 2) in academic circles regarding the construct of engagement, there is overwhelming and compelling evidence to support the theory that employee engagement is a valuable proposition which can be implemented to provide the much sought competitive advantage.

1.3 INTRODUCTION TO THE MARITIME INDUSTRY

The shipping industry forms the backbone of international trade, carrying more than 90 per cent of goods transported worldwide [22]. It transports billions of tons of cargo of every conceivable type and shape – 8.7 billion metric tonnes in 2011 - between every part of the world, and that too at the lowest logistics cost possible [23].

In 2010, merchant shipping was estimated as a USD 326 billion industry [24]. In terms of value, maritime trade comprises 60% of international trade [25]. In 2010, out of the USD 15 trillion value of world trade, USD 9 trillion worth of goods was transported by sea [ibid].

The cargo transported by sea increased from an estimated 3.7 billion metric tons in 1980 to 8.7 million metric tons in 2011 [23]. At the same time, the tonnage of ships available rose from 683 million metric tons in 1980 to 1.5 billion metric tons in 2011. Over the last four years, shipping tonnage has registered an increase of 37% [ibid].

The international merchant fleet of ships used in this transportation of cargo stood at 104,305 in January 2012 [23], manned by 1.4 million seafarers from all parts of the world [26]. Of these ships the major types are dry bulk carriers

(40.6%), tankers (33.1%), and container ships (12.9%). Since 1980, the world fleet has grown by more than 150% [23].

Many of the advances made by international trade and commerce can be said to owe their success to the shipping industry, a prime example being the transportation of liquefied natural and petroleum gases. Containerization and multimodal transportation have made possible the door to door manufacture and delivery of consumable products, at very high speeds and within specified time frames. Modern day logistics strategies like Just-In-Time (JIT) concept have also been made possible by the shipping industry rising to the challenge of reinventing itself to meet changing customer requirements. Even the off-shoring of production units for industries like the automobile industry would not have been possible without custom designed ships. There is no area of our daily lives today that is not touched by shipping, although its contribution is not readily visible to the end user.

The maritime industry has rarely been in the limelight, and not much thought is given by consumers either to the mode of transport employed in the provision of goods or to the seafarers manning these ships [27]. Ships and seafarers go about their job of transporting thousands of tons of raw materials, ores, components, petroleum products, foodstuffs, finished goods etc over large distances in the most economic and cost-effective manner. Seafarers and the ships they operate therefore play an indispensable role in the global economy of today [ibid].

Changes in the international business environment have also caused a sea change in the way the shipping industry operates. The opening up of borders over the last two decades has boosted international trade in all manner of commodities, resulting in an unprecedented increase in worldwide shipping. This has also brought with it many new opportunities and threats, which must be effectively managed by the shipping industry.

The ownership of the international fleet is scattered all over the world, the bulk however remaining with the developed countries. Greece controls the largest share of worldwide tonnage, with an estimated share of 16.1%, followed by Japan (15.6%), Germany (9.0%) and China (8.9%) [23]. 95% of international

tonnage is owned by the top 35 ship owning countries. Two thirds of this tonnage is controlled by owners in developed countries, while one third by owners from developing countries [ibid].

In the past, ship owners registered and manned their ships from the country where they lived and conducted their business [28]. Some countries however set up 'Open Registers' or 'Flags of Convenience' or 'Free Flags' that allowed owners from other countries to register their ships [ibid], most popular being Panama, Liberia, Marshall Islands, Bahamas, etc. Open registers provide economic benefits in that they demand minimal taxation, permit beneficial owners to reside elsewhere, operate, maintain all accounting and banking operations and keep all profits in a different country [ibid]. They also permit the employment of crew of any nationality and at any wage scale the Owners wish. According to estimates, flagging out an EU registered vessel can save operational costs of 3.5% to 22% for container ships, and 15% to 44% for bulk carriers [29]. Considering that the cost of manning a ship amounts to 60 – 70% of the operating costs of the vessel [28], these represent huge savings for ship owners. As a result foreign flags account for the registration of more than 71% of international shipping tonnage [23].

Even though more than 60% of the worldwide tonnage is owned by the developed world, seafarers from the developing world dominate with its estimated share of Officers worldwide at 59.1% and Ratings at 58.1% [26]. The main suppliers of manpower are shown in Table 1.1 below.

Table 1.1: Top Five Maritime Labour Supplying Nations

Officers			Ratings		
Nationality	Nos.	Market Share	Nationality	Nos.	Market
Philippines	70,000	12.9%	China	104,200	13.7%
China	51,800	9.5%	Philippines	80,000	10.5%
India	42,000	7.7%	India	56,000	7.4%
Ukraine	35,400	6.5%	Indonesia	44,000	5.8%
Russia	25,000	4.6%	Ukraine	40,000	5.3%

Source: Drewry Manning Report 2012

The maritime industry has been suffering from a shortage of qualified and experienced officers for the last two decades [30]. In 2011, Drewry estimated 1.3 million seafarers, comprising 544,000 officers and 758,400 ratings [26], while the BIMCO/ISF Manpower Update of 2010 stated figures of total 1.37 million, with 624,602 officers and 747,306 ratings [31]. Over the years, there have been various figures reported, some even causing alarm bells ringing in the industry when Drewry reported a shortfall of 33,000 officers in 2009, rising to 56,000 in 2013 [32].

Even though the 2009 report predicts a shortage, the ISF / BIMCO Manpower 2010 Update [31] shows a different picture by finding that the demand supply gap for officers has narrowed, with a 2% shortage of officers, based on the present scenario of a very slow market. In case the international fleet grows at the average rate of the past decade of 2.3% per annum, the shortage could reach up to 5% by 2015. In the event shipping picks up at a faster pace, the shortage could reach 11%.

Despite the small gap, some segments of shipping are still grappling with shortages and the retention of senior deck and engineering officers, particularly in the tanker and offshore supply segments. There is also concern regarding the availability of officers at the management level (senior officers) in the Indian sub-continent and Far East, both major manpower supplying regions, and the future of crewing remains challenging.

The issue of manpower supply in the maritime industry can be broadly divided into two parts: the reluctance of talented youth to join, and existing seafarers unwilling to continue. There are certain features of the modern shipping industry that act against the attractiveness of life at sea, and for thousands of today's international seafarers life at sea is modern slavery and their work place is a slave ship [33].

Many studies have been conducted in the recent past to identify these causes [33 - 35]. From these studies, the following were the reasons cited by potential seafarers for their reluctance to join the profession:

- A maritime career is considered less attractive as compared to other

shore based professions

- Spending extended periods of time away from home, family and friends
- Unfavourable image of the maritime industry, with accidents, spills etc being highly publicized; positive aspects are usually not mentioned
- Lack of perceived employment security
- High expected levels of hardship, not commensurate with financial rewards offered
- Prospects of difficult social life on board with multi-national crews, resulting in isolation on board
- Profession not perceived as offering high prestige or social acceptance in many countries

As far as existing seafarers not continuing with their chosen careers, the above reasons hold good for them too. Additionally, the following are also responsible for their early retirement from active sailing:

- Lack of recreation and social interaction at ports due to remoteness of many modern ports and terminals
- Inadequate access to economical modern communications facilities
- Minimum stays in port not offering enough time for regeneration, apart from heavier workloads
- Skeletal or minimum manning levels, leading to overwork and fatigue
- Reduced standards of competency
- High burden of responsibilities and increased inspections in port
- Minimal autonomy for senior shipboard officers, with a propensity for 'remote control' by shore management
- Unacceptable gap between shipboard responsibility and decision making ashore propagating a blame culture
- Unsatisfactory human resource management, both ashore and on board

Recent times have seen some other reasons that can also be considered as contributory factors. Some of these are - a lack of training berths on board, reduction in on-board service time, criminalization of seafarers, piracy and threat to life, denial of shore leave, etc.

1.4 RATIONALE OF THE STUDY

The surge in activity in maritime transportation and the shipping industry has brought with it new challenges, mainly relating to increased regulatory pressures from governments, monumental fines for oil pollution, challenges posed by piracy in certain areas of the globe, rising operating costs, increased safety concerns, and a shortage of qualified and experienced seafarers.

Many of the concerns of ship owners and operators can be traced to the last cause – shortage of qualified seafarers. The shipping industry has been suffering from a negative image in the recent past, and coupled with other issues is unable to brand itself as an industry of choice to attract young talent. Hard working and living conditions, criminalization of seafarers, restrictions on shore leave, overwork and the like, have made this once glorious and challenging career, unattractive to today's youth. Another change has been the shift of shipping companies away from the traditional maritime nations in Europe and the developed world to the developing world, mainly on account of economic reasons. This has been in most spheres of ship operation, but more so in the field of manning their ships where three countries - the Philippines, China and India - account for one quarter of the world's supply of Officers [26].

The scarcity of officers has been around for two decades now, with recent surveys reporting alarming shortages, the shortfall of officers reaching 34,000 in 2008 and rising to 56,000 in 2013 [32]. There are fears in the industry that if the shortage of officers is not alleviated soon, it has the potential of turning into a crisis, impacting the safe and smooth transportation of commodities traded around the world. In response to this worst case scenario, the maritime industry, international shipping organizations and governments around the

world have started considering what measures can be undertaken to attract sufficient numbers of young seafarers to meet the industry's future requirements. The Nippon Foundation also expressed concern that the non-availability of young seafarers with caliber to manage the rapid expansion of the world fleet was a worrying development [36]. Their study indicated that the changing world economy would impact the future shipping industry, and also influence the sourcing of required manpower.

This shortage has also been exacerbated by existing seafarers not willing to consider the sea as a lifelong career, with officers shifting to shore positions as early as possible. A recent survey indicated that only one third of respondents planned to make the sea a lifelong career, while two thirds wanted to move ashore as soon as practicable [37]. The Life at Sea Survey also found that only 32.3% of all respondents proposed to stay at sea for their entire career, the balance preferring to leave sea life based on their own requirements [ibid].

The result is that in order to keep ships running promotions are being fast tracked with not much regard to quality or experience [38]. The shortage has also pushed average wages up by 7%, and up to 25% in case of niche sectors [ibid], creating an environment where ship operators are engaged in 'poaching' officers from other companies through monetary incentives [39]. As a result, seafarers have become very mobile between jobs, something which no company wants. Shipboard knowledge is experiential; it is gained from experience, and every time an officer leaves an organization or the industry, he takes away with him valuable knowledge that takes years to gain, to the detriment of the company and the industry. There is already an acknowledgement that experiential knowledge is not being passed from senior to junior officers onboard many merchant vessels, in the traditional way that it used to be [40], and senior officers leaving the industry compounds this problem further.

Lack of experiential knowledge has the potential of causing more accidents, pollution and losses to ship owners [40]. The Standard P&I Club, as reported in [41], estimates that over a recent ten-year period, insurance claims cost the P&I industry US$15 billion. That is US$4 million dollars every single day.

Over 65% of this vast payout – an amazing US$10 billion – was for incidents in which humans played the dominant part.

The modern day seafarer is generally disillusioned with employment on board ships as it fails to live up to his aspirations of the job as well as to the social life on board [42]. Apart from this is the high-handed treatment – bordering on disrespect - meted out to them by port authorities and other administrative officials [43]. The increase in bureaucracy ashore, excessive and variable regulations, and lack of opportunities to go ashore, have also made this career unattractive to the youth who came to sea with a different vision, finding themselves mired in endless paperwork [37]. All these issues, alongwith the latest scourge of piracy, combine to turn contented seafarers into wanting to leave the industry at the first available opportunity. These matters require urgent attention and redressal, alongwith the creation of competent shore side infrastructure based on sea-going experience, in order to attract a new generation of seafarers [44].

One of the possible ways of retaining existing seafarers and attract quality youth is by the shipping industry improving its public image and status [45], and this can be done by creating and nurturing an environment that will support the aspirations of the modern day seafarers, provide them with dignity, job satisfaction, improved quality of life on board ships and acceptable work-life balance [46].

The possibility of utilizing the principles of employee engagement - as developed and successfully implemented in shore based industries – can be explored, to 'engage' seafarers and reap consequent benefits. Due to the transient nature of seafarers and their employment conditions, there are reportedly very few HR practices which do not include monetary incentives in some form or other. Seafarers have been considered to be a mercenary lot for whom money is the only factor that matters [39, 47]. Unfortunately, there are limited practices that ship owners follow to ensure that their seafarers get an all round fair deal in aspects such as living conditions, workloads, benefits, fair treatment etc. The shipping industry has all the barriers of employee engagement as found in contemporary literature (discussed in following

chapters), and it is worth investigating if employee engagement can be implemented in the shipping industry, for the benefit of shipping companies in particular, and the industry as a whole.

It has been generally accepted today that employee engagement is one of the key enablers of organizational success [48]. Recent studies have indicated that the existence of high engagement levels in organizations enhances talent retention and improves business performance [19]. Engagement has also been found positively linked to company reputation, customer satisfaction, overall stakeholder value, safety, profitability and productivity [49-51].

It is in the backdrop of the challenges being faced by the shipping industry that the implementation of measures to enhance employee engagement assumes greater significance. Through engagement quality seafarers may be attracted and retained, improving the industry's overall performance.

The problem statement can therefore be stated as:

Assessing the relevance and impact of employee engagement on the performance, safety attitudes, and the continuance of existing employment, of Indian Merchant Naval Officers

1.5 NEED FOR THE STUDY

Shipping companies face various challenges while operating in a widely dispersed industry, subject to international conventions, as well as the laws of numerous countries. Any shipping company itself is spread all over the globe with actual owners in one country, commercial managers in another, crew mangers in a third while the ship itself is always on the move. Apart from this, there are many departments like Commercial, Operations, Technical, Crewing and the ship which have their own organizational structure, leadership styles, work groups etc. All these various parts and sub parts have to work together to ensure organizational profitability.

Changes in the operating environment of the shipping industry have converted the daily management of ships from people intensive units to people critical

units. The ship is essentially the final place which is responsible for generating revenues for the ship owner. There are a large number of decisions that have to be made by seafarers on the spot that have an impact on company profitability. Seafarers thus play a very critical role in all major and minor activities on board, and can effectively contribute to this profitability through their actions. In order to do this, seafarers must be 'engaged'; engaged employees are genuinely interested in the well-being of the organization and willingly exert extra effort towards its success [52].

To address the manpower challenge, the primary focus of stakeholders in the industry has been to increase recruitment of fresh seafarers, by improving the image of the industry, and even launching a 'Go To Sea' campaign by the IMO in 2010. On retention too, steps are being taken to improve the quality of life of seafarers [46]. However, the conventional wisdom of shipping companies on retention would appear to be still inclined towards the use of monetary incentives, and the typical attitude is echoed in the words of the General Manager of a major ship management company who states that today's seafarer feels that money is sweeter than honey. "Only money talks" [47]. Seafarers have also been compared in terms of their work attitudes with prostitutes and mercenaries by ship managers [39].

There is no denying that money is the overriding factor deciding a young man's choice in coming out to sea. However, it has been stated that salary, incentives and benefits are essentially external motivators and generally do not give meaning to employees [53]. Maslow also stated that money relates to lower level needs, and once these needs are met, higher order needs assume significance [54]. It has also been argued that money works as a motivator in the short-term only, it does not assist in transforming behaviours and attitudes over the long term [55]. Since the ultimate aim is to improve performance, organizations must focus on other motivational factors [56].

Studies have isolated many variables that can have an effect on employee performance, prime being attitudes towards merit pay, trust in the organization, commitment towards it, the value of monetary rewards, a clear connection between pay and performance, and an equitable and fair pay

structure [57]. The productivity of individual employees' is dependent, amongst other variables, on job satisfaction levels achieved and motivation provided [58]. It has also been suggested organizational productivity and performance can be achieved by focusing on increasing organizational commitment [59]. An alternative approach to managing performance is by developing incentive programs in such a manner that they address organizational commitment issues also [60].

It can therefore be concluded that there do exist non-monetary incentives that can contribute towards increasing loyalty. Traditionally, job satisfaction has been related with the satisfaction of monetary and non-monetary needs of employees. Hallowell et al. [61] have empirically analyzed and suggested that the satisfaction of non-economic need satisfaction is more important than the satisfaction of economic needs. To cite the findings from the Life at Sea Survey [37], salary was cited by 31.5% of all respondents as the most important factor that keeps them at sea. However, reassuringly high on the list of motivators was job satisfaction selected by 20% of respondents.

It is in this context of motivation of seafarers that employee engagement can play a successful role. Employee Engagement has become popular over the last two decades, as it combines job satisfaction, organizational commitment and intention to stay in one construct. Studies of corporate results have shown a positive linkage between engagement, employee performance and business results. It would thus be fair to assume that Employee Engagement in the maritime industry can bring about an increase in seafarer performance, safety, profitability and a decrease in employee turnover and shortages.

This study thus aims at ascertaining the drivers of engagement, and its levels prevalent amongst seafarers in the shipping industry. It will also determine the relationship and significance between employee engagement and performance, safety, and retention amongst Indian Merchant Naval Officers. If identified, these can be used to develop of realistic and holistic HR policies that can effectively address the manpower challenges by means other than the conventional medicine of 'more money', and ease the already strained resources of ship owners.

1.6 SIGNIFICANCE OF THE STUDY

The concept and application of employee engagement in the maritime industry appears currently under researched, this probably being the first study of engagement amongst seafarers, with an emphasis on Indian Officers. It has both theoretical and practical significance for the shipping industry, as it advances knowledge and understanding of the variables that may impact seafarers' engagement, and consequently the issues of performance, safety and retention.

This research will provide insights into the applicability of the principles of engagement to the world of seafaring, and identify those conditions necessary for engaging seafarers. It will also assist in identifying the factors responsible for seafarer performance, safety and retention. Understanding the drivers and barriers of engagement may assist in the formation of strategies by shipping companies to enhance seafarer performance, improve their safety record and also reduce the turnover of qualified and experienced seafarers.

1.7 THESIS OUTLINE

The thesis is organized as follows:

Chapter 1: Introduction

The first chapter presents the theoretical background of employee engagement, an introduction to the maritime industry, and the relevance of engagement in the maritime context. It discusses the need for the study, its aims and objectives, the research questions, and the significance of the study.

Chapter 2: Review of Literature

This chapter provides an in-depth understanding of the construct of employee engagement, its development, and the theories used to explain it. It identifies the drivers and barriers of engagement, its similarities with other constructs as well as criticisms. It analyzes the outcomes of engagement, the state of engagement amongst employees worldwide, and the costs of disengagement. The chapter also discusses the concepts of performance, safety, and retention,

identifying their barriers and drivers, and also their relevance in the maritime domain.

Chapter 3: Research Methodology and Design

The third chapter discusses in detail the methodology used in the execution of the research, identifying the research gap, and proposed research and sampling design. It states the objectives, hypotheses and outlines the process of questionnaire development and testing for reliability. The chapter also shows the results of factor analysis in validating the questionnaire.

Chapter 4: Analysis and Findings

The chapter presents the analysis of quantitative data gathered from the survey, along with the findings and testing of hypothesis. The summary of descriptive statistics, correlation analysis and regression analysis are also provided.

Chapter 5: Conclusions and Recommendations

The final chapter summarizes the study, and offers recommendations to ship owners and managers on steps that can be conveniently taken on order to improve the engagement levels of its existing officers. It also outlines the limitations of the research, indicates specific areas for further research and offers final conclusions.

1.8 CONCLUDING REMARKS

This chapter focused on providing an overview of engagement and the problems being faced by the shipping industry. It was also meant to show the gap in literature, and the researcher's aim to bridge this gap by measuring the engagement of seafarers and determining if any significant relationship exists with performance, safety and retention of seafarers. It is also hoped to isolate the barriers and drivers of engagement in the shipping industry and propose best practices which can be followed by shipping companies to resolve their manpower problems.

CHAPTER 2: LITERATURE REVIEW

It is not the ship so much as the skilful sailor that assures the prosperous voyage

- George William Curtis

2.1 OVERVIEW

This chapter focuses mainly on all aspects of employee engagement as it is a comparatively new concept. It traces its origins, understands its dimensions and analyzes the various definitions available in current literature. The various theories used to explain engagement are discussed, along with its similarities to existing constructs. The outcomes and drivers of engagement are analyzed, as well as the dissenting views on engagement. Finally, performance, safety and retention are discussed briefly being existing constructs, along with their drivers.

2.2 THE IMPORTANCE OF PEOPLE

People form the life blood of any organization [62], it is through people that organizations succeed or fail. Organizations have many resources at their disposal – financial, technological, material – but it is the people of an organization that effectively and efficiently manage these resources in a manner that results in the achievement of organizational objectives [63]. No organization can achieve its goals without the active and positive involvement of its work force.

Organizations across the world have come to realize that the key to generating and maintaining business success lies in their employees - their flexibility, innovation and willingness to contribute above the normal call of duty. It has been recognized that organizational competencies providing sustainable competitive advantage are directly attributable to the abilities of employees

and human resource systems, making them invaluable and rare, not easily substituted by other resources [7].

Organizations are essentially made up of workers who initiate, coordinate, control and complete activities, and thus form its most significant resources. To achieve organizational success, these 'human factors' must be effectively managed. 'Human factors' are a complex mix of many components, including ethical, psychological, physiological as well as sociological components which interact among themselves, and are at the same time inter-dependent and inter-related [64]. However, the dynamic and increasingly competitive atmosphere of the 21st century makes the management of these human factors a challenge for human resource (HR) managers. HR management thus consists of a chain of decisions that are integrated to form the employment relationship, the quality of these decisions greatly contributing to the organizations and employees' abilities to achieve stated objectives [65].

HR policies thus need to be strategically devised for the proactive management of employees, so that employees can meet the needs of the organization, and the organization fulfill the desires of its workers. Competitive advantage through employees can be gained through generic policies, such as pay to performance, that have been shown to be effective across many types of organizations [66]. However, to achieve long-term sustained competitive advantage, HR practices need to be developed that are specific to the organizations own context and meet their needs [ibid].

While designing such comprehensive policies, managers should take into account the needs of different individuals, diversity of the workforce, and demands on the employees, among others. Each employee is a distinct individual in his own right with differing wants, needs and ambitions. Each individual has a different way of working, and these ways play a crucial difference in the success or failure of firms [67]. Policies should be flexible enough so that they can be adapted to the varying needs of different employees at various levels of the organization.

With the advent of globalization, the diversity in the work force has further increased, thus compounding the issue of devising HR policies that cater to

this multi-characteristic employee group. This workforce also brings with it varying individual needs and drives, causing major changes in the organizational culture, making it much more complex and diverse. The role of organizational culture cannot be emphasized enough as it creates the environment which leads to organizational success or failure.

The rules of competition in the industry are also ever-changing with more and more demands on the skills, abilities and involvement of employees. Competitive strategies are being built on restructuring, reengineering, redistribution of power and improvement of quality [68]. All these require workers and work schedules to be flexible, and these strategies will not succeed without greater participation and teamwork of the employees.

The last few decades have also seen a significant shift in the relationship between employers and employees. Driven by increasingly competitive markets, unpredictable economic conditions, globalization, continuous need for innovation and the war for talent, organizations all over the world face numerous challenges in order to succeed. Jobs are not 'for life' anymore; the psychological contract between employer – employee being different in today's world and for today's generation [6].

In such dynamic and turbulent conditions, it is being realized that people are the only component of the industry that provide reliability and stability. Employees are the resource that continues to provide creativity and innovation, which form the source of an organization's competitive edge. It is in such a context that the **'Engagement'** of employees assumes the greatest significance, as this may decide between success and failure of organizations.

Since the last decade, employee engagement has captured the attention of academics and HR practitioners alike, making it a management hot topic. It has also received acceptance from academics, and is increasingly being incorporated into the HR agenda of organizations. Mike Johnson [69] considers the goal of engaging employees as one of the greatest challenges being faced by organizations in the coming decade.

Recent research and studies on engagement have increased awareness amongst

employers that engaged employees are instrumental to improved performance and ensuing organizational success. Engagement creates employees who are hardworking, responsible, accountable and ethical [70, 71].

Engaged employees are personally attached to their jobs as well as to the organization; they have high motivation levels and willingly put in their best efforts in order to achieve organizational goals, resulting in measurable benefits for employees themselves as well as the organization [20]. Surveys have shown that the top performers in any organization have high levels of engagement, have less absenteeism, deliver beyond normal expectations, willingly support new initiatives, and are able to comfortably withstand change and adversity [ibid]. Gallup also report that turnover amongst engaged employees was 51% lesser, they had 21% lower absenteeism, 18% higher productivity levels as well as 12% higher profitability [21].

2.3 THE CONCEPT OF "ENGAGEMENT"

Engagement, as a construct, has a relatively short historical time line. Engagement was first conceptualised by William Kahn in 1990 from two qualitative studies, which explored those work conditions in which employees personally connected with the work, or disconnected from it [1]. From this study, Kahn defined engagement as *"The harnessing of organization members' selves to their work roles; in engagement, people employ and express themselves physically, cognitively, and emotionally during role performances."*

Engagement thus has three dimensions through which it expresses itself:

- physically – where employees bring in high levels of physical energy, strength and readiness into their jobs,
- cognitively – where employees give sustained, engaged attention to a task requiring mental effort, leading to self-regulated learning, and
- emotionally – where employees feel an emotional connection with the work as well as the job and the employer

Kahn concluded that individuals are constituted of numerous dimensions, and if conditions are conducive, they will use and express these through their role performances. The use of these dimensions channels their energies into the work, physically, cognitively and emotionally.

On the other end of the continuum, Kahn found personal disengagement, in which the individual disconnects or uncouples himself from his work. When disengaged, individuals withdraw and suppress their energies by disinterestedly discharging their role obligations [1].

Over the last half a century, HR practitioners have concentrated on identifying the relationship between management strategies and HR practices that have the most impact on organizational effectiveness and bottom line financial success. These attempts have been related to concepts ranging from job satisfaction and job involvement, to motivation, organizational commitment and organizational citizenship behavior, etc. All these aspects have now been combined into one – **'Engagement'**.

Engagement has such a wide dimension that it tends to overlap many of the existing constructs like job satisfaction, affective commitment, involvement, organizational citizenship behavior etc, to the extent that the definitions and measures "often sound like other better known and established constructs such as organizational commitment and organizational citizenship behaviour" [18].

However, even though there are similarities between these constructs, engagement stands out as it embraces all aspects in its totality. Saks agrees that that there are valid grounds to support the argument in favour of engagement being a related but distinct construct in organisational behaviour [72]. Robinson et al also concur stating that even though engagement includes many facets of commitment as well as organizational commitment (OC), they are not perfect matches [18]. One of the major differences lies in the bidirectional characteristic of engagement, and the degree to which engaged employees are expected to be aware of the overall business context [ibid].

The fact that engagement is different from existing constructs is also supported by Harter and Schmidt [73], who consider engagement to reflect a greater

degree of employee involvement and enthusiasm than is implied by mere job satisfaction, job involvement or organizational commitment.

2.4 ENGAGEMENT THEORIES

Since the concept of engagement is relatively new, research on understanding its various dimensions started as late as the early nineties [1]. Over the years, practitioners and researchers have used differing definitions as well as theoretical models to interpret engagement and its functioning. Various theories have been presented to explain engagement: Kahn's Psychological Presence [1], Saks' Social Exchange Theory [72], Schaufeli and Bakker's Job Demands and Resources theory [74], Fredrickson's Broaden and Build Theory [75], and Csikszentmihalyi's Flow Theory of Vital Engagement [76].

Except for Fredrickson's theory, all others consider a balance in the relationship between the employer and employee to be vital for the existence and development of engagement. These theories are discussed in the succeeding paragraphs.

2.4.1 PSYCHOLOGICAL PRESENCE

Kahn opined that engagement results from a mental state, which he termed psychological presence, corresponding to an environment in which individuals can be themselves and be able to express themselves without reservations [1]. They are under no pressure to control or subdue their feelings, beliefs, values or inclinations. In such an atmosphere, they can freely immerse themselves in their work and derive enjoyment and satisfaction from it [ibid].

Kahn identifies three dimensions of psychological presence – meaningfulness, safety, and availability. He states that people modify their personal engagements according to their perceptions of the benefits, or 'meaningfulness', and the guarantees, or 'safety', they perceive in situations. Psychological meaningfulness was associated with elements at work that created motivation or demotivation to personally engage or disengage.

Psychological safety was related to elements of social systems that created predictable and consistent social conditions, in which the individual did not feel threatened, in order to engage safely. Psychological availability was associated with individual distractions that preoccupied people to various degrees and left them more or fewer resources with which to engage in role performances.

On meaningfulness, Kahn argues that individuals will feel more engaged when they have a sense of return on investments, feel worthwhile, and valued. They must find meaningfulness in their roles, provided through challenging jobs, variety, creativity and autonomy. There is an alignment between organizational and personal goals causing them to dedicate themselves to their job with vigour. This energy manifests itself as engagement.

Individuals feel psychologically safe when they are able to express themselves at work without any fear of repercussions or negative outcomes that could affect their self-image, their status, and even career. People feel safe in environments in which they believe they will not suffer on account of their personal engagement. Employees finding situations to be trustworthy, secure and predictable are more likely to employ themselves with vigour and cause engagement. Such an atmosphere can be brought about by relationships that are built on support, trust, flexibility and openness.

Psychological availability refers to the self-belief and confidence when equipped with physical, psychological, or emotional resources to completely engage in their specific task at any given moment of time. It indicates whether individuals are capable of investing these physical, intellectual and emotional energies in their work, despite the distractions experienced.

Kahn's concepts were supported by a further study [77], which confirmed that engagement was indeed related to meaningfulness, psychological availability and safety. The relationship of psychological presence and engagement was also confirmed in 2010 [78] by a study that measured the extent to which individuals felt alignment between their work and values, and the organizational support received. Engagement was found to be associated with these three measures – self evaluation, value congruence, and organizational

support - and is similar to Kahn's antecedents of meaningfulness, safety and availability.

2.4.2 SOCIAL EXCHANGE

Social Exchange Theory (SET) provides a stronger theoretical rationale which can be used to support Kahn's views on engagement. The SET contends that the interaction between parties, who are reciprocally interdependent, generates obligations and actions that are based on the perceived reciprocal response [79]. The foundation of SET is that these relationships develop over time leading to trust, loyalty, and mutual commitment. In order to achieve this desirable stage, both parties must follow specific 'rules of exchange'. "Rules of exchange form a normative definition of the situation that forms among or is adopted by the participants in an exchange relation" [ibid].

These 'rules of exchange' involve reciprocity in such a way that the actions of one side create a response or repayment actions by the other side. For example, the receipt of economic or socio-emotional resources from the organization creates an obligation through which they respond in a similar manner and repay the organization through their work [80].

This feeling of obligation is what lies at the heart of engagement and makes it a two-way relationship. Organizations that create this feeling of obligation will find that employees are willing to repay them by involving themselves to greater degrees in their work roles – physically, cognitively and emotionally. This results in positive attitudes towards the organization, leading to engagement. Saks [72] also agrees, finding organizational support and resources leading to increased levels of engagement. The level of engagement will vary on the resources they receive from their organizations. When these resources and benefits are not available, employees tend to uncouple themselves and disengage. Saks concludes that resources – economic, social and emotional – provided by the organization will dictate the quantum of physical, cognitive and emotional energy an individual will bring to his work.

2.4.3 THE JOB DEMANDS-RESOURCES MODEL

The Job Demands-Resources (JD-R) model [81] has also been used to predict employee engagement, through its antithesis burnout, and consequent organizational performance. The basic tenet of the JD-R model is that the various factors causing employee well-being, different in various occupations, fall under two major categories – Job Demands and Resources.

Job demands refer to those factors that lead to burnout, namely increased levels of stress, excessive expectations and conflicting demands. Meeting these demands requires additional effort, causing depletion of energy and resulting in exhaustion [74, 82].

Job resources, on the other hand, indicate the existence of support, feedback and work autonomy – conditions necessary for the cultivation of engagement, and simultaneously moderate any detrimental consequences of excessive job demands [74, 82].

The existence of these two processes has been evidenced by extensive research. High job demands drain the individual physically as well as mentally, causing energy depletion and well-being issues. In contrast, job resources nurture engagement and motivate individuals to go beyond the normal call of duty.

Job resources thus go a long way in promoting engagement. Resources such as constructive performance feedback, co-worker support, and guidance from seniors are positively related with vigour, dedication and absorption – the three elements of work engagement [74]. Another study highlights that there are six potential resources – working climate, job control, innovation, supervisor support, information, appreciation, innovation - which were also positively linked to engagement [83].

Job resources also have the ability to mitigate the adverse effects of high job demands, thereby reducing burnout. Job demands – both physical and emotional, and conflicts between personal and work responsibilities, usually create energy depletion and cynicism, leading to disengagement [84]. The provision of job resources such as autonomy, feedback, and support, help to

reduce the effects of such high demands. Present resources also have an effect on engagement in the future, and resources can also effect the subsequent development of engagement, apart from only mitigating the negative effects of high job demands at the present moment [85]. It has also been argued that a cycle is often created, in that, job resources lead to the enhancement of engagement, consequently leading to the attraction of more resources [86].

2.4.4 BROADEN & BUILD THEORY

Using the perspectives of positive psychology, Fredrickson [87] developed the 'Broaden and Build' theory, in order to capture the unique effects of positive emotions. Fredrickson proposes that there are specific and distinct positive emotions – such as joy, interest, contentment, pride, and love – that have the capability to 'broaden' people's momentary thought-action repositories and build their enduring personal resources. These resources can range from physical and intellectual to social and psychological resources [75]. She states that joy encourages playfulness and creativity, broadening resources in the process. Interest, on the other hand, enhances exploratory desires, the ability to assimilate new experiences and information, and development. Such attitudes to work are crucial for organizations to maintain their competitiveness, and are particularly important in middle managers who need to take the lead. She also found empirical evidence suggesting that positive emotions broaden attention spans, cognitive abilities, and activity levels and assist in building intellectual, physical, and social resources.

Fredrickson's theory emphasizes that positive emotions open the hearts and minds of employees making them more receptive and creative. This creates conditions that allow employees to discover new skills and develop them, form relationships, and gain knowledge, making them more resilient to setbacks.

Recent research has shown that engagement also creates positive emotions, including joy, happiness, interest, and enthusiasm [88, 89]. It has also suggested that these positive emotions may be the reason behind engaged employees having higher productivity [75]. Employees, who are happy are

more sensitive to work opportunities, willingly help others, are more optimistic and have higher confidence levels [90]. Research has also shown that positive emotions can make people feel good not only at the moment but also in the future, by developing durable psychological resources and moving them towards emotional well-being [91].

Using the broaden and build theory it can be argued that engaged employees, given the right conditions that provide joy, happiness and enthusiasm, can develop their own strengths, and are better placed to achieve their professional goals. It has also been suggested that these conditions also result in good health of employees, allowing them to direct their energy and resources towards the work itself [75]. They also transfer their enthusiasm to others in their circle and improve team performance.

Positive emotions actually lead to good functioning – they are not only rewards for doing the right things, they also increase future performance potential of employees. Indications are that the 'Broaden and Build' theory also operates at the team level – a good balance between being supportive and being challenged broadens the creative potential of the entire team, resulting in increased productivity, profitability and customer satisfaction.

2.4.5 FLOW AND VITAL ENGAGEMENT

Another construct closely associated with engagement is that of 'flow'. The idea of 'flow' was conceived by Csikszentmihalyi [76] who described it as the *"holistic sensation that people feel when they act with total involvement"*. He suggested that individuals experiencing flow are not motivated by extrinsic rewards or causes; the work in itself was challenge enough. Flow refers to a moment-by-moment experience which is felt by individuals when they are completely immersed in their work.

Under the influence of flow, employees operate at full capacity creating feelings of satisfaction, happiness, and creativity, enabling individuals to operate with higher efficiency [92]. Flow, however, is the balancing of an individual's perceived abilities and the opportunities to use them. Employees

feel anxious when the challenges are high on one hand, and bored in its absence on the other. It has been further stated that flow results in employees achieving meaningful connections to their work environment, termed as 'vital engagement' [ibid]. Individuals experiencing 'vital engagement' find work meaningful and enjoyable. Similar to Kahn's concept of engagement, vital engagement is also associated with a kind of self involvement or employment.

Vital engagement however, is associated more with cognitive involvement, and is a temporary state, whereas engagement has a broader domain, combining physical, emotional and cognitive aspects [77], and is more stable over time. Additionally, flow is essentially a short-term cognitive capturing of the person in an activity on a temporary basis, while engagement implies a more permanent and holistic involvement in work activities [1, 93].

2.5 DEFINING ENGAGEMENT

Engagement today is a 'buzz word' in the world of HR management and finds mention in popular HR literature, and is viewed by managements as a 'cure all' for organizational performance. Despite its popularity, currently there is little agreement on any uniform definition of engagement, with different descriptions being used by practitioners as well as researchers [94]. It is characterized more by a lack of unanimity, and definitions vary considerably between practitioners, corporations, consultants and academic researchers.

Since the construct of engagement has evolved gradually over the years, it has been construed in contemporary literature by various quarters in different ways. Some of these definitions are inconsistent, creating sufficient ambiguity to the level that no two definitions are the same [95]. Some conceive it as a psychological or emotional state relating to involvement, commitment, attachment etc., while others view it as performance related, similar to role performance, effort, organizational citizenship behaviour etc, attitudes, and even related to initiative or altruism [ibid]. As a result, there is hardly any consensus on the most conclusive definition of engagement, or at the minimum, a model of engagement that suits all conditions [96].

Even though engagement was first theorized by Kahn in 1990, and has been around for more than two decades, there has been surprisingly little academic research which can accurately qualify, or even quantify the independent and distinct existence of this concept [95].

The process of operationally defining engagement is complicated even more by the fact that it has numerous dimensions to it. The scope of employee engagement is very broad with many dimensions, and there are a vast number of individual actions, attitudes, and processes which can impact engagement. There will be great differences in what gives rise to engagement in a fresh college graduate on one hand and a senior manager on the other [15]. Consequently, there is difficulty in arriving at a distinct and all encompassing definition of engagement, and a valid procedure for its measurement. Impeding the process further is the supposed interchangeability with established constructs such as job involvement, organizational citizenship behavior, commitment etc. These differences, and the lack of any manner of unanimity, are diluting as well as making the concept of engagement vague, thereby threatening its credibility and existence [ibid].

Many however reason that there appear to be sufficient grounds for the argument that although engagement was related to many other constructs in organizational behaviour, it has distinct characteristics [72]. Robinson et al also concur that although existing definitions are similar to the more prevalent and validated constructs such as organizational commitment and citizenship behaviour, engagement is not a perfect match with either of them, even though there exist many commonalities [18]. They further add that the essential dimensions of engagement – its two-way nature and business awareness of employees – are not sufficiently covered by OCB and commitment. It has also been proposed that engagement goes further than concepts such as satisfaction and commitment, reflecting levels of involvement, motivation and enthusiasm that are essentially much deeper [73]. At the same time, it has been pointed out that most of the existing definitions lack conciseness and includes broad, overarching concepts, which instead of definitions, sound more like vision statements [15]. Consequently, practitioners are unable to extract any

directions for implementation of engagement at the practical level [ibid].

In such conflicting and somewhat contradictory circumstances, the job of defining employee engagement is not easy. Most people in management have realized that there is no common meaning to the term 'employee engagement'; it has different connotations to different people in the same company [10].

Some of the widely used definitions found in academic and consultancy based literature are listed below.

Kahn [1] defines engagement as *"the harnessing of organization members' selves to their work roles; it means to be psychologically present when occupying and performing an organizational role."*

Schaufeli et al [97] consider engagement *"a positive, fulfilling and work-related state of mind that is characterised by vigour, dedication and absorption"*. It has also been defined as *"employees being involved in, enthusiastic about, and satisfied with their work"* [17, 52], *"the bond employees have with their organization"* [16], *"a heightened emotional connection that an employee feels for his or her organization, that influences him or her to exert greater discretionary effort to his or her work"* [10], *"a positive attitude held by the employee towards the organization and its values"* [18], and *"the illusive force that motivates employees to higher (or lower) levels of performance"*[11].

In practitioner literature, Gallup equates engagement with *"the psychology of how each employee connects with customers and with the organisation"* [18], while Mercer defines engagement as *"commitment to the organization and motivation to contribute to organizational success"* [98]. Hewitt consider *"engagement as the state in which individuals are emotionally and intellectually committed to the organization as measured by three primary behaviours: Say, Stay and Strive"* [99], while Towers Perrin opine that engagement is *"the extent to which employees put discretionary effort into their work in the form of brainpower, extra time, and energy"* [100].

Even though there is a very wide range of definitions of employee engagement available, a close-up analysis reveals some themes that can be considered to be

common to most. A compilation of these common themes gives a better understanding of the more universally acceptable dimensions of employee engagement. These dimensions – ranked according to the frequency of their usage - are as follows:

1. **Commitment:** Commitment ranks highest amongst the available definitions, with the maximum number of references. Commitment itself has been sub-divided into three types, *Physical*, *Cognitive, and Emotional*.

   Physical commitment refers to the physical energy required to accomplish jobs satisfactorily, and enables employees to 'go the extra mile' for the organization. Physical commitment has also been referred to as **Vigour,** which manifests itself through high energy levels, adaptability, persistence and voluntary investment in work [101].

   Cognitive commitment is concerned with the involvement and approach the employee has towards the job, translating into enjoyment of the work, motivation, initiative, responsibility, concentration and efficacy. Cognitive commitment is similar to **Absorption**, which results in individuals being fully focused and experiencing enhanced levels of concentration while performing tasks.

   Emotional (or Affective) commitment is concerned with the individual's beliefs about the organization, leadership, immediate seniors, conditions at the workplace etc. Employees who are engaged have an emotional bond with their organization - a positive attitude and feelings toward their organization and the values it espouses.

2. **Organizational Bond:** The relationship which the employee has with his/her organization ranks highest after commitment, and refers to the bond organizations form with their employees and nurture over time, resulting in the employees caring about the business and being motivated to higher levels of performance. Employees have a sense of ownership of, and belonging to the organization.

3. **Discretionary Effort:** Discretionary effort has been explained by CLC as the willingness of the employee to perform better by putting in more effort

than expected, and have positive beliefs about their work and role in the organization [102]. Employees using discretionary effort willingly go beyond the normal call of duty, such as by assisting co-workers, taking on more work to achieve objectives, etc. Discretionary effort is considered to be an essential dimension of engagement, and is a direct consequence of the bond that is shared between the employer and the employee, through which the employee is likely to 'go the extra mile'.

4. **Passion and Enthusiasm**: Another element which finds frequent mention in the definitions of engagement is 'passion' and 'enthusiasm' which the employee feels toward his work, job and organization. Passion and enthusiasm are essential requisites for engagement, a direct consequence being that employees act in ways that lead to improvements in the business results of their organization.
5. **Job involvement:** Job involvement is the feeling of involvement and enjoyment of one's work, and depends on the extent to which a person identifies with his job. Involvement is being engrossed and intensely focused in the work role, and is similar to the concept of absorption. Engagement incorporates a sense of energetic and effective connection with work activities.
6. **Satisfaction:** Job satisfaction is a pleasurable or positive emotional state resulting from the contentment an individual has with his job. It reflects people's feelings about their work, based on the positive or negative perceptions they have about their jobs.
7. **Motivation:** Another common link generally found in the various definitions of engagement is motivation which is considered to be the inner drive that gives an employee the direction, intensity and perseverance necessary in the attainment of goals.

From the above, an 'Engaged Employee' can be considered to be one, who:

- ✓ Is physically, cognitively, and emotionally committed to the organization
- ✓ Has a feeling of ownership of the organization

- ✓ Is passionate and enthusiastic about her/his job
- ✓ Is motivated, involved and satisfied with her/his work
- ✓ Is willing to put in discretionary effort and go the 'extra mile' for the organization

2.6 ENGAGEMENT AND RELATED CONSTRUCTS

Is 'Engagement' a new construct or is it 'old wine in new bottles'? This is a question that is often asked among academics and practitioners alike. One of the views is that engagement is merely attractive new packaging of existing constructs such as involvement, commitment, organizational citizenship behavior, job satisfaction etc [103]. Although these concepts are generally similar to engagement, recent research has found significant distinctions between these concepts. As stated earlier, many academics consider engagement as a construct different and distinct from similar established constructs [18, 54].

Some of the more closely related concepts are job satisfaction, work engagement, organizational commitment, job involvement, flow, and organizational citizenship behavior (OCB).

Job satisfaction is one of the older concepts dating back to the mid 1970's, and has been commonly defined as "*a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences"* [104], and reflects people's feelings about their work, or the positive and negative conceptions they have about their jobs.

Job satisfaction, however, can have different connotations for different people [105]. Individuals can be 'satisfied' with their jobs, preferring its predictability and compatibility with their own capabilities, and also providing them with a certain sense of psychological safety. However, these individuals are not 'engaged', but are merely contented with their jobs. Such job satisfaction may keep employees in their jobs, but only engagement will promote an increase in performance and productivity. It must be pointed out though, that job

satisfaction is an antecedent of engagement. Engagement is different from such satisfaction as it encompasses more than the parochial view of only one's job, going deeper to reflect greater enthusiasm and involvement on the part of the employee [73].

Work Engagement originates from organizational psychology, and is the concept closest in meaning to employee engagement. Work engagement focuses on individual strengths and effort optimization, instead of shortcomings and failures [106]. Work engagement has been shown to be correlated with job satisfaction, commitment and retention [74, 77], as well as with personal initiative and learning [107].

Work engagement has been conceptualized as the reverse of burnout, and is characterized by vigour, dedication and absorption [101]. Vigor means being full of energy and resilience, dedication is pride in one's work and belief in the worth of their contribution, while absorption refers to the feeling of being totally immersed in work, being carried away by it.

Organizational commitment (OC) is essentially multidimensional as it includes *"organizational loyalty, the willingness to exert effort necessary to meet organizational requirements, alignment of goal and organizational values, and the desire to maintain membership"* [108]. In its essence, organizational commitment refers to an employee's total involvement and identification with his organization [109]. Commitment can be physical, emotional and cognitive, and results in employees believing and accepting organizational values and goals, being willing to put in extra effort for the organization, and keen to continue with the organization.

Even though organizational commitment appears very similar to the concept of engagement, it is criticized because of its one way nature. OC has similarities consistent with engagement - feelings of worth, involvement, loyalty, connection and identification with the organization, and the desire to exert effort on behalf of the organization.

Commitment however lacks engagements two-way nature and the understanding of business context amongst employees. Engagement is a step

up from simple commitment as committed employees have better performance, indicating that commitment drives engagement [18]. Kahn contended that while commitment was a constant phenomenon, engagement was variable [1], and while organizational commitment is an individual's attitude and attachment to his organization, engagement is more than an attitude - it is the degree to which an individual is attentive to his work and absorbed in the performance of his role [72].

Job involvement is the extent to which an individual psychologically identifies with his work, or the relevance of the job to his total self image. Many individuals psychologically identify with their work, which could be a result of the socialization process at an early stage. This process causes them to imbibe the values about the goodness of work [110]. The focus of job involvement revolves around the employee – job relationship, that is, it refers to their perceptions about their work and the extent to which job performance enhances their feelings of self-worth.

It has been said that high levels of job involvement can result in high performance rates, although there is little evidence to support this claim. However, employees who are involved in their jobs have a feeling of satisfaction and accomplishment at the end of a day, and are likely to be more productive. Job involvement however differs from engagement, as the former simply relates to how employees utilize themselves while at work. Additionally, job involvement focuses only on cognitive aspects, while engagement incorporates emotions as well as behaviours.

Organizational Citizenship Behaviour (OCB) has been conceptualized as *"individual behaviour that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization"* [111], or as 'extra role behaviour'.

OCB is reported to improve efficiency and effectiveness, and includes many components such as helping behaviour, loyalty, initiative, self development. These components provide similarities with engagement. Helping behaviour goes a long way in making the workplace more conducive, and also helps

safety issues. Through loyalty, employees remain committed even in adverse circumstances. Initiative is the closest to engagement as it indicates the enthusiasm and effort that is most essential to engagement. It is this initiative that results in individuals taking on extra responsibilities, supporting others and going the extra mile for the organization.

To summarize, it can be seen that the meaning and definition of engagement, as provided by practitioners and academics, has certain overlaps with other established constructs. However, none of the existing concepts encompass all the dimensions that are included in engagement - cognitive, emotional and behavioural – that influence individual work performance. Engagement can thus be considered a distinct construct, with significant differences from existing constructs.

2.7 DISENGAGEMENT

On the other end of the engagement continuum is 'disengagement'. Disengaged employees disconnect themselves from the work, the team, the manager and the organization, detaching themselves emotionally, mentally, and physically, while going through the motions in an automatic or robotic manner [1]. Disengagement arises from unmet emotional and rational needs, such as a lack of social interaction at work, minimal autonomy in their work areas or a diminished sense of self-worth [ibid], and leads to lethargy, despair and distrust. Other causes of disengagement can be lack of security and safety, mismatch between the individual and the work, inadequate rewards, recognition, compensation, and benefits, etc.

The root causes of disengagement include differences between the individual, the manager, and the organization in values, beliefs, personal preferences, methods, tools, resources, assignments, and working conditions, and personal and organizational goals.

When differences exist between the individual, the team, the manager, and/or the organization, they can cause friction, and lead to resentment, frustration,

and dysfunctional behavior, culminating in disengagement.

2.8 OUTCOMES OF ENGAGEMENT

There is limited empirical data in academic circles demonstrating the link between engagement and its consequences. Most research stresses on the drivers and barriers of engagement, and the conditions necessary for engagement to occur. However, some data is available testifying to the link between engagement and outcomes such as performance, retention, safety, customer satisfaction, absenteeism etc.

The OHA report [112] found a correlation of -0.45 between engagement scores and sick days for full-time employees, indicating higher engagement being associated with fewer sick days. On retention, they found a weak and negative correlation of -.03 between engagement scores and resignation rates for full-time employees, and a correlation of -.68 between engagement scores and span of control for full-time employees. Lee [113] found that 70.01% of variance in job satisfaction was explained by employee engagement, while Hewitt Associates [99] found that the correlation between engagement and a company's average five year Total Shareholder Return (TSR) was .54, thus demonstrating that engagement explains 39% of the variance in the variation in TSR, and a correlation of .46 over five years for sales growth (r = .46).

Other researchers [114] found employee engagement had a strong positive relationship with employee performance with an R^2 value of 59.7 %, and also that 67.2% of variance in employee engagement is influenced by factors such as working environment, leadership, team and co-worker relationship, training and career development, compensation program, policies and procedures and workplace wellbeing. A 2010 study [115] found 26% of the variance in turnover intention to be predicted by employee engagement, Kenexa [116] found employee engagement significantly and negatively related to turnover intent (r = -.41), and Conference Board established a negative .43 correlation between the level of employee engagement and voluntary turnover rate [117].

However, there is great enthusiasm and interest generated in employee

engagement, and to better appreciate its relevance it is essential to analyze the benefits that accrue from it. The debate centres mostly around the outcomes that employee engagement can have on organizational success and profits of any company [72]. There are manifold outcomes of investing in improving employee engagement and fairly consistent results have been demonstrated regarding the positive outcomes of doing so, both in academic and practitioner literature [96].

The success and financial performance of organizations has traditionally been measured through the use of hard financial measures such as revenue, profits and return on investment and their analysis. However, the last two decades have seen realization dawning that there are many human traits, attitudes and behaviours or soft measures, that are assuming the status of important determinants of employee – and consequently - organizational performance.

Although existing academic literature does not report many empirical investigations that have measured the effects on firms' financial performance as a result of engagement programs, outcomes have been measured by consultancy firms relating to the positive outcomes of an engaged workforce. Having said that, it has been cautioned that, even if the causal effect of engagement measures on organizational performance can be inferred, it is not conclusive evidence empirically [17].

As regards the outcomes of engagement are concerned, Watson Wyatt [20] found that highly engaged employees:

- Are twice as likely as their less engaged peers to be top performers
- Miss 20% fewer days of work
- About 75% of them exceed or far exceed expectations in their most recent performance review, and
- Tend to be more supportive of organizational change initiatives and resilient in the face of change

Gallup [21] reported that improving employee engagement is important because engaged employees have:

- 51% lower turnover
- 27% less absenteeism
- 18% more productivity, and
- 12% higher profitability

Vance, of SHRM [118], provides the following inputs after the implementation of engagement initiatives at construction-equipment maker Caterpillar:

- Decreased attrition, overtime and absenteeism resulting in savings of $8.8 million annually
- Increase in output by 70 percent over four months
- An 80 percent decrease in employee grievances
- A 50 percent decrease in breakeven point
- Increase in profits to the tune of $2 million, and
- 34 percent increase in customer satisfaction

They also report the following from beverage giant Molson Coors:

- Safety incidents of engaged employees were one fifth that of non-engaged workers
- Engaged workers had one-seventh lost time incidents vis-a-vis the non-engaged
- Reduced safety incident costs - $63 for the engaged versus $392 for the non-engaged
- Savings in the year 2002 of $1,721,760 in safety costs
- Higher sales volumes by engaged teams
- Difference of $2,104,823 in performance related costs between the engaged and disengaged

Towers Perrin [100, 119] has also attested to the outcomes of investing in employee engagement through two studies with the following outcomes:

- Organizations with higher engagement levels are 70 percent more likely to achieve their targets
- High engagement organizations also capable of achieving higher

operating margins - a 5% increase in engagement generating a 0.7 % rise in operating margins

- Such organizations achieve higher retention rates, with their employees twice as eager as to remain with their employer, and
- These organizations are also reported to outperform industry sector growth by 6 percent

Other studies also provide positive correlations between engagement and organizational outcomes such as business performance, earnings-per-share, sales, customer satisfaction, total returns to shareholders, attaining targets, etc.

Apart from quantitative benefits, qualitative benefits also accrue as a result of improving engagement. Engagement reduces employee turnover, improves individual performance, increases advocacy of the organization, positively impacts health and well-being, increases self-efficacy, and makes employees more receptive to change initiatives [15, 120, 121, 122, 123].

Research has comprehensively shown that engagement has the potential to affect both organizational and employee outcomes. As far as organizational outcomes are concerned, engagement impacts the areas discussed hereunder.

2.8.1 IMPROVED CUSTOMER LOYALTY

Engaged employees are more in tune with the organizational objectives as well as with customer requirements, resulting in higher customer loyalty in such organizations [70, 124, 125]. As opposed to companies with average engagement levels, the interaction between highly engaged employees and customers results in a near 100 percent increase in customer loyalty and repeat purchases, apart from more recommendations to non-customers [70]. This eventually creates engaged customers too, whereby even the customer develops an emotional commitment to the organization [126].

2.8.2 INCREASED EMPLOYEE RETENTION

Happy employees are more disposed to continue with the organization.

Engagement has been shown to have positive links to organizational commitment [82], negatively correlated with turnover, and clear links demonstrated between engagement and retention [74, 120]. Analysis has also revealed that more than 85% of engaged employees planned to stay with their employer, in contrast to 27% disengaged employees [108]. Corporate Leadership Council (CLC) [127] have also found that highly committed employees are 87 percent more likely to continue with their organization, thereby attesting to the important link between retention and engagement.

It has however been pointed out that even though engagement impacts retention, the relationship is not as straightforward as it would appear and engagement in itself cannot guarantee retention [128]. Although the highly engaged are less prone to leave, nearly 40 percent of them are always open to external offers, even if they do not actively solicit them [ibid]. The same is borne out by [19] who found that even though there was an increase in engagement, less than two-thirds say they plan on continuing with their present employers through the coming year. All over the world, more employees who can be considered high performers were planning their exit.

However, in times of diminishing loyalty, employee engagement can turn out to be powerful retention strategy.

2.8.3 ENHANCED EMPLOYEE PRODUCTIVITY

Engaged employees are hard working, have greater loyalty and willingly go the extra mile for the organization, converting their potential into performance and consequent organizational success [15, 51].

Engagement heightens the emotional and intellectual commitment of employees, encouraging then to use discretionary effort to their work. However, it must be noted here that currently no study has conclusively proved that engagement is the primary reason for improved performance, or even that improvement in engagement levels leads to an improvement in productivity and performance. Having said that, Gallup's meta-analysis of 23,910 business units showed that units with high engagement levels averaged

higher productivity and profitability - by 18 and 12 percent respectively [129]. From a study of 50,000 employees, CLC [127] found highly engaged employees outperforming their colleagues by 20 percent, and increasing engagement levels enhanced individual performance by one fifth.

Similar findings were also reported in [130], where a study of 946 organizations worldwide found highly engaged employees being twice as likely to be top performers when compared with lesser engaged ones, confirming the hypothesis that engagement was indeed a key driver of business success. Analyzing employee attitudes against financial and productivity data, the study also showed that increased focus on engagement can result in a highly productive workforce, ensuring greater financial returns. However, it has been cautioned that despite the apparent positive connection between engagement and higher productivity, engagement in itself cannot guarantee the best performance [ibid].

A similar argument proposes that the relationship between performance and engagement is somewhat linear and not exponential, that is, more engagement does not equal more performance [131]. Individual engagement is a complex phenomenon, and cannot directly be used to explain changes in performance. Moreover, it is felt that it is the symptoms of performance that are uncovered through engagement surveys, as opposed to its drivers [ibid].

2.8.4 ADVOCACY OF THE ORGANIZATION

Engagement creates happy employees, and they are more inclined to be advocates of the organization as a satisfying workplace, and willingly canvass in favour of its services and products [132]. Highly engaged employees will go a step ahead and act as organizational advocates - a very desirable state for the company itself [121].

Engagement converts two thirds of engaged employees into advocates of their organization, with 78% recommending the organizations products to their friends and acquaintances [133]. Only 3% of the disengaged advocate their organization and only 13% recommend their own products and services [ibid].

Similar results are also shown by Melcrum [134] who state that 67% of engaged employees are advocates of the organization as opposed to only 3% of the disengaged.

Gallup [129] also found that organizations with engagement levels in the top quarter had greater customer advocacy by 12 percent. This fact was also demonstrated from the results of two studies of public sector companies, carried out by external regulators [135]. Here staff advocacy, a key element of engagement, was found to be strongly related with improved organizational performance [ibid].

CIPD [136] designates these highly engaged employees as 'champions' and finds that nearly 37% of the workforce surveyed fall under this category. This is to the organization's benefit, as apart from enhancing its public image, it is also free marketing, resulting in reduced recruitment costs.

On the other hand, the organizations may also contain severely disengaged employees – termed 'corporate terrorists' [137] - who would readily discourage potential employees from joining.

2.8.5 ENHANCED SELF-EFFICACY

Self-efficacy is a person's belief in himself and his abilities, that he can mobilize the necessary resources – physical, cognitive, emotional – in order to successfully execute tasks entrusted to him [138]. Self-efficacy is dynamic in nature and changes over time with the assimilation of updated information, training, learning and experience, and can be used for employee development and improving performance.

Research has demonstrated a strong relationship between performance and employee self-efficacy, and shown that the greater an individual's self-efficacy, the greater is his initiative, drive, and effort in starting and seeing assignments through, even under adverse conditions [122].

The literature on burnout also finds engaged employees having greater self–efficacy and energy, which assists them in managing events that impact their

lives [139]. Self-efficacy creates a positive attitude and high energy levels, which allow engaged employees to create and manage positive feedback for themselves through appreciation, recognition as well as success [140].

It has been have proposed that engagement may be related to managerial self-efficacy [122]. This is because once employees are engaged, it increases the manager's self-confidence and belief in his own abilities regarding building engaged teams and ensuring favourable task accomplishments. Further, engaged employees tend to have a positive and productive relationship with their managers, resulting in better performance and achievement of goals. This builds the manager's self-efficacy, and in turn helps him to be more effective and successful. The reverse is also a possibility in that managerial self-efficacy could drive enhancement of engagement. Thus it may be concluded that self-efficacy and engagement can affect each other positively, leading to highly effective managers as well as employees [122].

2.8.6 ORGANIZATIONAL PERFORMANCE

Engagement has been defined as an employee's positive attitude towards his organization and the values it espouses [18]. Engaged employees are aware of the environment in which the business operates, and work in ways to improve performance, benefitting the organization.

Creating workplace environments that support high performance has among the strongest correlations with engagement levels [19]. There are some organizations in every industry which have found the right mix and been able to produce stellar business results brought about by higher engagement levels [ibid]. Towers Perrin [100] have also stated that a strong linkage exists between financial performance and employee engagement. A highly engaged workforce produces significantly better results on many financial measures. They found striking differences in the financial performance of companies with high and low engagement levels, reinforcing the business case for implementing engagement. At a practical level, engaged employees will produce superior performance driving business success.

The relationship between engagement and organizational outcomes such as customer satisfaction, productivity, employee retention, profits, and safety incidents has also been examined, and conclusive, compelling relationships established [17, 99].

Despite the overwhelming evidence to suggest a high relationship between engagement and business performance, evidence suggests that the organizational performance - engagement relationship is not a particularly robust one [131]. It has been proposed that there is a 'reverse causation' in that it is organizational performance that gives rise to positive attitudes amongst employees, and the reverse may not always be true [ibid]. The causal links may not be as direct, due to the existence of numerous factors that can mediate between attitudes and performance.

However, an increase in business performance in today's hyper-competitive environment is dependent on maximizing the contribution of each employee, to ensure continued innovation in design, development and delivery of products and services. The resulting high performance is not feasible without high and sustained employee engagement.

2.8.7 PROFITS

The results of high employee engagement are visible through increases in productivity, customer loyalty, sales, and employee retention [71, 141]. Engaged workers are found to be highly productive, and contribute more to the organization financially through their engagement. A comparison of the financial performance of 50 organizations found measurable and significant difference in profits between high-engagement and low-engagement companies, as well as a 52% gap in their operating income over the previous year [142]. In 2007, the Standard Chartered Bank also found that branches with a significantly higher increase in engagement levels reported higher profit margin growth of 16% over branches with lower engagement levels [135].

Even though many of these studies have suggested a positive relationship between engagement and bottom-line profits, the causality is far from proven

[96]. There are certain employee attitudes also that have been attributed to engagement by some studies, and related them to organizational outcomes [ibid]. However, these attitudes are not necessarily reflective of engagement.

There have also been various studies that have found higher engagement levels in double-digit growth companies as compared to ones with lower growth [141]. This may provide evidence of a link, but does not establish direction, resulting in the possibility that high growth and profit making companies attract an engaged work force, rather than the other way around. Companies that do well reward their employees, creating a positive feeling, and employees in turn feel obligated to increase their commitment towards the organization.

In order to determine if engagement does have a positive effect on business outcomes, the performance and engagement levels of an organization have to be measured and compared over a period of time. Increases in engagement, followed by increased profits, would indicate a positive correlation. A study by Hewitt Associates on these lines has indeed found indications that higher engagement does lead to increased profits [141].

2.8.8 MANAGING ORGANIZATIONAL CHANGE

In today's competitive international operating environment, organizations need to respond quickly to changes in market conditions in order to maintain their competitive edge, and changes in the organization thus become essential and regular [103]. The effective management of change requires the involvement of all employees, and here engagement plays an important role, as ninety percent of barriers to change management are people-related [143]. Engagement programmes facilitate acceptance of organizational change amongst employees.

Change very often causes anxiety and resistance amongst employees if they are not included and made to feel part of the process and are made to feel powerless. Change initiatives create role ambiguity which has been linked to higher turnover, especially where there is a lack of open communication [144].

Effectively managed workplace environments can produce highly engaged employees [101], who are more positive and supportive of organizational change, and more resilient to workplace stress. As engaged employees are more aware of business context, they are more open to changes in the organization that will aid in improving business results. An atmosphere of engagement that supports open communication and mutual respect would enable employees to accept the change as their own, and enable them to personally commit to the changes that have been agreed upon together. Engagement thus assumes greater significance during times of change, as it is only when employees are engaged and supportive that the change initiatives will be successful.

2.8.9 BETTER SAFETY AND HEALTH

"Happy employees are healthy employees" [123]. Studies have shown that engagement results in improved well-being, and creates favourable feelings towards the work and organization [85, 145]. Workplace health issues include accidents, injuries, effects of stress, etc which can impact an organizations bottom lines as well as a reputation as a safe place to work. Incidents and injuries at the workplace create an adverse image in the minds of both employees and the general public. It does not take much time for public perception to change adversely after a catastrophe, and lingers on in public memory, despite the otherwise excellent safety record of any company.

The positive relationship between engagement and health has been suggested by many studies, implying that an engaged workforce is a healthy workforce. Studies have found that engaged employees report less psychosomatic complaints [146], and suffer less from afflictions such as headaches, cardiovascular problems, and stomach aches [74, 81].

Engaged employees are 20 percent less likely to have safety-related incidents compared to their disengaged co-workers, and the associated costs are also 16 percent lower on average per incident as compared to the disengaged [118]. The average cost of safety incident at one corporation for engaged employee

was $63, and the average cost of safety incident for disengaged employee at the same firm was $392 [147]. The Coors Company, after implementing engagement enhancing programs, saved in excess of USD 1.7 million in safety-related costs in just one year [118].

A Gallup survey found that among engaged employees, 62% felt their work lives had a positive effect on their physical health, the numbers dropping to 39% not-engaged, and 22% actively disengaged employee [123]. More than half the actively disengaged (54%) considered their health being negatively impacted by their work lives [ibid]. Implementation of engagement measures at the Ohio plant of Owens Corning resulted in a 76% decline in accidents [148]. From their meta-analysis, Gallup again found safety (accidents, etc.) down by 50 percent [50], and high engagement organizations had better safety records [13].

Engaging employees will also result in reduced absenteeism and lower stress levels in employees. In the UK, disengaged employees take an average of 6.19 sick days annually, compared with 2.69 for the engaged [133]. According to the Health and Safety Executive estimates, work related illnesses cost society £20 – 32 billion every year [149].

Organizations that have implemented health programmes have also reported accrued benefits. Astra Zeneca, after introducing wellness programs, found an 8.5% decrease absenteeism (y-o-y) resulting in savings of £1.2m in absence costs, and a 61 percent reduction in accidents and occupational illnesses [150]. A half million pound investment for stress management by the Somerset County Council resulted in a 33 percent drop in sick leave, saving the council £4.2 million apart from improving recruitment and increasing retention [151].

Employees need to believe and trust in the organization being a healthy place to work, and this belief will enable them to support the organization in its various endeavours and also motivate them go the extra-mile.

2.9 COSTS OF DISENGAGEMENT

Disengagement can cause problems for organizations on many fronts.

Disengaged workers tend to spread their discontent around, thereby affecting other employees who are engaged or almost engaged [120]. Disengaged workers create hurdles at every step, trying to spread their dissatisfaction and negativity around the workplace, thereby affecting the morale of co-workers and undermining their achievements [ibid]. Teamwork is essential for success and the vitiated atmosphere created by those disengaged can harm smooth operations causing damage to efficient functioning.

Disengagement can have staggering economic effects too, with estimates that disengaged British workers cost losses to the tune of $64.8 billion (U.S.) dollars a year to their organizations, while in the US actively disengaged employees cost businesses between $270 and$ 343 billion a year, using the results of its engagement index and national average for productivity and salary as a base [133]. This includes high rates of absenteeism and staff turnover from this sector of employees. In the UK, Gallup also estimated that the productivity gap among actively disengaged employees costs somewhere between £43 and £44 billion each year. Japan has been reported to have only 9 percent of the workforce as engaged, and is losing productivity at an estimated $232 billion each year [ibid].

2.10 COSTS OF IMPLEMENTING ENGAGEMENT

Despite the numerous purported benefits to organizations, there is very little information available in literature which reports the costs associated with implementing an engagement program. One of the few reports available indicated considerable improvement, although the costs associated with their initiatives were significant [132]. The study found conclusive evidence of engagement initiatives having benefited the organization [ibid]. Without supporting cost-benefits data, it is not easy for organizations to decide if they should introduce measures to enhance engagement, and to what extent. There is also the issue, whether the potential benefits to be accrued from engagement will manage to overcome the possible downsides [152].

The downside of engagement can be in the form of employees leaving the

organization. Bates has suggested that elevating engagement levels could impact retention unfavourably [126]. He claims that paradoxically increasing engagement levels by providing additional training and development opportunities, assists in the development of employees, and this increase in capabilities may cause them to look for more lucrative and challenging opportunities outside the parent firm [ibid].

It can be summarized that even though there are financial costs associated with engagement programs, apart from the possible adverse impacts on retention, the general consensus from the data available reinforces the perception that engagement is definitely a desirable objective for organizations looking to succeed.

2.11 DRIVERS/BARRIERS OF ENGAGEMENT

As stated earlier, the term employee engagement has different connotations to different people. Conditions that promote engagement in one industry or organization may not be considered valid in another. The lack of an accepted definition of engagement also hinders the task of developing clear guidelines regarding its measurement as well as what conditions can be considered as drivers or enablers of engagement. These drivers of engagement are numerous and depend on many variables such as the type of industry, age, role, tenure, and even geographical regions of the world.

The lack of unanimity in defining engagement makes the process of identifying what enables engagement – its drivers – difficult. A multitude of drivers are suggested, both within the consultancy literature as well as the limited academic literature, apart from wide ranging views of employers, organizations, academics, consultants and even employees themselves.

Engagement has been successfully measured by many organizations, mainly consultancy groups like Gallup, Hewitt Associates, Towers Perrin, Blessing White, ISR etc. The antecedents of engagement are generally similar across all findings, with marginal differences. A comparison between the various models reveals the following to be the top drivers of engagement:

2.11.1 MANAGEMENT PRACTICES

The topmost global driver of engagement is the management's ability to demonstrate their sincerity, interest and concern for their employees.The process of employee engagement begins with the senior management demonstrating that they and the organization truly care about the well being of their employees, are committed to creating a conducive working environment, earn the trust of its employees, and to lead them to future success [153]. The practices followed by employers are inextricably linked with employee engagement [118], and in order for employees to perform at their best, caring people practices have to be put in place.

One of the antecedents of engagement is psychological safety [1] and is the belief employees hold that their initiative and involvement in the job will not create unfavourable personal repercussions. In such a 'no blame' climate, employees feel psychologically safe to immerse themselves in their jobs. The social systems at the workplace, supported by constructive and friendly interactions with co-workers, and a supportive organizational culture give rise to psychological safety which makes for greater engagement [154]. Engagement can best be brought about by utilizing the condition of psychological safety, as it has the highest potential to influence engagement. In order to do this senior management must provide a supportive and trusting environment that will freely allow employees to fully invest their energies into their work roles. Kahn [1] has also demonstrated that there is empirical evidence attesting to the link between engagement and supportive leadership.

Most employees are usually favourably disposed and keen to contribute to the realization of organizational goals; it is the actions of the management and existing culture that usually discourages them from doing so [128]. The organizational culture should be such that employees have trust in the senior management, and they share common values. Additionally, efforts should also be made to align organizational and personal goals, as it is only then that employees are at their most productive.

In a UK study, only 29% of workers believed that senior management was genuinely concerned with employee well-being; 31% found communication

with senior management open and honest; 3% considered themselves and their contribution treated by managers as essential to the organisation, while a significant 60% felt that they were being treated like just another organizational asset to be managed by seniors [128].

This culture of including employees in the larger picture is known as 'people practices' and leaders of the best managed companies maintain constant communication with their employees regarding its direction, competitive strategies, long and short term objectives, and the progress being made in their achievement [155]. By ensuring open two-way communication they provide a clear sense of direction while keeping all employees in the loop and identifying their respective roles and expected contributions.

2.11.2 IMMEDIATE MANAGER

The immediate manager or supervisor plays an integral role in the process of developing engagement, as he forms the link between the employee and the senior management. It is through the immediate manager that organizational objectives and strategies are disseminated down the ranks. They also form the conduit through which grievances and issues relating to the workplace reach the senior management, and are thus the key to an engaged workforce. At the same time, senior management has a significant role to play by providing necessary support to lower level managers in creating an environment that promotes and sustains optimal employee participation. Such actions create strong and lasting manager-employee relationships - a crucial ingredient for ensuring engagement and increasing retention.

Mutual trust and respect between managers and employees is a function of the quality of their relationship, and is an essential requirement in fostering commitment and engagement. Many studies have found these two variables significantly and positively related; employees with good working relationships with the immediate management have greater commitment and are more engaged [156, 157]. A CIPD study also suggested that one of the most important drivers affecting motivation at work was the quality of the

relationship between workers and managers [158]. The level of commitment of employees is a direct consequence of their interactions with line managers and the manner in which targets are determined. The quality of immediate leadership is thus considered essential for engagement.

2.11.3 CAREER & DEVELOPMENT

Employee development is an essential component in the achievement of employee engagement [18]. To have high levels of engagement, organizations need to create an atmosphere that will provide employees with avenues to gain new knowledge, acquire new skills, develop their abilities, and in the process realize their full potential. All individuals desire to be challenged, to achieve, to start something new, to grow, and to learn. They want to be more proficient in their jobs, learn new skills and advance in their careers and providing development opportunities will instill trust in them. Organizations that plan future careers for their employees, and invest accordingly, will find their efforts reciprocated by employees investing back in return. On a worldwide scale, one of the top three drivers of job satisfaction was found to be training and career development; 60% of employees surveyed wanted greater growth opportunities in order to remain contented with their jobs [19].

To prove this view point, Hewitt offer the examples of Best Employers who provide sufficient opportunities to their employees, assisting them in their development as well as personal and professional growth [155]. They have systems in place to identify employees with high potentials and provide them with accelerated training and development, apart from frequent and regular opportunities to interact with senior managers. Development is ensured by providing free access to additional training channels and programs, giving specific assignments to employees, rotating jobs, and implementing direct mentoring. The additional training also includes leadership and technical skills, apart from educating employees about company culture and values. Best Employers consider this to be a critical investment and are more than willing to expend resources on training and career development. This commitment to training and development does not go unappreciated by its employees who are

73% more willing to take on additional responsibilities, compared to 51% in other organizations [155].

The process of linking engagement to development should ideally start from induction of the employee in order to have alignment between employee and organizational goals, and there are many organizations that start the employee development process as early as at the hiring and orientation stage by reinforcing strategic goals, thereby deriving a competitive advantage [130]. This early intervention greatly helps in putting new employees, who may as yet not have found their fit in the organization, at ease and put them on the right track.

2.11.4 RECOGNITION

As engagement is a two-way proposition, management has to demonstrate that the employees' involvement and enthusiasm for his work will be recognized and rewarded. This recognition and appreciation of employee contributions is another driver of engagement [18, 19, 155]. Employees want their contribution to the organization to be noticed, and their efforts recognized. They also need continuous feedback to know whether their performance measures up, and if what they are doing is relevant to the broader goals. All employees do not operate at the same levels, with many showing discretionary effort and going the extra mile for the organization. Where employees work hard and wish to be noticed, their efforts should be recognised and appreciated, otherwise this may lead to de-motivation and eventual disengagement.

Kahn suggested that people vary in their engagement as a function of their perception of the benefits they receive from a role [1]. Furthermore, a sense of return on investments can come from external rewards and recognition in addition to meaningful work. Therefore, it can be expected that employees will be more likely to engage themselves at work to the extent that they perceive a greater amount of rewards and recognition for their role performances. Maslach et al. have also suggested that while a lack of rewards and recognition can lead to burnout, appropriate recognition and reward is important for

engagement [101].

A survey of 10,000 NHS employees in the UK identified that the feeling of being involved and valued was a key enabler of employee engagement [18]. This included elements such as involvement in decision making, freedom to offer suggestions, personal development prospects, and the concern for employees demonstrated by the organization [ibid]. Recognition of good work and ensuing rewards are important predictors of engagement [140]. The Best Employers survey also reported that recognition of contributions and personal development opportunities were the closest to being universal drivers of engagement [155].

The process of recognition of good work also requires certain forethought, and management must understand what recognition means to each person. There should be fair systems to ensure that recognition is made as objective and factual as practicable by using actual performance, ensuring that this is carried out on a regular basis.

2.11.5 CO-WORKERS AND TEAM WORK

Teamwork and a supportive working environment are important drivers of engagement. Outstanding work is done in a team environment where individual members are encouraged and supported to give their best. Teamwork is essential when outcomes depend on the support and coordination of various departments, and also results in higher commitment towards the organization. CIPD reports that engagement levels are affected by the working environment; where employees have support from others to help them do their job, there is a sense of teamwork, and can safely express themselves, engagement will be higher [159]. The high levels of commitment are closely associated with the good levels of teamwork and clearly contribute to the organization‘s high levels of engagement. Employees who develop close workplace friendships have generally higher engagement levels [160].

Another aspect that promotes engagement and related to teamwork is the development of workplace friendships. The success of workgroups depends on

relationships at work, and strong friendships and alliances enable employees to successfully overcome negative situations at work. Personal and professional alliances contribute greatly to the individual's engagement level. Good managers create opportunities for employees to get to know each other, as these friendships create positive emotions which help in building resources necessary to reinforce communication and creativity [17].

The literature on burnout also considers a lack of community as one of the reasons for burnout. People are essentially social animals who thrive in the company of others whom they like and respect, and are at their operational best when they are able to share with them, be it happiness, troubles, praise, comfort etc, and when people lose this positive connection, burnout results [161]. Engagement is likely to be eroded if this connection to co-workers is found wanting [ibid]. It also results in conflicts which produce negative feelings of frustration and hostility, again creating a mismatch. Maslach's theoretical framework recognizes depersonalization as one of the components of burnout [ibid]. Depersonalization occurs when individuals withdraw and distance themselves from co-workers, colleagues and clients, resorting to impersonal relationships.

Teamwork has assumed greater significance in recent turbulent times, where management hierarchies have been pared down, putting more pressure on companies to coordinate better horizontally to stay competitive. Workplaces are also becoming more diverse, bringing people with different expectations together, which have the potential of creating tensions and disrupting smooth teamwork. It is in this context that teamwork and co-workers become major employee engagement drivers.

2.11.6 NATURE OF THE JOB

All employees are looking for meaningful work and this meaningfulness has a significant and influencing impact on individual engagement levels, something accepted in both academic as well as practitioner literature. Among the many factors that are said to have an impact on engagement, the nature of the work has a significant role to play, as the desire for challenge has been found to be

the second most influential factor for employees [96]. Most employees want to utilize their skills and abilities – and gain new ones - in challenging jobs, where they are tested and as Gallup puts it "do what they do best". One of the three antecedents of engagement as stated by Kahn is that of psychological meaningfulness, which in turn is heavily influenced by the challenge and autonomy provided by the nature of the work [82]. Employees need to have the belief that their work is important, not only for themselves, but also for the organization.

The nature and demands of the job can also lead to burnout; termed 'emotional exhaustion' - when individuals are unable to psychologically meet the demands of the job and consequently unable to invest effort on performance [162]. Burnout is caused by a person-job mismatch, excessive workload, disinclination for the type of work, and even emotional work can be draining where people are required to display emotions that are inconsistent with their feelings and values. Generally, the quantum of workload is the most common cause of exhaustion, leading to burnout and employees can remain engaged as long as the workload can be comfortably sustained [161]. Continued extra work pressure results in compromising the quality of output, innovation and relations at the workplace [ibid]. Although job demands cannot be always considered as excessive – certain individuals find the extra demands as challenging – they can turn into stressors when it becomes physically and mentally taxing to meet them even with the highest level of effort. Consequently, the results of high job demands can be costly with resulting negatives like depression, anxiety, or burnout [74].

2.11.7 PAY, REWARDS AND BENEFITS

Pay, rewards and benefits, represent some of the strongest drivers of engagement. The amount of compensation an employee receives is considered by many as a measure of the importance of their work and their contribution. Burnout literature states that mismatches may arise when financial rewards are insufficient, or there is a lack of social rewards such as recognition and appreciation, or intrinsic rewards such as pride in the job. The process of

rewards and recognition should be perceived as fair by employees to ensure continued engagement [163].

Lack of recognition and rewards creates feelings of inefficacy in employees. Conversely, when employees see their work being recognized and rewarded through monetary or non-monetary measures, it motivates them to continue performing or even better themselves. It can also act as a driver for those underperforming, encouraging them to higher levels of performance.

It has been recognized that monetary considerations alone do not necessarily drive job satisfaction, nor increase engagement or even help in employee retention. Senior management thus needs to be aware of those benefits and resources that matter most to employees, thereby creating the feeling of obligation returned with higher engagement levels [72]. Since individual desires and motivators of different employees will be different, organizations can build higher levels of engagement by distinctly differentiating between compensation and development through a mix of pay, benefits, growth opportunities and challenging jobs.

Good pay also creates mutual dependence as it makes more sense to the employee economically - there are drawbacks to leaving and economic incentives for continuing [72]. However, the economics of this relationship should be structured in a manner that it does not hinder commitment, as otherwise it can be counterproductive [ibid]. Organisations that add on benefits to increase retention strengthen this relationship and create dependence which can be used to increase commitment [164].

Benefits have been known to have the potential of raising commitment levels. A survey of over 1,500 US workers found positive links between the provision of family benefits and workers' commitment, even for those who did not benefit directly [165]. Organizations that offer good wages and benefits are judged as more caring and concerned about employees, with the added perception of fairness at the workplace. Research has also found that commitment has a stronger relationship with pay satisfaction than with the actual income [165].

High-performing companies are at an advantage as they possess more resources than others to spend on employees. Hypothetically, they can pay higher compensations and offer additional benefits, which should translate into higher engagement and additional business success.

2.11.8 INPUT IN DECISION MAKING

Another essential driver of engagement is effective employee voice which refers to the opportunities available to employees to have their suggestions heard, thereby allowing them the chance to provide inputs into decisions that will affect their work and its performance. Employees must be included in the process of decision-making and also kept aware of developments at the workplace which will affect their performance. Research has shown that both the extent and frequency of engagement are positively affected by employee involvement and open communications from senior management. CIPD's [121] survey has also found that proper and open two-way communication is one of the top priorities that can lead to employee engagement. The report finds that the opportunity to have their views and opinions heard and appreciated by senior management as a major driver of engagement, testifying to the importance of being kept informed about the latest developments in the organization.

A lack of 'control' is considered to be one reason for burnout [161]. Control is the sense of being involved in decision making that impacts the work of employees, of being able to make use of their workplace autonomy, and of having the power to access require materials and resources to function effectively. A mismatch in control indicates that employees have inadequate control over resources required to execute their jobs, or even insufficient authority to perform effectively. Participation in decision making is an important job resource which can reduce burnout [139]. When decisions are made in the workplace that affect employees, having their opinions heard and involving them in the decisions can influence interest and broaden the scope of thinking and acting [17].

The sense of involvement and worth has two main elements - involvement in decision-making and the liberty given to voice their ideas, and management taking cognizance of their views thereby valuing their contributions. Welcoming and acting upon employees' suggestions creates a sense of fairness in the decision-making process, increasing its all-round acceptability.

In an NHS survey, 51% employees considered themselves consulted or even involved in decisions that affected their work, work-group, or department; 27% found senior management involving lower level employees in important decisions [166].

Participatory decision making has been demonstrated to have a positive effect on OCB also with greater levels of citizenship behaviour demonstrated by employees who were involved in the decision-making process [167]. The results suggest that it was not the taking part in decision-making itself, but the perceived management support as a result, that led to the demonstration of citizenship behaviour.

2.11.9 PERFORMANCE APPRAISAL AND FEEDBACK

Since most employees want to improve their abilities and learn new skills, performance appraisal and feedback assume greater significance in raising engagement. Employees need to know whether their performance meets requirements, and identify areas where they need to improve. It also holds relevance in their advancement as without proper and fair appraisal and feedback, problem areas cannot be identified. Learning is fostered by proper and regular feedback, which in turn increases competence. Supportive co-workers combined with such feedback increase the probability of achievement of work related objectives [140]. Proper feedback and appraisal will also assist the organization in identifying new talent on one hand and under-performers on the other.

Constructive feedback, receiving formal appraisals and the implementation of performance development plans are significantly related to greater engagement levels [18]. These mechanisms send the message to employees that their

training requirements, personal development and future aspirations are important to the organization. It also signals that the employee's immediate manager is caring enough to discuss their appraisal with them and direct them onto the correct path, if found wanting. Positive evidence of a relationship between job resources such as feedback, social support, and supervisory guidance and work engagement has also been found [74].

The appraisal process, needless to say, must be fair, unbiased and transparent. It should also be constructive and positive so that employees are clearly aware of where they are with regard to performance, and where they need to be in order to achieve both organizational and personal goals. To achieve this, communication lines between senior management, line managers and employees must always be open facilitating a two-way dialogue. Organizations that follow appropriate performance appraisal and feedback techniques will have find higher levels of employee engagement.

2.11.10 AVAILABILITY OF RESOURCES

The successful accomplishment of any job requires the availability of necessary resources. These resources may be in the form of physical materials, tools and equipment, manpower or even training required to do the job. The most motivated of workers will become disengaged if the materials required are not made available to him. It may also send the message to him that the organization does not value his work enough to make materials available to him. Gallup and Hewitt both consider the availability of resources as important drivers of engagement.

Work engagement has been found to be strongly predicted by job resources, as they can play both intrinsic motivational roles by fostering employee development and growth [74], and also extrinsic motivational roles as they are necessary to achieve operational goals [140]. Job resources also motivate extrinsically as work environments providing resources influence employees to willingly dedicate their efforts and abilities to the work [168]. In such environments there is a strong probability of tasks being completed

successfully and the attainment of work objectives. Blessing White [19] reported that the single most important factor that would most impact employee performance was 'more resources'. The not fully engaged suggest that their performance would have improved, had they had the necessary resources [ibid].

To support engagement, organizations must be able to provide the necessary materials and tools, and the workplace environment capable of supporting engagement. Resources also include skills training and relevant updated information. The ultimate aim should be how to make employees effective, building on the foundations of engagement by creating an environment which displays its values, a culture of trust and ethical behavior, and by giving all resources necessary to enhance performance and productivity.

2.11.11 SUMMARY OF DRIVERS

The drivers of engagement enumerated above cannot be considered to be comprehensive and final as engagement drivers differ across industries, demographics, nationalities etc [19]. However, most surveys essentially measure engagement using themes that are broadly similar. There is no unanimity in enumerating the drivers, and thus each industry has to analyze the drivers relevant in their organizational setting prior to embarking on addressing the issue of engagement. For the sake of the study, a comparison of the top drivers identified by various surveys is listed in Table 2.1.

Table 2.1: Drivers of Engagement from Literature Review

GALLUP [21]	HEWITT [99]
Work expectations	Resources
Materials and equipment	Intrinsic motivation
Opportunity to do what I do best	Recognition
Recognition for good work	People practices
Someone at work cares about me	Development opportunities
Development encouraged	Immediate Manager
Opinions count	Benefits
Mission/Purpose	Pay
Associates committed to quality	Performance review

Best friend at work	Career opportunities
Career progress	
Learn and grow	**IES [18]**
	Communication
TOWERS PERRIN [100]	Job satisfaction
Company interest in employee well-being	Cooperation
Good relationship with supervisor	Equal Opportunities & Fair treatment
Input into decision making	Training, Development & career
Have excellent career advancement	Immediate Management
Improved skills and capabilities	Family friendliness
	Health & safety
CONFERENCE BOARD [10]	Pay & Benefits
Trust & integrity, feel valued	Performance & Appraisal
Nature of job, autonomy	
Employee/Company alignment	**MERCER [98]**
Career growth opportunities	Treated with respect
Pride in company, advocacy	Work/life balance
Co-workers	Type of Work
Employee development	Leadership
Relationship with manager	Pay
BLESSING WHITE [19]	**BRANHAM & HIRSCHFIELD [153]**
Training & Development	Caring, competent leadership
Role in organization	Effective managers
Work resources	Effective teamwork
Work opportunities	Job enrichment
Flexible job conditions	Professional growth
More challenging work	Value employee contributions
	Concern for employee well-being
SHRM [160]	
Opportunities to use skills/abilities	
Job security	
Compensation/pay	
Employee/management communication	

From the above compilation, and others mentioned in various academic and practitioner literature on engagement as well as burnout, the following can be considered to be the most common drivers that can be considered applicable to

the maritime industry:

Table 2.2: Consolidated Drivers of Engagement	
☼ Recognition of work	☼ Best friend at work
☼ Performance management	☼ Senior managers
☼ Voice heard	☼ Intrinsic motivation
☼ Feeling valued	☼ Job demands
☼ Financial rewards	☼ Autonomy
☼ Pride in company	☼ Career growth
☼ Company advocacy	☼ Work resources
☼ Nature of work	☼ Co-workers

The above drivers will be used in the development of the survey instrument.

2.12 MEASURING ENGAGEMENT

The measurement of engagement provides organizations with the opportunity to explore a large variety of factors which can be considered relevant for the development of engagement, such as their pride in their company and its products, willingness to exercise discretionary effort, work as a cohesive team with colleagues, belief in the organization as a great place to work etc. [12].

Employee Engagement is not an exact science, but it can be quantitatively measured using survey tools and questionnaires. There are many such questionnaires available and in use, some developed in-house by organizations, while many developed by major consultancies that permit organizations to measure employee engagement levels.

As with the lack of a unified definition of engagement, there are differences in the various aspects of engagement these surveys measure and analyze. Because of the diverse nature of its definition, assumptions and usage, as well as the different needs of every organization, there is the possibility of wide variations between these measures in what is actually being measured; organizations should exercise caution while benchmarking their engagement scores [131]. Some surveys calculate the level of engagement as a percentage

or on a scale, allowing comparisons or benchmarking with others. Many use the results of such surveys to identify the major drivers of engagement relevant to their organization, and also the kind of engagement – with the job, with the team, with the organization. Some also analyze the antecedents necessary for engagement, its outcomes, while others focus on employee attitudes.

Organizations are therefore left with a difficult choice to make when deciding how to approach the engagement measurement exercise. They may have to select an existing standard procedure which might not fully meet their needs, although permit benchmarking, or develop their own measure which may not allow comparisons with other organizations [12].

Whatever method chosen and aspects measured, it is suggested that the data collected from engagement surveys should be accurate enough to enable the organization to realistically address the issues identified and analyze the factors behind any successes they may have had. For any organization, the most important step is to reach a shared and acceptable definition of engagement relevant to their own operational context, and to translate this into action [135].

The most commonly used measures are as follows:

2.12.1 Gallup Workplace Audit (Q12)

One of the most prevalent and oft used tool for measuring engagement, the Gallup Workplace Audit (GWA Q^{12}), is based on Buckingham and Coffman's [21] work, who developed 12 questions to measure employee engagement. There are in all 13 questions, the first one measuring overall satisfaction with the organization. The other twelve measure factors such as understanding expectations at work, having necessary resources, recognition and praise, opportunities to grow, opinions being valued, co-workers, and supervision etc.

Several meta-analyses (1997, 1998, 2000, 2002, 2003, and 2006) have shown substantial criterion-related validity for each of the Q12 items, and significant linkages between engagement and business outcomes such as profit, productivity, employee turnover, and customer loyalty. Since 1998, the GWA

Q12 has seen great popularity among practitioners and has been used to assess engagement of more than 15 million employees in 169 countries [17, 129].

2.12.2 IES Engagement Survey

The Institute of Employment Studies (IES) has also developed its own survey instrument which consists of twelve attitudinal statements. These statements together measure various aspects such as organizational citizenship behaviour, commitment, alignment with organizational goals, and belief in the organization as a great place to work and grow. Each statement is graded on a five point scale. There is a shorter version also available with five statements which also demonstrate good statistical reliability [12].

2.12.3 The Utrecht Work Engagement Scale (UWES)

The UWES is rooted in the Burnout – Engagement model proposed by Maslach et al. [163]. It is calculated to measure work engagement based on the premise that engagement is a *"positive work-related state of fulfillment characterized by vigour, dedication, and absorption"* [169]. It consists of three separate scales measuring vigour, dedication and absorption. It is available in long form (17 items) as well as short form (9 items).

Vigour is assessed on the basis of six items relating to high energy levels and resilience, willingness to invest effort, not being easily tired, and persisting in the face of difficulties. Dedication is measured by five items relating to finding the work significant, enthusiasm and pride in one's job, and feeling inspired and challenged. Absorption is assessed by six items relating to the desire to immerse oneself in work and being unable to detach from it. The tool has been found to be an appropriate measure that can be safely used to study positive organizational behaviour [159]. The UWES, through validity studies, has positively concluded that burnout is in fact negatively associated with work engagement.

2.12.4 Hewitt Best Employer Studies

Hewitt Associates define engagement as the *"state of intellectual and emotional involvement employees have in an organization"* [155]. They consider engagement an indicator of the energy or passion which employees bring to their jobs and the organization, or "the extent to which the organization has captured the hearts and minds of its employees". Employees are considered to be engaged when they 'Say, Stay and Strive'.

Say refers to advocacy of the organization – both internally and externally, **Stay** means wanting intensely to be a part of the organization, while **Strive** is the exertion of extra effort and dedication in order to contribute to organizational success.

The engagement score is calculated based on the response to questions that address factors such as advocating the company to friends for employment, taking pride in the organization being a great place to work, continuing employment in the foreseeable future, inspiring employees to do their best every day, and being motivated to invest more than required.

Out of a maximum possible score of 6, employees scoring 4.5 and greater are categorized as 'Engaged', between 2.6 and 4.4 'Somewhat Engaged' and 2.5 and less, 'Disengaged' employees.

2.12.5 Towers Perrin Engagement Survey

The Towers Perrin survey is available as both web and paper based formats. They claim that this survey is a credible instrument for measuring and benchmarking engagement in organizations, identifying the existing drivers of engagement and determining where organizations can step in to improve engagement.

Towers Perrin define engagement as the *"willingness and ability of an employee to contribute towards organizational outcomes"*, or *"willingness to put in extra energy and passion and going the extra mile in order to achieve objectives"* [100]. They developed the instrument from surveys of 40,000

employees in the USA [128], and is based on nine essential elements which are claimed to 'truly define' engagement. The survey has the advantage of being faster and cheaper than other engagement measures available [119].

Towers Perrin's instrument measures engagement levels based on the respondents answers to items that analyze their links to the organization on the following three dimensions:

- Rational – the understanding by employees of their roles and responsibilities
- Emotional – the passion and energy they bring to their work
- Motivational – the level of work performance

2.13 LEVELS OF ENGAGEMENT

Engagement is said to be a continuum [170] with employees lying on various points along it. Many studies and research into engagement show that there are various degrees of engagement of employees. On the basis of the differences in individual engagement, employees can be categorized into various segments, enabling organizations to differentiate between them and focus their efforts accordingly. Gallup through their meta-analysis identifies the following three levels of engagement [129]:

Engaged: Engaged employees are passionate about their work and feel a deep connection with their organization. They are innovative and work in ways to drive the organization forward.

Not Engaged: Not engaged employees are basically 'checked out'. These employees do spend time at work, but without any passion – or even interest-essentially marking time.

Actively Disengaged: These employees are the most dangerous as, apart from being dissatisfied and unhappy with their work, they show their unhappiness and undermine what other co-workers are trying to achieve.

Blessing White Research [19] identifies five distinct employee segments on the basis of their engagement. These five levels of employee engagement are:

The Engaged, Almost Engaged, Honeymooners & Hamsters, Crash & Burners, and the Disengaged. Towers Perrin [128] cluster respondents into four groups – Engaged, Enrolled, Disenchanted, and the Disengaged.

It is the identification of this middle group which holds importance, as this is the segment that is the most responsive to engagement enhancement initiatives [50]. This is because, engagement being a continuum, it may require very little investment in moving employees on the higher end of the middle group to engagement. On the other hand, it is also suggested that the disengaged should be allowed to leave, as they will require too much effort to move towards engagement.

2.14 DISAGREEMENTS WITH EMPLOYEE ENGAGEMENT

Even though employee engagement appears to be the answer to all that ails the business world, and numerous surveys provide positive correlations with business performance, profits, loyalty etc, it is still not accepted as a separate construct by many. Some even question whether it is a construct at all, with many experts not willing to accept the concept of engagement as new [171]. Research literature itself is not very precise on the actual usage of the construct of engagement, being interchangeably being used with role performance as well as affective state within the same research context [95].

Little and Little [172] have been particularly critical of the manner in which the construct has been developed, stating that constructs should be concepts that are purposefully created or adopted for scientific purposes; constructs must be inferred, not observed. They do not consider appropriate the method of grouping and naming a collection of survey items a construct. They further contend that the construct must be validated through comparison and contrasting with similar and different constructs in order to show that it is in actuality related to those constructs, and can be predicted theoretically.

The academic response to the increasing popularity of engagement has been comparatively slow, and the limited empirical research available does not indicate that the theory underlying the construct of engagement has been

rigorously tested [96]. Thus even though there have been studies indicating that certain 'attitudes' are apparently related to business outcomes such as productivity and turnover, these attitudes cannot be said to conceptually reflect the idea of engagement. A certain amount of confusion is also created by the fact that while some use engagement as a specific construct with unique dimensions, while others use it as a performance based construct measuring levels of performance [ibid].

One of the primary issues revolves around the lack of a clear definition stating unequivocally the various dimensions of engagement, and if engagement is an attitude or behaviour. The construct of engagement has also been considered ill-defined and misapplied, various authors not distinguishing between attitudes and behaviors going so far as to mix examples of both while defining [172]. Engagement can, however, be both attitudinal and behavioural, and users should be clear about the type of engagement they are dealing with [96].

As a construct, engagement has also not demonstrated nomological net, an accepted method of demonstrating construct validity. Such validity can only come after defining a theoretical framework, supported by measurement using an empirical framework, and the specification of the relationship between the two [173]. The linkages between suggested causes and outcomes of engagement, as well as its elements have neither been studied in depth, nor thoroughly conceptualized. As a result, many consultants are wary of defining engagement, instead referring only to its 'presumed positive consequences' [96]. Even Bakker & Schaufeli [174] agree that a discrepancy exists between academic writing and research, and industry interest in employee engagement.

It is also questioned if engagement is a phenomenon at the individual or group level [172]. They quote Coffman and Gonzalez-Molina, who segregate employees into three distinct and mutually exclusive groups - engaged, non-engaged and actively disengaged. Firstly, they contend that here the individual group profiles are a disturbing combination of attitudes and behaviors, such as the engaged group using talents every day, having consistently high levels of performance, and emotionally committed to their jobs. Secondly, both engaged and actively disengaged groups collectively impact organizational profitability

and performance, while the non-engaged on the other hand do not appear to have a group effect, being considered highly individual. These effects cannot be considered as parallel, raising the issue of engagement existing at a group or individual level.

Another contentious issue is the similarity and overlap between engagement and other well established concepts such as affective commitment and organizational citizenship behaviour. Many of the definitions offered take the support of existing constructs mentioned above, apart from job involvement and satisfaction. However, they fail to demonstrate the relationship of these constructs with engagement. Macey and Schneider [96] argue that in its present form, engagement is either being used to refer to a psychological state such as involvement, commitment, etc, or a performance construct such as effort, observable behavior, organizational citizenship behavior etc, and even a combination of the above.

The measurement of engagement by practitioners is also another divisive issue. Some contend that in practice, on the one hand conditions of engagement are being termed measures of engagement, while on the other indicators of employee opinions are being considered as indicants of engagement [96]. The latter holds particularly true with measures of job satisfaction which do not indicate energy, passion etc. The evidence used by Harter and Schmidt in their meta analysis is also questioned where they use data to indicate the correlation between engagement and unit performance, and at the same time treat it as indications of the linkage between job satisfaction and unit performance [96]. These are the same measures used to assess work conditions but instead infer engagement [ibid]. Such treatment brings to the fore that to many these concepts are indeed interchangeable.

There are opposing views on implementation too with Engen [175] stating that nobody can claim with certainty that the time, resources and effort used to increase engagement would really generate the kind of results organizations are looking for. Macey & Schneider [96] consider employee engagement as heavily marketed by HR consulting firms, while Little & Little [172] think that it has been marketed as a practical rather than an academic concept.

In conclusion it can be seen that employee engagement is a multi-dimensional, multi-layered and multi-faceted construct which should be tested rigorously to determine its theoretical soundness and strengthening its practical applicability. It is only by thoroughly understanding the nature of engagement and determining its relationships with attitudes and behaviors will it be possible to profitably apply it to benefit organizations and employees alike. Continued research into the antecedents and consequences of engagement will allow better understanding, and enable academics and practitioners to capture its contribution to organizational and individual performance.

2.15 PERFORMANCE

Performance refers to *"the achievement of assigned tasks measured against preset standards of precision, completeness, cost, and dispatch"* [176].

Changes in the international economic and operating environment in the recent past has forced organizations worldwide to search for new means of ensuring competitive advantage, traditionally provided by economies of scale, technology, new designs etc. Today the value of these has diminished, instead shifting the focus on to the contributions of motivated, skilful and flexible employees [67]. One of the primary building blocks of the success of any organization is employee performance; improved performance is essential in ensuring competitiveness, quality of service, and cost reductions.

There is a prevalent belief that individual performance of employees has an impact on organizational outcomes, and employees themselves can be a unique source of competitive advantage, not easily duplicated by competitors [177]. Employee performance thus assumes greater significance today, and organizations need to develop HR practices that can assist in the creation of sustained competitive advantage through the management and enhancement of employee performance. High performance workers have an economically meaningful impact on organizational performance, and arguments have been made for the use of 'High Performance Work Practices', as these have the ability to improve skills, abilities and knowledge, increase motivation, and reduce turnover of existing employees [ibid].

It must be borne in mind that performance improvement is a continuous and ever evolving process. However, before embarking on the process of performance enhancement, companies must identify and address existing barriers to performance. Structural barriers to performance can be addressed through process improvements and newer technologies [178]. The fundamental ingredient of sustained performance improvement is the motivation of employees, which can only be attained by identifying the factors that drive individual performance, and comprehensively addressing them.

Performance can also be seen on two levels, standard and elevated [178]. The Standard performance is the minimum effort put in by employees in the normal course of fulfilling their designated roles. Elevated performance, on the other hand, is the output of employees who go over and above the normal call of duty, using discretionary effort [ibid]. Elevated performance has also been termed 'Engaged Performance' by the Hay Group, who consider it a consequence of the stimulation of an employee's enthusiasm for work, and directed to the achievement of organizational success [53].

It is the achievement of elevated or engaged performance that is desirable to all organizations, and this needs the implementation of management practices which will increase employee commitment. Organizations must, therefore, understand the barriers to standard performance, and remove them to reach acceptable levels. It is only once standard performance levels are achieved, can enhanced performance be attained.

From a survey of 60 companies, CLC found that employee performance has declined by 53% since 2005 [16]. They report that percentage of employees exercising discretionary effort has dropped from 17% to 8% since 2006. This means that organizations have just half the high performing workers they had before, resulting in a steep decline in performance. Employee performance thus occupies centre stage in HR strategies, and there is a growing consensus amongst HR practitioners that effective and properly configured HR policies can effectively contribute to organizational performance [177].

2.15.1 PERFORMANCE IMPLICATIONS IN SHIPPING

In the maritime context, the following key facts will assist in putting in perspective the problems being faced by the shipping industry on account of performance, and which can be attributed to the lack of qualified, experienced and professional seafarers [41].

- From 2000 to 2005, on an average 18 ships were involved in collisions, groundings, sinking, catching fire or exploding *every single day*, out of which two ships sank every day.
- Over a recent ten-year period, insurance claims cost the P&I industry US$15 billion, as estimated by Standard P&I Club. *This translates to more than US$4 million dollars every single day.* They also reported that more than 65% of this huge amount – equaling a mammoth US$10 billion – involved incidents which could be attributed to human causes.
- The year 2006 was declared a 'catastrophic year' by the International Union of Marine Insurance (IUMI) as far as hull claims was concerned. 2007 proved to be four times worse!
- The average number of incidents involving serious or total loss of vessels over 500gt had steadily risen in the 15-year period to 2008. 60% of these – around two major incidents per day in 2008 – were due to human error.
- The year 2008 saw – on average - a maritime disaster occur nearly every week, each involving insurance claims of over US$17m or had an economic impact of over US$85m. The same year, marine insurance companies paid out over half a billion US dollars for casualties.
- A report from the UK P&I Club states that the shipping industry is paying out more than $ 300 million a year to meet seafarers' claims for injury, illness and death.

The above statistics highlight the quantum of losses ship owners may have to bear in case of below average performance of seafarers. The performance of seafarers has to be above the minimum acceptable level in order to avoid such catastrophic losses. The maritime industry is very complex with a large

number of players – ship owners, charterers, brokers, agents, shipyards, banks etc. The seafarers have a limited – although important - role in that they are responsible for executing shipboard voyages with utmost dispatch, ensuring the cargo reaches the destination without damage, and maintain the seaworthiness of the ship. Although they may not contribute towards commercial operations like marketing and sales etc, they could possibly contribute by executing voyages using the shortest safe route, ensuring there are no delays to the ship due breakdowns, and operating in a manner that eliminate the possibility of claims being made against the ship owner. Additionally, the safety of the entire ship, its crew, the cargo and the environment also rests on their shoulders.

The work of seafarers is very diverse in nature involving manual jobs, work that is procedure dictated, as well as work in which experience and judgement are called for. Shipping companies owe a significant part of the success of their operations to the seafarer's personal knowledge and his ability to apply the knowledge gained from experience in keeping ships running smoothly, as well as solving new problems as they arise.

As with other industries, the shipping industry can also benefit from elevated levels of performance in improving service quality and reduce operating costs. Ship owners have invested in improving the 'hardware' of shipping through better technology, but apparently not paid sufficient heed to ensure that the 'software', i.e., the manpower managing ships, is motivated enough to willingly raise its performance level and ensure operational excellence [179].

The measurement of seafarer's performance is usually done through performance appraisal, but that is more for promotion or reemployment purposes. Having said that, the collective performance of ships, and by extension that of seafarers, is also measured on the basis of Key Performance Indicators (KPI) of shipping companies. These KPI's assist shipping companies to boost performance improvements internally, as well as to provide an efficient communication platform about ship operation performance information to internal and external stakeholders through increased transparency. Apart from the element of HR management

performance, seafarers have a major role to play in ensuring highest performance in all the other elements. In order for this to happen, shipping companies may find it advantageous to 'engage' their seafarers. The fact remains that an engaged or high performing seafarer may be able to contribute beyond this requirement through fuel economisation, inventory control, timely preventive maintenance, maximizing cargo intake, minimizing operations times in ports, reducing communication costs and consumables etc. Shipping companies need to be able to measure these aspects too through a better performance management system, as otherwise conscientious seafarers are liable to become apathetic and de-motivated.

2.15.2 DRIVERS OF PERFORMANCE

Performance is a construct that is multidimensional in nature, and is aimed at the achievement of results and has been shown to have strong linkages with the strategic goals of organizations [180]. For optimal employee performance, five main states have been suggested that are essential, namely the states of Security, Belonging, Freedom, Significance and Purpose [181]. When employees are denied these states, depletion of energy results causing loss of performance. Many studies have been undertaken to identify the drivers of performance, and one of the most comprehensive models is provided by the Hay Group which identifies six main drivers [53]. These are:

- **Inspiration and Values:** This refers to the atmosphere in which employees work, and is manifested through the quality of leadership, organizational values and behaviors, the brand image of the company, recognition of work and internal communication.
- **Future Growth/Opportunity:** All employees desire to progress in their careers; organizations should provide learning and development beyond their current jobs which will provide them career advancement opportunities. This requires improvement of performance through continuous feedback and guidance.
- **Quality of Work:** The nature and self perception of the work itself lends an

impetus to better performance. Work should be such that it creates interest and challenge, supported by freedom and autonomy to accomplish tasks. Workload, co-worker relationships and recognition of achievements will also ensure enhanced performance.

- **Enabling Environment:** High levels of performance can only be attained if employees are supported by the environment - both in terms of physical conditions as well as necessary resources. Resources would also include training for the job, availability of relevant and necessary information as well as safety at work.
- **Work/Life Balance:** The balance between work and life is also essential in attaining high performance levels. This should be ensured through a supportive environment, which provides positive social interaction at work. The job should also be such as to provide job security and ensure fulfillment of individual needs.
- **Tangible Rewards:** One of the primary drivers of performance is the remuneration and rewards system in the form of pay, benefits, incentives and recognition of efforts. These should however be backed by a fair and just system which recognizes individual performance without any bias.

Ledford also finds seven basic drivers of performance, namely work design, training and development, pay and incentives, benefits, feelings of association with co-workers and the organization, performance management, and selection procedures [182]. Others consider job autonomy, organizational support, training, distributive justice, procedural justice as practices crucial to employee performance [183].

These drivers, however, are not a 'one-size-fits-all' and each organization needs to identify the drivers that are relevant to their individual context. It is only through such recognition can the barriers to performance be eliminated, clearing the way for raising performance levels.

Based on the above literature, the following are being considered as drivers of performance in the maritime industry:

Table 2.3: Consolidated Drivers of Performance	
☼ Pay	☼ Quality of Leadership
☼ Benefits	☼ Reputation of Organization
☼ Recognition Awards	☼ Recognition of Life Cycle Needs
☼ Fairness of Reward	☼ Security of Income
☼ Learning and Development	☼ Challenge/Interest
☼ Career Advancement Opportunities	☼ Achievement
	☼ Freedom & Autonomy
☼ Tools and Equipment	☼ Quality of Work Relationships
☼ Job Training	☼ Performance Improvement & Feedback
☼ Workload	

These will be used in the development of the survey questionnaire.

2.16 SAFETY

Safety is the *"state in which hazards and conditions leading to physical, psychological or material harm are controlled, in order to preserve the health and well-being of individuals and the community"* [184].

The ILO estimates that worldwide around 340 million occupational accidents and 160 million work related illnesses occur annually. Out of these, approximately 2.3 million individuals lose their lives to work-related accidents or diseases every year, an astounding 6000 deaths every single day [185]. An average 5% of the global workforce misses work daily due to injuries sustained at work [186], while more than 268 million nonfatal work-related accidents require three or more days off work [187]. In 2011, the US Bureau of Labour Statistics disclosed that private industry employers reported nearly 3.0 million non-fatal injuries and illnesses at the workplace; injuries accounting for 94.8%, while the balance 5.2% was due to illnesses [188].

Workplace accidents and illnesses cost losses of billions of dollars internationally every year, and the International Labour Organization (ILO) reports that 4% of the world's GDP is lost due to these injuries and illnesses [189]. Businesses in the United States alone had to incur annual losses to the tune of USD 170 billion, accounting for nearly a quarter of pre-tax corporate

profits [190]. In the UK, in 2010/11, workplace illness cost an estimated £8.2 billion, while workplace injuries (including fatalities) accounted for an estimated £5.2 billion [191].

Unfortunately, these costs are underestimated by the industry, as there are many ways in which these costs manifest themselves. Costs include direct costs – such as fines, legal costs, compensation payouts, as well as indirect costs like health insurance premiums, increase in employee turnover, loss of productivity and subsequent income.

One of the most recent and comprehensive reports on the costs of occupational illnesses and injuries, finds the following [190]:

- In 2007, there were more than 5,600 fatal injuries and 8,559,000 non fatal injuries, costing $6 billion and $186 billion respectively
- The same year, fatal illnesses were more than 53,000 while non fatal illnesses were 427,000, at costs of $46 billion and $12 billion
- Medical costs for diseases and injuries together amounted to $67 billion (27% of total), while the indirect costs stood at almost $183 billion (73%)
- 77% of the total was due to injuries, illnesses accounting for 23%
- Estimated economic costs were roughly $250 billion

The direct and indirect costs of such injuries and illnesses at the workplace are sizable. The resulting economic burden is shared by all members – employers, injured workers, families and society - as the workers' compensations cover only a quarter of the costs [192]. In the case of the costs reported for the UK, nearly half of the total cost in 2010/11 fell on individuals whilst the remainder was shared between employers and government [191]. An unsafe work atmosphere can also adversely affect health and the quality of life of the affected as well as the workforce.

The maritime industry is also paying out more than $ 300 million a year to meet seafarers' claims for injury, illness and death [193], and 90% of these accidents were attributable to human error [194]. Here also the costs are direct

as well as indirect, including rehabilitation expenses which can be huge.

The consequent costs of workplace accidents generally exceed those directly visible, and covered by insurance [192]. Workplace injuries and illnesses constitute a larger proportion of overall medical care costs than is generally assumed [190]. However, despite these huge costs, convincing employers and organizations about the financial benefits of accident prevention at work are extremely difficult, possibly due to the fact that these costs are sometimes difficult to calculate. These findings should be a wake-up call for organizations all over, as in today's world of increasing competition as well as global recession, organizations need to recognize these costs and devise mechanisms to minimise them.

2.16.1 SAFETY IMPLICATIONS IN SHIPPING

The maritime industry – like their counterparts ashore - also suffers from high rates of workplace injury and illnesses. By virtue of the marine environment, shipping has been considered as one of the most dangerous occupations internationally, accidents and maritime disasters causing high rates of injuries [195]. This is mainly due to the existence of a combination of a variety of workplace dangers, not usually found in other industries [196]. The prevalence of fatigue, workloads, excessive work pressure and ensuing stress, lack of communication, and extended periods away from family are also factors that contribute to making the work environment more dangerous [197].

Noteworthy is the fact that apart from the dangers involved, workplace stress and consequent injuries lead to catastrophic accidents involving the entire ship and the environment, and have the potential to cause losses extending to millions – even billions - of dollars.

Injuries and illnesses have many dimensions due to the nature of the job and location disadvantages. Seagoing ships do not carry extensive medical facilities on board and each injury has the potential of becoming critical in the absence of timely and correct medical attention. Although commonplace injuries – like cuts and bruises – can be effectively managed by shipboard staff

and facilities, serious injuries require shore medical treatment. If the vessel is in port, shore medical advice is readily made available but if the vessel is at sea, the situation changes drastically – both for the injured seafarer as well as the shipping company. Costs involved in medical attention to seafarers on the high seas can be prohibitive in cases where patients have to be airlifted. On the other hand, delayed medical attention can lead to permanent disability or even death of the afflicted seafarer.

In the shipping industry, costs associated with injuries, medical treatments etc are covered by Protection & Indemnity Clubs, which provide insurance against third party liabilities. All costs related to crew health are covered by P&I Clubs; however, increasing claim history causes an increase in the premiums for these ship owners.

A report from the UK P&I Club states that the shipping industry is paying out more than $ 300 million a year to meet seafarers' claims for injury, illness and death [198]. An analysis of 1500 marine insurance claims surveyed by the Thomas Miller P & I Club, between 1987 and 1996, revealed that 90% of these accidents were attributable to human error [194]. Human error accounted for nearly two-thirds of the accidents relating to personal injury. The cause of these errors ranged from carelessness and over confidence to a lack of knowledge as well as experience [ibid].

A survey of various categories of marine claims for the period 1993 to 2003 showed that crew claims were the largest component of all P&I claims categories in terms of claims paid and second largest in terms of incident numbers [199]. Pollution and collision incidents are the most expensive for insurance companies, however, the results of the survey were surprising as crew claims (average USD 14,500) were found to be more expensive than cargo claims (average USD 9,700). Monetarily, crew claims ranged between highs of 30% and lows of 15% of all P&I claims, the average cost per claim in the region of USD 10,000. The UK Club reports that the average cost of injury claims has risen from $6,996 in 2000 to $40,771 in 2010. They also assessed that between 1999 and 2010 the average illness claim of seafarers was $US 12,000 per claim. Data provided by a major P&I Club (who wished to remain

anonymous) reveals that in the period from February 2007 to November 2011, there were 3,580 injury claims, resulting in total costs of USD 111,622,000.

Apart from the rising value of injury claims, another cause of worry has been the increase in frequency of claims. As per the Standard Club, "death, injury or illness to crew has always been a substantial exposure for the club", with 9% of all claims attributable to crew illness and injury. The North of England Club states that, in 2010, the frequency and value of people claims (illness and injury) has risen slightly compared to 2009 and cargo claims have remained the same [200]. For the North of England Club, over the past 5 years crew illness claims have accounted for 6% of the total cost of claims made to the Association, compared with a figure of about 14% for crew injury claims, so they are very significant. Crew medical costs are also rising, caused by the rising costs of medical treatment, amongst other factors. Millions of dollars are being paid out each year to seafarers who are either injured or fall ill whilst serving on board and successfully claim benefits.

Injuries at sea are more expensive to ship owners as compared to illnesses. Injuries, in the main, are also more preventable than illnesses. Illness of seafarers has been controlled to a reasonable extent by more stringent pre employment medical examinations. However, incidents of injury on board have to be successfully managed through proper safety management and organizational commitment.

Workplace injuries and illnesses will be caused where safety management is inadequate. Injuries and illnesses cause insurance costs to rise, reducing profits. Many shipping companies with an unsatisfactory track record on safety may pay much higher insurance premiums than paid by others [34].

Injury costs include medical bills, repatriation costs, rehabilitation costs, disability payments, loss of efficiency due break-up of crew, cost of training for replacements etc. These are however, only the direct costs, the indirect costs may range from four to ten times for the employer [190].

Apart from the financial aspects of work place injuries, a less than satisfactory safety record of any shipping company impacts its commercial acceptability to

most Charterers, especially in the more high profile oil trade. Oil majors such as BP, Shell, etc. place a great amount of emphasis on accident free operations. In fact, in the assessment of ships hired by these companies, the greatest importance is placed on safety during performance measurement [201]. Many Charterers have a system of 'profit sharing' with ship owners [202] and an unacceptable safety climate on board can lead to monetary losses.

2.16.2 DRIVERS OF SAFETY

Safety at sea is regulated by the UN's agency for maritime affairs, the International Maritime Organization (IMO). Safety on board is largely dependent on the culture prevalent in the shipping company and the safety climate on board ships. Any culture refers to a set of shared attitudes, values, goals and practices that characterize the organization [203]. Cultures affect the ways employees feel, act and make daily decisions in the workplace. By extension, the safety culture is the common set of beliefs employees have towards safety, its aims, values and their faith in safety, which is reflected in their attitudes and behaviours demonstrated through safety practices [ibid]. Inappropriate working management, working atmosphere or culture, and crew's perception of working, may be causes of unsafe working habits [ibid].

In the maritime domain, IMO MSC (2003) defines safety culture as *"a culture in which there is considerable informed endeavour to reduce risks to the individual, ships and the marine environment to a level that is 'as low as is reasonably practicable'. Specifically, for an organisation making efforts to attain such a goal, economic and social benefits will be forthcoming, as a sound balance between safety and commerce will be maintained"* [204].

Safety on board ships is managed under the International Safety Management (ISM) Code through the development and implementation of Safety Management Systems (SMS's). American Bureau of Shipping (ABS) state that the goal of both is to attain peak performance, with no damage to the environment, no personal injuries, and no operational incidents; the maritime industry however has still some ways to go towards this goal [205]. The ISM

Code and SMS's greatly assist in complying with regulations, but do not necessarily improve the shipboard safety culture. The industry generally recognizes that safe working practices can be encouraged without creating more rules, regulations, and procedures, which is why there is an urgent need to better understand the social and organizational elements that can cultivate professional attitudes in seafarers, in all aspects of their work [ibid].

The international nature of shipping, with crews from different nations being employed on board, adds to the problem of having an effective safety culture. More than 60% of world tonnage is owned by the developed countries; however they are manned by seafarers from the developing world [23]. Seven out of the ten biggest suppliers of seafarers are from developing countries, and multicultural crews are very commonplace in today's shipping. The result is that within shipping, subcultures, conflicts, ambiguity, stress, and misunderstandings are possible due to the instability of membership, and also because of a lack of shared history of practice [206]. The difference in nationalities plays an important role, as value of life, safety standards, and risk perception are known to differ between nationalities [ibid]. There exists the possibility of dilution of safety standards, resulting in the senior management not being as committed to safety, had the seafarers also been from their own country. This lack of commitment may trickle down to vessels, creating an ineffective safety climate on board.

Another major factor which can have an impact on safety is the popularity of crew management companies, where the shipowner loses control over the assessing and ensuring qualifications, training, and competence of the crew manning his ships [206]. It has been pointed out that one might question if the crew supplied by manning agents would take the ship owners safety goals and objectives to heart, because of the lack of ownership and short nature of the employment contract [ibid].

It has been found that the effectiveness of any organizational culture and its contribution to safety depends on the senior management's commitment to organizational safety; senior managers are the organization's safety-culture custodians and shapers [207]. On ships, it is the senior management led by the

Master that is responsible for implementation of the company's safety culture on board. However, the senior officers are rotated more often, and this leads to a discontinuity in the implementation of safety systems. Along with the senior staff, the rest of the crew is also rotated at different times, creating crew instability. This lack of crew stability is a barrier to effective safety cultures [206]. High turnover of seafarers also has considerable implications on the implementation of the ISM Code and the safety of the vessel, something that certain sectors like the cruise ship industry with average annual turnover rates between 25% and 35%, are grappling with [208].

Personal safety thus depends to a large extent on the existing safety culture. In order to improve safety, its effectiveness must first be assessed so that strengths and weaknesses of the system can be identified, providing opportunities for improvement against incidents, accidents and injuries. The safety culture consists of a large number of safety factors, such as organizational commitment and support, trust, safety awareness and effective communications, among others.

IMO MSC (2003) has identified ten key factors essential to the achievement of a proactive shipboard safety culture [204]. These are as follow:

1. Stakeholder Participation – Various stakeholders in the achievement of safety - ship owners, managers as well as on board representatives – should have a voice in the ways risks are identified and mitigated.

2. Commitment and Visibility – people with responsibility for risk management should demonstrate their commitment to the development and support of a safety culture, thereby creating an environment essential for safety. These responsible persons should also be clearly identifiable.

3. Productivity/Safety Relationship – refers to the relationship between safety cost and accident cost. It must be accepted by ship owners that improved safety brings improved productivity, leading to greater profitability – the same has been recognized by all industries. Costs should not be considered a barrier to the promotion of safety management.

4. Trust – there should be trust between all parties so that safety can be

considered a collective responsibility, instead of approaching it as something thrust by regulations.

5. Shared Perceptions – the perceptions of those managing risk and those exposed to them should be the same, in order to successfully mitigate them.

6. Communication – there should be open and clear communications on safety issues between all stakeholders.

7. Organizational Learning – the effectiveness of any safety culture depends on learning from past mistakes and improving the safety system. This can only happen when there is a 'No Blame Culture'. Management needs to vigourously promote and support this environment so that seafarers do not hesitate in reporting safety incidents.

8. **Safety Resources** - safety must be supported, nurtured and developed by all necessary resources. Safety thus needs to be the focus of all decision making.

9. Industrial Relations and Job Satisfaction – the relationship between the employer and employee is critical to the success of safety. Job satisfaction and a feeling of worth result in good relationships, in turn making seafarers proactive in matters relating to safety. Adverse relationships create mistrust, making them less amenable to changes on safety matters.

10. Training – the role of training should be well understood in promoting safety, along with its limitations. Training does not necessarily promote competence, and procedures cannot bring the awareness and understanding provided by competence. Training should thus be of such quality that it results in competence.

Similar to the IMO findings, ABS have also identified eight safety factors which they use in their 'ABS Safety Culture Survey and the Leading Indicators Program' [205]. These factors are:

1. Communication – channels should be available for healthy, two way communication within all levels of the organization, allowing all parties to speak as well as listen.

2. Empowerment – seafarers should be empowered so that they can do

justices to their responsibilities on safety, and held accountable for the same.

3. Feedback – management should respond in a timely manner to all safety issues and concerns that are raised, ensuring that the results of all accident investigations, audit observations etc are disseminated to all concerned. Seafarers should be encouraged to raise safety issues and these must be resolved as soon as practicable.

4. Mutual Trust – must be visible with management and seafarers shouldering their share of responsibility for performance and safety, supported by a fair system which allows reporting of honest mistakes without fear of adverse actions.

5. Problem Identification – all seafarers should be adequately trained and competent to recognize unsafe behaviours, actions and conditions, and take necessary steps to avoid any incidents.

6. Promotion of Safety – should be considered a core value and must be visibly demonstrated by the management. All safety initiatives and objectives should be actively and consistently supported throughout the organization.

7. Responsiveness – refers to the ability of seafarers to comfortably rise to routine job demands, as well as any exigencies and emergencies. Seafarers should have sufficient rest periods so that they are always alert and ready while at work. Additionally, regular training on emergencies should be provided, along with proper personal protection equipment (PPE).

8. Safety Awareness – must be all pervasive in the organization, with each member being aware of his role and responsibility on safety that may impact other crew, the company and even the environment.

The variations in the levels of commitment, competence, and compliance regarding safety is dependent on three types of cultures found in shipping companies – avoidance, compliance and safety [203]. Companies with an avoidance culture avoid compliance with existing regulations by trading in areas where regulatory enforcement is inadequate or non-existing. Under compliance culture, followed by a majority of ship owners, a minimalist approach to safety is adopted which ensures compliance with the minimum

safety standards through the cheapest methods. In contrast is the highest compliance, safety culture, followed by a select group of ship owners and leading managers who recognize the relationship between increased efficiency and improved safety management. They realize that accidents are expensive; a focus on safety and quality is likely to pay future dividends, and are willing to invest in the actual improvement of safety.

On the basis of the above discussion, the following are being considered drivers of safety in the shipping industry:

Table 2.4: Consolidated Drivers of Safety	
☼ Participation in promoting safety ☼ Company commitment ☼ Productivity/safety relationship ☼ Adherence to procedures ☼ Commitment of ship's management ☼ Open communication on safety ☼ No blame culture	☼ Work resources ☼ Relations with employers ☼ Safety training ☼ Job training ☼ Feedback and guidance ☼ Work and rest ☼ Safety resources

The above drivers will be used to measure safety through the survey questionnaire.

2.17 RETENTION

Retention is the continuance of employees with their current organization, and refers to the "*systematic effort by employers to create and foster an environment that encourages current employees to remain employed by having policies and practices in place that address their diverse needs"* [209].

Employee retention is the process through which existing employees are encouraged to continue their employment with the company for the maximum period of time possible. The opposite is turnover, which is *"the movement of individuals between jobs, firms, and occupations in the labour market"* [210].

The changing working environment has resulted in the creation of job

insecurity amongst employees, lowering their commitment levels. As a direct consequence, employees are always looking for better opportunities, leading to decreased retention. In an age when restructuring and downsizing has become the order of the day, the loss of high performing and key employees pose a serious threat to any organization and its success.

Recent findings show that almost one-third of all employees expect to leave for another job within the next year [48]. About 20 percent estimate their chances of leaving to be greater than 50%. Turnover rates have increased in the past year and will continue to increase [ibid]. More employees are looking for new opportunities outside their organization, and only two thirds (61%) worldwide plan to remain with their organization through the next year [19].

Organizations with high turnover rates face problems on many fronts. Most important is the fact that departing employees take away a great deal of accumulated knowledge with them [211]. High turnover rates impact the workplace, which can affect the productivity of the remaining employees, who may be demoralized following these losses [212]. The financial costs associated with turnover – including training and development - can be very high. Fitz-enz stated that "the average company loses approximately $1 million with every 10 managerial and professional employees who leave the organization" [213]. Turnover costs the average organization more than $27 million per year [48], or up to 40% of their annual profit [214]. Pharmaceutical giant Merck reported turnover costs to be between 150% –250% of the employee's annual salary [215].

Management thus needs to ascertain their turnover costs – not only in financial terms – in order to better understand the magnitude of this challenge and its impact on organizational effectiveness. Since the long-term retention of a highly productive workforce is coveted, and one of the goals of human resources is to attract and maintain highly productive employees, it is imperative for human resource managers to better understand how to maximize the retention of productive employees [216].

2.17.1 RETENTION IMPLICATIONS IN SHIPPING

Retaining talented employees is advantageous to all organizations as it is the employees' skills and knowledge that are central to the organizations ability to stay economically competitive [217]. The same applies to the maritime industry too, which like all other industries, is also plagued by low levels of retention of seafarers. Low retention levels have major negative effects which are both tangible and intangible [218]. Tangible costs are the costs of selection, recruitment, training, and costs of production losses, while intangible costs are the loss of employee morale, increased work pressures, and reduced performance [ibid].

The issues involved with employees leaving the company are manifold. Firstly it involves the substantial expenditure of recruiting, employing and integrating new personnel. Secondly, with every employee lost, essential skills, expertise and experience are also lost. Thirdly, a high turnover rate impacts the workplace, which can affect the productivity of the remaining employees. The remaining employees may be demoralized following these losses [212]. Lastly, if critical employees leave, crucial knowledge is also taken away with each departure – something that may hurt the organization the most.

The unique characteristics of the maritime industry have resulted in a high movement of employees across industries, and the industry has been fighting a losing battle to retain skills and expertise [219].

The financial costs associated with turnover in the shipping industry can be very high as every departing seafarer costs the organization time and money. Crew replacement costs can be high, especially with senior ranks. Apart from the mandatory STCW courses, companies have to expend considerable amounts on imparting additional training, required either by Charterers or by internal requirements. All these initiatives are lost once the seafarer leaves the company. There is also the larger cost in training these new inductees in the workplace skills and knowledge which were lost due to employees leaving. This may take years to do and the effectiveness of the work team is compromised in the intervening period, as smooth working relationships take time to build.

High turnover rates also seriously affect the working environment as relationships between employees are affected. This can have a negative effect on work place morale, safety and productivity, impacting the company's service quality and profitability [220]. If turnover is regular, it also impacts the morale of remaining crew on board as it unsettles them bringing in instability. Although some turnover can be considered healthy, as it brings new blood and ideas into the organization, turnover among key and highly productive employees can be costly.

Turnover causes the greatest loss to any company and that is of 'Company Knowledge'. Shipping companies operate under a strict safety management system dictated by the ISM Code that controls the way operations are carried out on board. Even though the basic tenets of safety management systems across the industry are the same, each company has significant differences. These systems and procedures take time to learn, and once learned can be effectively lost once a seafarer leaves the organization [206]. High turnover rates have considerable implications on the implementation of the ISM Code and the safety of the vessel. This is something that certain sectors like the cruise ship industry with average annual turnover rates between 25% and 35%, are grappling with [208]. Additionally, with the tenure of senior shipboard staff being short – coupled with the oft voluminous standard operating procedures – it may take personnel more than an year to become fully conversant with all aspects of ship operations.

Turnover also results in disruptions in ship operations till such time as the incumbents have settled down on board, especially in senior ranks. Senior officers have take over their duties in a very short time and are expected to be fully versed with their duties from the moment of joining. This has the potential to affect safety in the workplace, possibly resulting in accidents.

Familiarity with shipboard procedures is a major concern for shipowners operating tankers, be they oil, chemical or gas who are already grappling with the serious issue of complying with the 'Officers Matrix' requirements of the Oil Majors [221]. All oil majors impose strict requirements regarding the experience senior officers have with the company as well as in rank, one of the

most difficult conditions to fulfill [222, 223].

Lack of senior, quality officers with continued service with the shipping company is already putting severe strains on the crewing policies of tanker operators. In the absence of the right resources and qualified seafarer pools, it becomes a major issue for shipping companies to meet these stringent requirements. A major management company states that they are constantly moving people around to make the matrix work, and with the lack of experienced masters and chief engineers around, they have stopped ships just to change the crew [224]. In fact, there are many companies which have to fly out officers for a few days so that they meet the matrix requirements for a particular voyage, increasing crewing costs. Another senior manager states that complying with oil majors' crew matrix requirements is always a major focus [225].

This pressure on tanker owners has forced many to change their crewing strategies, the focus being to ensure compliance with these matrix requirements, as in its absence a major percentage of the market is effectively lost. This can have serious commercial ramifications, especially in depressed market conditions, and many companies have crewing strategies based on these matrix requirements [226].

An offshoot of these requirements is the emergence of "poaching" of senior officers from other companies through the offering of various incentives. When faced with the problem of meeting the experience criteria required by these matrices, or even having qualified officers to man their ships, many shipping companies resort to poaching. The chairman of a major shipping company agrees saying that the poaching of personnel remains an issue, and due to the shortage, poaching is rife with huge carrots dangled in front of certificated officers [227].

Apart from the issue of vetting inspections, there are the many other inspections which any vessel must undergo – port state, flag state being some. These inspections have the additional fallout of the vessel being detained if major deficiencies are observed. Many of these relate to safety management issues and thus familiarity with these assumes greater significance. In recent

years, vetting inspection has already been expanded to include bulk carriers, and these operators could also face matrix compliance issues.

Another aspect that merits mention is that knowledge at sea is gained through experiential learning [40]. This experience is handed down from seniors to juniors through mentoring and interactions on board. This tradition however is endangered as the next generation of officers has a limited career span [ibid]. A recent survey of cadets found that only 60% planned to sail longer than 10 years, 37% between 5 to 10 years and 3% are likely to leave within 5 years [228]. With the high turnover of newcomers and their expected reduced career span at sea, it can be argued that much of this knowledge may be effectively lost, to the detriment of both the company and the industry.

As has been stated earlier, seafarers have been considered mercenary [39]. Monetary benefits are essentially what may attract a young man to the sea, but what keeps him there could be entirely different. In the Shiptalk Survey 2007/2008, salary was cited by 31.5% of respondents as the most important factor that kept them at sea [37]. Reassuringly high on the list of motivators was job satisfaction at 20%, at par with time on leave at 19.3%. It is apparent that drivers are different for different seafarers [ibid].

The maritime industry needs to analyze, recognize, and address the reasons seafarers leave their employment. The most often used method of finding reasons for leaving – the Exit Interview – does not exist in the maritime industry. They also need to determine the eventual costs of turnover to the organization. It is only then can they have strategies in place to increase the retention of employees in the company, leading to reduced costs, continuity of operations and enhanced safety.

2.17.2 BARRIERS OF RETENTION

The Saratoga Institute, California, maintains a database of 19,700 exit surveys, conducted between 1999 and 2003. An analysis by Branham [229] found 67 reasons for employees leaving, and the ten most frequently mentioned issues identified are:

1. Poor Management: Uncaring, incompetent, and unprofessional managers, being overworked and disrespected, not welcoming ideas, making no effort to retain them.

2. Lack of Career Growth and Advancement Opportunity: Unclear career path, not filling vacancies internally, favoritism and unfair promotion criteria.

3. Poor Communications: Lack of clear and concise information flow from top down, no open communication

4. Pay: Being paid lesser than fair market wages, no linkage between pay and contribution, inequities in salaries, unfair distribution of bonuses, slow pay raises, and ineffective performance appraisals.

5. Lack of Recognition: Company does not have a culture that recognizes individual performance.

6. Poor Senior Leadership: Senior management lacking people skills, do not listen to or care about employees, unapproachable, unresponsive and providing no leadership.

7. Lack of Training: Company not investing in training, inadequate and superficial training, inadequate training for future advancement.

8. Excessive Workload: Being overworked, working more with lesser staff, sacrificing quality at the cost of service.

9. Lack of Tools and Resources: Insufficient and inadequate materials, outdated technology, shortage of additional staff to relieve overwork.

10. Lack of Teamwork: Lack of team work, missing commitment in getting jobs done, no coordination between departments or offices.

Towers Perrin also identified the following as the top five drivers of retention globally [128]:

1. Reputation of the organization as an excellent work place
2. People practices that keep employees satisfied
3. Harmonious and productive relationships with immediate managers
4. Ability to see a future career with the organization

5. Satisfactory balance between work and personal life

Branham & Hirschfield consider the following to be 'Retention risk factors' [153]:

- Lack of confidence and trust in senior management
- Job and employee mismatch
- Insufficient training and feedback
- Insufficient opportunities for growth and development
- Lack of recognition and self-worth
- Existence of work related stress, inadequate work-life balance
- Job or workplace was not as expected

Other factors that can reduce employee turnover are recognition and reward of work, challenging jobs, opportunities to learn and grow, a supportive work environment, good co-worker relations, satisfactory work/life balance, and effective communications [229].

As can be seen, there is general agreement regarding the factors that can affect retention of employees with any organization. A certain amount of turnover may be good for organizations, as it rids the organization of poor performers, brings in fresh blood with innovative ideas, more adaptability, possibly at lower salaries which can be a positive factor [215]. High rates of voluntary turnover, though beneficial to a certain extent, may have potential negative financial consequences [230]. Organizations must, therefore, adopt policies aimed at mitigating the costs incurred due to turnover, and focus on retention in general and also that of the individual employee [ibid]. Productivity as well as employee morale can both be damaged by ineffective retention strategies.

While devising such retention strategies, both personal and organizational factors must be considered [231]. Turnover rates are dependent on work related attitudes of employees, and job satisfaction plays an important role in enhancing retention. A higher level of job satisfaction has the potential of increasing commitment and decreasing both turnover and absenteeism [232].

For the purpose of the development of the questionnaire, the following drivers, extracted from the above discussion, shall be taken into account.

Table 2.5: Consolidated Drivers of Retention	
☼ Work load ☼ Valued by company ☼ Caring organization ☼ Involvement in decision making ☼ Opinions encouraged and valued ☼ Career advancement ☼ Fair processes ☼ Autonomy and no blame culture	☼ Benefits ☼ Recognition of work ☼ Training ☼ Adequate work resources ☼ Teamwork ☼ Shipboard work/life balance ☼ Employment security ☼ Salaries

2.18 CONCLUDING REMARKS

This chapter provided an in-depth analysis of employee engagement, its background, and the theories used to explain its existence. Compared with other constructs, engagement is still evolving. Despite the problems associated with defining, operationalization and measurement, it is becoming increasingly popular in the HR world. Engagement has many of the elements of existing constructs such as job satisfaction, job involvement, organizational commitment, and organizational citizenship behaviour, yet it is being considered a separate construct on its own.

Engagement has also been shown to have positive relationships with business performance, profits, retention, safety and health, etc. Its drivers have also been broadly identified, providing organizations with a road map through which engagement can be raised in their workplaces.

Performance, safety and retention are older concepts, even though their relevance today has changed in the face of competitive pressures. The chapter also analyzed these concepts and identifies their drivers and barriers. These drivers will be used later in the study in the development of the survey instrument.

The maritime industry plays a vital role in international transportation, providing the most cost effective mode; its absence can bring world trade as we know it to a halt. The increased demand for transport will lead to a rise in global tonnage and the number of ships in service, notwithstanding fluctuating business cycles. Competitiveness will rule the market and major players will have to enforce cost cutting measures to survive. Manning being one of the major sources of reducing costs, this area will continue to see turbulent times. However, it is in the interests of all stakeholders to ensure that ships are manned and operated in a safe and efficient manner, as the costs of unsafe marine transportation can be very high – both in terms of value and reputation.

It thus becomes imperative that ships need to be operated in a safe manner in order to avoid damage to the environment and property, as well as in an efficient and effective manner to safeguard – and even maximize – ship owner's commercial interests. However, this cannot happen in the prevailing conditions where seafarers are unwilling to stay with one organization, carry out operations in a safe manner and work in ways to reduce operating costs and financial claims. Ship owners and managers need to put strategies in place to address issues related to turnover, safety and performance of seafarers and implement measures to improve them. In the absence of such measures, the possibility exists of shipping lurching from one disaster to another.

It is in this context that the construct of "Employee Engagement" - as developed in land-based industries and organizations - holds special relevance in the shipping industry, as it has been shown to have significant positive relationships with performance, safety and retention.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

If one does not know to which port one is sailing no wind is favourable - Seneca

3.1 INTRODUCTION

The present chapter discusses the research methodology followed in this study, along with the research design and strategies undertaken. It details the process of development of the survey instrument - the questionnaire, and the methods used in ascertaining its reliability and validity. It also discusses the basis for sample size estimation, data collection methods and analytical tools employed.

The descriptive method of research has been used, which gathers information regarding the current state of any phenomena, describing "what exists" with respect to certain conditions or relationships that exist [233, 234], and to explore the causes of any particular phenomenon.

The aims of descriptive research are to describe the present situation and verify the hypothesis formulated in light of the data collected. Descriptive research requires that the researcher has a clear concept of the construct being investigated prior commencing data collection. This method was chosen to in order to measure the state of employee engagement amongst Indian Officers, and to test the hypotheses developed regarding its relationship with seafarer performance, safety and retention.

3.2 LEARNINGS FROM LITERATURE REVIEW

The literature review revealed that employee engagement can be considered a distinct construct, which has been well researched by academics and practitioners in order to understand all its dimensions. Engagement lends itself to quantitative measurement allowing its relationships with other key business indicators to be analyzed. Considerable practitioner research has shown that

employee engagement has positive linkages with organizational and individual outcomes such as improved business performance, increased profits, reduced turnover, better health and safety, and advocacy of the organization [13, 17, 18]. The relevance and importance of employee performance, safety attitudes and retention to business success are also linked with employee engagement, testifying to its importance in modern day industries.

Measurement of engagement levels worldwide through meta-analysis has also revealed that engagement levels are generally low and the costs of disengagement to organizations is in billions of dollars. The drivers of engagement, performance, safety and retention have also been well identified, allowing organizations to improve their performance on these metrics. Using these drivers, organizations have developed engagement enhancement programs and reaped benefits through improved business results, safety, and retention, among other outcomes.

The maritime industry is also facing challenges similar to its land based counterparts, with a shortage of qualified officers leading to concerns regarding their performance, safety and retention. India is the third largest supplier of manpower to the international maritime industry, with more than 46,000 Indian officers manning a significant percentage (7%) of international tonnage [26], and has a significant stake in the international maritime industry. Indian officers are known and appreciated all over for their professionalism. However, recent times have seen a decline in the quality and quantity of Indian officers, even with its large population.

The literature review strongly points at employee engagement being an effective tool in improving seafarer performance, safety and retention, benefitting all stakeholders. In addition, higher engagement levels will also assist in making the maritime industry more attractive for youngsters to join and make it a career of choice, rather than compulsion.

3.3 RESEARCH GAP

Despite the fact that employee engagement has been in the limelight for over

two decades, its applications or even measurements in the maritime industry appear to be under-researched. One of the largest and regular meta-analysis carried out by Gallup to measure engagement across industries has also not analyzed the maritime industry. Their analysis of 82 business units in 2003, and 152 in 2009 did not include any shipping companies [21, 129]. An extensive search on the internet and online journals Emerald, Ebsco and Elsevier did not reveal any studies on engagement in the maritime industry.

Since contemporary literature has repeatedly shown that engagement has positive correlations with outcomes such as productivity, safety, customer satisfaction, retention, and loyalty, the maritime industry can also utilize the same concepts in its domain to tackle pressing issues related to retention of seafarers. The shipping industry has some unique characteristics that differentiate it from industries that are land based, prime being the fact that seafarers have to spends months together at their workplace, which also doubles as their home. Apart from that are the isolation from friends and family, extreme and often harsh weather conditions, and the inherently dangerous nature of the work. Employee engagement in the maritime industry appears under-researched, with limited literature available on its drivers and impacts on shipping operations.

It is this gap that the present study aims at bridging, by understanding the drivers and barriers of engagement in the maritime industry, and if these are the same as those identified through literature review. The study will measure engagement of officers, determine what drives engagement, and determine if this can be used to predict the performance, safety and retention of Indian officers.

3.4 RESEARCH QUESTIONS

Leading from the above, the research questions are:

1) What are the drivers of employee engagement in the shipping industry?
2) Is there any significant relationship between seafarer engagement and their performance, safety and retention?

3) Can the seafarer engagement score be used to predict performance, safety and retention of officers?
4) Does engagement vary with rank and length of service with the organization?

3.5 RESEARCH OBJECTIVES

The purpose of the study was to measure the level of engagement of Indian merchant naval officers and to explore and identify any significant relationships between engagement and their performance, safety and retention. The primary objectives of the study were to:

1. Measure the level of engagement amongst Indian officers.
2. To explore and identify the relationship between their average Engagement level and Performance levels.
3. To explore and identify the relationship between their average Engagement level and Safety levels.
4. To explore and identify the relationship between their average Engagement level and Retention levels.
5. Develop a regression model for using Engagement as a predictor of performance, safety and retention.

The secondary objectives were as follows:

1. Determine if there was any relationship between engagement and rank of seafarers.
2. Determine if there was any relationship between engagement and tenure with the shipping company.

3.6 RESEARCH HYPOTHESIS

The Research hypotheses of this study are:

1. Null Hypothesis $H1_0$: There is no significant relationship between Engagement and Performance amongst Indian officers.

Alternate Hypothesis $H1_1$: There is a significant relationship between Engagement and Performance amongst Indian officers.

2. Null Hypothesis $H2_0$: There is no significant relationship between Engagement and Safety amongst Indian officers.

Alternate Hypothesis $H2_1$: There is a significant relationship between Engagement and Safety amongst Indian officers.

3. Null Hypothesis $H3_0$: There is no significant relationship between Engagement and Retention amongst Indian officers

Alternate Hypothesis $H3_1$: There is a significant relationship between Engagement and Retention amongst Indian officers.

3.7 SCOPE OF THE STUDY

The purpose of demarcating the research assists in making the research topic manageable from a research point of view. There are many aspects that may not be covered by this particular study, but this in no way implies that there is no need to research them. There are many causes which are responsible for the current crisis at sea related to its manpower issues, but researching all these is beyond the scope of this present study. The scope of the study is restricted to the measurement of engagement levels of seafarers, and determining if this has any significant relationship with their performance, safety, and retention. The study is also limited to Indian officers serving on Indian or foreign owned ships. Since the shortage is only of officers and not ratings, the engagement of ratings is beyond the scope of this study.

3.8 VARIABLES UNDER STUDY

The variables under study are Engagement, Performance, Safety and Retention. Engagement has been considered the independent variable, while performance, safety and retention are dependant. For the purposes of this study, the concepts used are defined as follows:

3.8.1 EMPLOYEE ENGAGEMENT

Employee engagement has been defined as:

"A heightened emotional and intellectual connection that an employee has for his or her organization, manager, or co-workers that, in turn, influence him/her to apply additional discretionary effort to his/her work" [10], and,

"An employee's attitudinal attachment to his or her job and company, intention to act in company's best interest, and willingness to invest discretionary effort in achieving business goals" [235].

For current research purposes, engagement is being defined as the extent to which employees are passionate, motivated and committed to their work, and are willing to go the extra mile for the organization.

3.8.2 PERFORMANCE

Individual performance has been defined as:

"The accomplishment of given tasks measured against preset known standards of accuracy, completeness, cost, and speed" [176], or,

"...performance is associated with quantity of output, quality of output, timeliness of output, presence / attendance on the job, efficiency of the work completed [and] effectiveness of work completed" [236].

For the purpose of the study, performance is defined as the completion of jobs assigned to employees punctually, effectively and efficiently, as measured against predetermined standards required by the employer and the profession.

3.8.3 SAFETY

Safety has been defined as:

"The state in which hazards and conditions leading to physical, psychological or material harm are controlled in order to preserve the health and well-being of individuals and the community" [184], or,

"Freedom from conditions that cause death, injury, occupational illness, loss or damage to equipment or property, or damage to the environment" [237].

Safety, for this study purposes, is defined as the steps employees take to safeguard themselves from work related illnesses and injuries, and preserve their health and well-being.

3.8.4 RETENTION

Some of the definitions of retention are:

"The continuance of employees with their current organization, and refers to the systematic effort by employers to create and foster an environment that encourages current employees to remain employed by having policies and practices in place that address their diverse needs" [209], or,

"The process through which current employees are encouraged to continue with the organization for the maximum period of time or until completion of the project" [238], and *"efforts by the employer to keep desirable workers in order to meet business objectives"* [239].

For this study, retention is being considered as the intention of employees of continuing their employment with their current employers, and maintaining their commitment to it.

3.9 RESEARCH METHODS

The research method is the strategy and framework of enquiry traversing the path from underlying assumptions to the research design and finally data collection [240]. Research can be distinguished in many ways, but one of the most common distinctions is quantitative and qualitative. Quantitative and qualitative are used to indicate the methods through which data has been collected and analyzed, as well as the kinds of generalizations and representations obtained from the data.

Quantitative research methods use experiments, surveys and questionnaires to collect data, and after revision and tabulation, this data can be characterized

through statistical analysis [241]. The focus of quantitative methods is on the testing of theory, through the measurement of variables on a sample of the population. The relationships between variables are expressed through statistics such as correlations, mean differences, or relative frequencies.

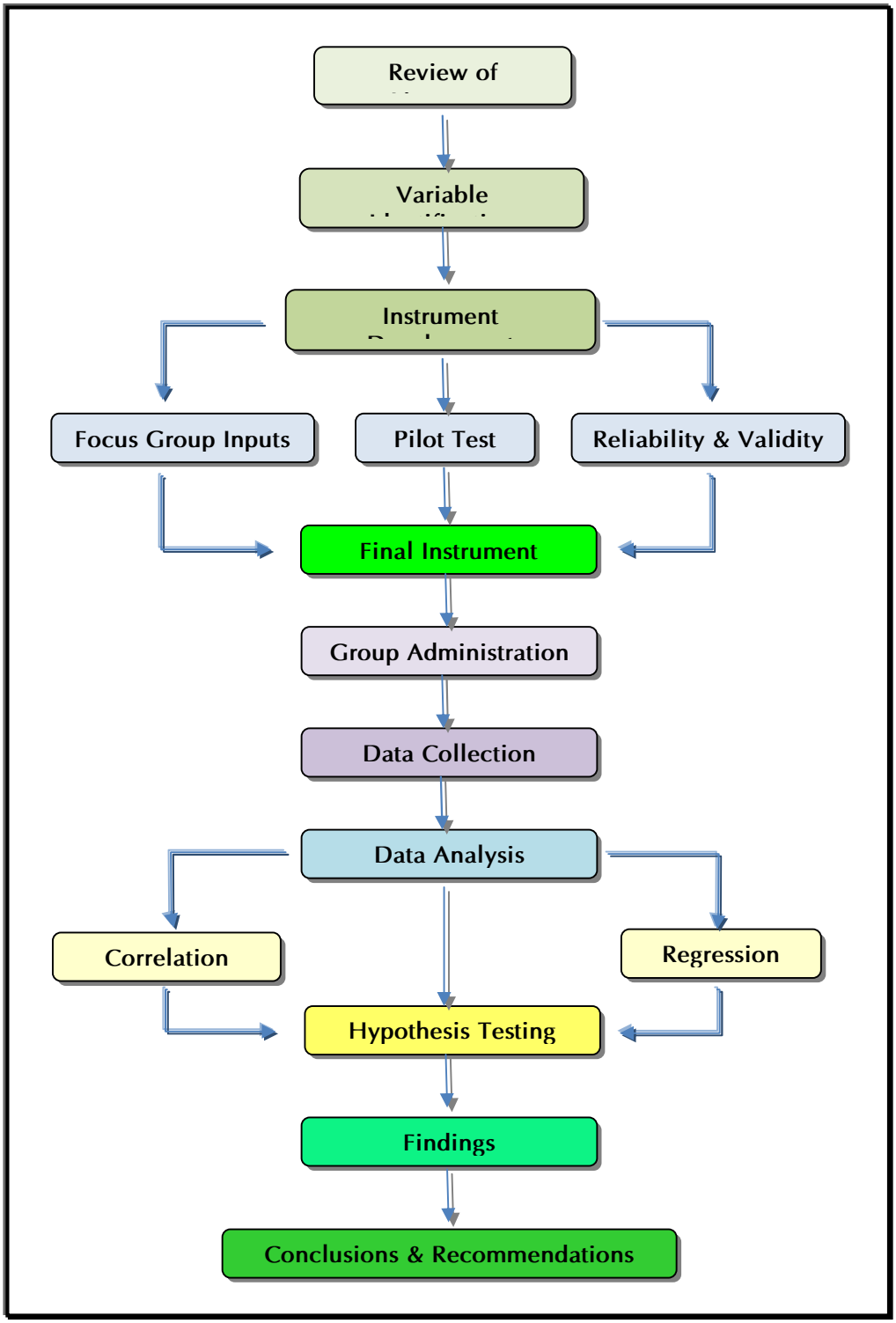

Figure 3.1: Flow Chart of Research Methodology

Qualitative research on the other hand attempts to study, understand and interpret people's lives, and their cultural and social contexts, in their natural setting; however, there is generally uncertainty about the characteristics and dimensions of the problems. Data collection methods commonly used are observation of behaviours, field work, interviews and questionnaires, written opinions and the like, and is much more time consuming than quantitative methods. The results are also presented in a narrative form describing the phenomena in its natural settings.

Although neither of these methods can be considered better than the other, there are major differences between. Three major differences are related to the understanding and explanation as the purpose of enquiry [242]; the researcher's personal and impersonal role; and knowledge discovered as opposed to knowledge construed. Another important difference is the deductive nature of quantitative against the inductive quality of qualitative methods. Additionally, qualitative research does not need a hypothesis to commence the enquiry process, quantitative methods are used to test theory and a hypothesis is essential.

Since the purpose of the study is to measure engagement, quantify the relationship between variables, and test the hypothesis, quantitative data collection method was used. The quantitative approach is especially beneficial as it allows variables to be studied objectively, in detail and measure the cause and effect relationship between the independent and dependent variables.

3.9.1 RESEARCH DESIGN

The research design is a comprehensive plan or the "blue print" which clearly specifies how the research is to be conducted. It outlines the major steps taken in the study to address the research objectives, and assists in planning, structuring and executing the study in order to maximize the validity of the findings [243].

The research design used in the study is descriptive, using the survey method. Descriptive research accurately and systematically describes the characteristics

or behaviours of an observed phenomenon or a particular population. It also aids in exploring the correlations which may exist between various phenomena. Survey research gathers data about people's behaviours, attitudes, feelings, and beliefs, through the use of interviews and questionnaires.

The survey design, using a standardized questionnaire, is considered the most appropriate research design to collect data about people and their perceptions, attitudes, and behaviours in a systematic manner, supporting the quantitative method. The survey design studies "large and small populations to discover the relative incidence, distribution and interrelations of sociological and psychological variables" [244]. Three essential characteristics of survey research are [245]:

- Generate statistics relating to certain quantitative aspects of the population
- Collecting information by querying people and analyzing the responses
- Using only a sample of the population for data collection

One of the main advantages of survey research is that the characteristics obtained from the data collected from a representative sample using a standardized questionnaire can be generalized over the larger population [246, 247]. The second advantage is that it is economical, fast, efficient and accurate [244, 247]. Thirdly, it is an excellent medium for measuring a range of unobservable data such as attitudes, traits, behaviours, beliefs, and preferences [248]. Again, certain respondents prefer questionnaires due to their unobtrusive nature [ibid]. All these give survey research the edge over other conventional methods such as focus groups, content analysis etc.

Survey research can be divided into two major categories: interviews and questionnaires. Interviews provide a personalized method of data collection using the same questionnaire, and provide the opportunity of clarifying issues respondents may have, asking follow up questions and record personal observations. This method however consumes more time and resources.

Questionnaires consist of a standard set of questions for capturing respondent responses, and are either structured or unstructured. In the structured kind,

respondents have to select their responses from a set of predefined answers, while in unstructured questionnaires; the answers have to be provided in their own words. The answers to each question of the questionnaire can be averaged into a composite scale which can be used for statistical analysis.

Questionnaire surveys are generally of three kinds – self-administered mail surveys, group-administered, and an on-line or web survey.

In self-administered mail surveys, the same questionnaire is sent to the sample by mail with instructions to complete and post them back at their convenience. The low response rates are however a big disadvantage and requires constant follow up to avoid excessive delays.

The disadvantages of the above method are overcome in the group-administered questionnaire where respondents are collected in groups at a common place and asked to complete the questionnaire. This method assures a high response rate and any clarifications can be provided on the spot. In most organizations it is relatively easy to assemble employees together and makes the process economical as well as fast.

The third method, the online survey, is administered over the internet and is reasonably inexpensive. However, this survey will exclude people with no internet access, introducing bias.

In order to ensure reliability of the data collected, a structured questionnaire was used so that all respondents answer the same questions. The data was to be collected from maritime colleges, hence the group-administered method was considered most appropriate in terms of speed and economy.

3.10 SAMPLE DESIGN

Before embarking on designing the questionnaire, it is essential to understand the target population, as their literacy levels and familiarity with the subject under investigation have a major bearing on the questions being framed.

3.10.1 TARGET POPULATION

The target population or universe is the complete set of individuals from

whom information is collected. For the purposes of this study, the universe consists of all licensed Indian Merchant Naval Officers, who are actively sailing on seagoing ships. Officers who have left sailing and are part of office establishments ashore, as well as trainees are not considered part of the target population. All officers are well versed in the English language, making understanding of the questionnaire easy.

3.10.2 SAMPLING ELEMENT

Since the objective of the study was to measure engagement levels, each Indian Officer actively sailing on ships as described above forms the sampling element, and is equally representative of the entire population.

3.10.3 SAMPLING PROCEDURE

For the sampling procedure, random sampling allows generalizations to be made about the population. Random sampling however posed problems on many fronts as this requires a sampling frame for selection, which in the case of officers is not available as there is no centralized database detailing all active officers. India does have an "Indian National Database of Seafarers (INDOS)" but this does not segregate officers who are sailing or left for jobs ashore (who were excluded from the survey). The other source is the membership list of the Indian officers union, the Maritime Union of India (MUI). Here also all officers are not members as the majority of officers work on foreign flag ships and are members of the respective flag state unions. Secondly, samples selected randomly may not be available as at least two thirds of the population can be expected to be sailing at any given time [26]. Thirdly, even if they are available, it may not be feasible economically as well on the basis of available time to survey them from all corners of the country.

On the basis of these difficulties presented, there appeared to be no other way but to use non-probability sampling methods. However, in order to reduce any bias, no judgements were made regarding respondents and data was collected from a training centre where officers from all over the country attend maritime

training. It was hoped that this would reduce researcher bias and ensure representativeness to the maximum extent possible under the limitations on non-random sampling. However, since the sample is not chosen at random, the inherent bias in sampling means that the sample is unlikely to be representative of the population being studied.

To minimize any unintended bias, no judgements were made regarding the respondents as long as they met the minimum criterion of currently serving as officers. The data was to be collected from the largest officer training centre in Delhi which has officers from all over the country attending maritime training courses.

The objective of the study was to measure the engagement levels of officers, and as such all serving officers can be considered to be equally representative of the population. Keeping this in mind, convenience sampling was considered to be the best option in terms of economy, speed and availability of respondents.

The demographic characteristics of all Indian officers do not show any significant differences as all have generally the same educational qualifications, pay, work and working conditions, future prospects etc. As there are no special demographic groups as compared to the population, the introduction of bias through a convenience sample are limited [249, 250]. A convenience sample taken from such a uniform population can therefore be considered to be representative, allowing statistical inferences to be made.

3.10.4 SAMPLE SIZE DETERMINATION

The next step is the determination of the appropriate sample size. Too large a sample may be more time and resource consuming, and may not necessarily provide results more accurate than a smaller sample. Too small a sample, on the other hand, may not provide any valid information. The optimal size calculation of the sample thus forms a very important factor.

For convenience sampling, there are no formulae available to calculate the minimum sample size. Lincoln and Guba [251] have suggested that the main

criterion for sample size is redundancy of information, i.e., sampling should be terminated when new units do not provide new information, reaching data saturation. However, their sample size recommendations are not explicit enough to be truly helpful. Onwuegbuzie and Leech [252] recommend that before deciding on an appropriate sample size, earlier studies using the same design should be referred to, and use a similar sample size. The most practical advice is to use a minimum sample size which has proven effective in other research using similar measures, samples, and methods to the proposed study [253]. Another thumb rule often stated is that no sample should be less than 40; however, one obtains diminishing returns when sample size increases beyond about 300 [349].

Convenience samples offer no assurance of representativeness and do not permit generalization to a larger population. However, generalizations from convenience samples to larger populations are frequently made – Rizzo and Patka (1981), Trawick and Darden (1980), Dubinsky and Ingram (1984) – as stated by Michalos and Poff [254]. They further state that adequacy of sample size is not simply a function of the number of subjects, but rather depends on such factors as how the respondents were selected (random or convenience), the distribution of the population parameter (the variable of interest), the purpose of the research project (exploratory or applied), and the intended data analytic procedures (to ensure adequate cell sizes for statistical analysis)

There are no known studies measuring the correlation between engagement, performance, safety and retention in the maritime industry that could form the basis, making the calculation of an appropriate sample size difficult. The sample sizes in some of the engagement studies ranged from a minimum of 21 to 410, and did not offer specific direction. The minimum sample size was thus calculated on the basis of the requirements of statistical analysis to be used - Exploratory Factor Analysis – which requires 5 to 8 respondents per variable [255]. The total variables that loaded being forty nine, a minimum sample size of 392 was considered suitable. Another approach is to determine the size as if it were a probability sample [256, 257] and thus, as discussed earlier that the sample can be considered to be representative, the minimum

sample size was also reconfirmed using Cochran's [258] formula with a 95% confidence level, a margin of error of 5% and a 50/50 split for the greatest case of variability possible. The population of Indian Officers in 2010 was estimated at 46,497 [26] and with an annual CAGR of 4.4%, this can be expected to be 50,678 in 2012. The calculations thus yielded a sample size of 384 respondents. Since the questionnaire was to be group administered, non-response was not considered a major issue. However, in order to account for sampling error caused by convenience sampling, the final sample size was increased by 10% to 419.

3.11 QUESTIONNAIRE DEVELOPMENT

The construction of a meaningful survey questionnaire is nothing less than an art. Many decisions have to be made regarding the question content, the wording, formatting as well as sequencing. The responses provided by the respondents are entirely dependent on the way and precision of the wording of questions [259]. There is no compulsion on participants in any survey to respond to questions, thus the questionnaire should be such that it can maintain their interest and patience throughout the survey [ibid]. Thus great care must be taken while designing a questionnaire as the survey results will depend entirely on the quality of responses elicited. Ambiguous or improperly framed questions will result in responses that may be meaningless and of little value.

The survey instrument utilized in this research for the collection of data was a questionnaire in four parts. Each part was designed to measure one variable, namely engagement, performance, safety and retention. In addition, demographic information was collected through eight statements. The responses to the statements in the questionnaire had pre-defined choice of answers. The process followed was questionnaire development, pilot testing, and testing for reliability and validity.

Items for the survey were generated using a deductive approach [260]. For engagement, the Gallup Q12 [49] was used as the basis, supported by other drivers identified through literature as listed in Table 2.2, and refined to suit

the maritime industry. No relevant questionnaire was available for performance measurement, thus this depended totally on the drivers identified listed in table 2.3, mainly from the Hay's Model [53]. For safety, the ABS questionnaire formed the basis [199], apart from additional drivers extracted from literature review according to Table 2.4. Retention items were generated using the barriers to retention provided by literature review (Table 2.5), as apart from exit interviews, limited usable questionnaires were available. All four parts were modified suitably to reflect the maritime environment.

The initial questionnaire consisted of a total of 85 items. While writing the items, great care was taken to keep the language simple and non-technical, avoiding double barreled and loaded questions, negative wording, and presumptive language [246, 261].

These 85 items were reviewed by a panel of five experts spread across academia, shipping, and industry, selected for their knowledge of the subject under study. The panel members were asked to comment on the clarity and relevance of the items, and the comprehensiveness of the questionnaire in covering all aspects of the variables being investigated, in the maritime domain. Based on their recommendations, 10 items were deleted, 12 were reworded, leaving a final 75 questions in all four parts, apart from the eight demographic items. This was later reduced to 60 items after pilot test as explained in section 3.11.2.

3.11.1 RESPONSE FORMATS

The responses in a structured questionnaire can be many, such as Nominal, Ordinal, Dichotomous, Interval level (summated), or Continuous.

Summated scales are very useful in evaluating a particular item on the basis of how well it discriminates between those persons with a high total score and those with low scores. The most frequently used summated scales in the study of social sciences are the Likert-type scales [262]. In such scales, the respondent is asked to reply to each statement of the questionnaire on the basis of several degrees of agreement or disagreement. The Likert scale is very

useful in the overall measurement of any specific attitude, behaviour, opinion or experience, and lends itself easily to the quantitative approach.

A five point Likert scale has been considered to be optimal for factor analysis [260], and was thus used for measuring seafarers' attitudes towards engagement, performance, safety and retention. An odd numbered scale was selected as a neutral option was available to those who were ambiguous or unsure [263]. Additionally, it allowed the identification of a middle group, suggested by engagement literature as the most responsive to engagement enhancement initiatives [50]. The five point rating scale ranged from Strongly Agree to Strongly Disagree, with a neutral point. For the few negative statements, the scoring was reversed. A weightage of 5 was assigned to the most favourable response "Strongly Agree" graded to 1 for the most unfavourable response "Strongly Disagree".

3.11.2 PILOT TESTING

A first pilot study was undertaken and the questionnaire administered to 20 respondents. The responses gained from the pre-test confirmed the content of the statements, identified new items for future inclusion, and also identified common answer categories that were later made into fixed-response statements. The responses were also cross checked with the focus group, and based on their comments, the questionnaire was amended by dropping some statements, as in its present form was too long. The final questionnaire consisted of a total of sixty items, and eight demographic statements (Appendix 1).

A second pilot study was carried out with 21 respondents, and the analysis of responses was found acceptable. Respondents were also queried on the clarity of statements, and no adverse issues were reported. This second questionnaire was considered to be complete and suitable for administration. The reliability of the different parts of the questionnaire was found to be above acceptable limits, and face and content validity were confirmed through the focus group. The construct validity was to be reconfirmed through factor analysis, and since the participants in the pilot surveys were not the minimum suggested (5 to 8

per item), it was decided to undertake this after complete data collection.

3.12 DATA COLLECTION

Once the questionnaire was found suitable for its purposes, its administration and data collection was undertaken. The data was collected from two Maritime Training Centres at New Delhi (Associated Research International - ARI) and Gurgaon (Natcom). These maritime colleges are used by merchant naval officers for undergoing many kinds of training – value added, mandatory and examination related. Most of the courses conducted at these colleges are of short durations (3- 10 days) thereby providing a near 70% turnover of officers every fortnight. ARI is the premier institute in India attracting officers from all over the country. On the basis of these reasons, as well as the proximity to the researcher, it was decided to use these two colleges for survey administration. Eighty percent of the responses were collected from Associated Research International New Delhi, and the balance from Natcom in Gurgaon.

The rationale and justification behind the study was explained to the Principals of both colleges, who whole-heartedly provided their assistance. In consultation with the concerned faculty, the researcher was given access to each class in progress, for administering the questionnaire. The survey was thus group-administered personally by the researcher with an introduction into the background and rationale of the survey, and the completed questionnaires collected directly. All respondents were male candidates.

Officers usually attend courses on the expiry of their validity period, which is five years. Thus the probability of having repeat respondents was minimal. The data collection was done on the basis of new batches of students enrolling every two weeks, so that fresh candidates could be available every time, and the sample could be as representative as possible under the circumstances. There were some respondents who had participated in the survey, and did not take part again.

The survey process was carried out over a period of 3 months between July and Sept 2012, and a total of 448 completed questionnaires were collected.

Out of these, fifteen were rejected on the basis of incomplete data, providing 433 responses for further analysis. The distribution of respondents is detailed in Table 3.1 below:

Table 3.1: Sample Characteristics

	Deck		Engine		Missing		Total
	No	%age	No	%age	No	%age	
All	337	77.8	94	21.7	2	0.5	433
Senior Officers	69	15.9	33	7.6			102
Junior Officers	268	61.9	61	14.1			329
Age (Av - yrs)	27.4		29.3				27.8
Sea Service (Av - yrs)	4.7		5.8				4.9
Future Career (Av – yrs)	10.45		10.36				10.4

3.13 RELIABILITY AND VALIDITY

Since the questionnaire was to be used to measure engagement, its reliability and validity needed to be assessed for it to be of any value in psychological research. Reliability is essential as it provides confidence that the measure under study and the true measure are very close. Validity, on the other hand, relates to the fact that the measure is successful in measuring what it is intended to measure. Validity assumes the existence of reliability, but reliability may preclude validity; valid measures must be reliable, while reliable measures may not be valid [264].

3.13.1 RELIABILITY

Reliability is an indicator of any random errors in measurement, and relates to the precision and accuracy of the instrument in use [265]. It also represents the internal consistency of the instrument, its stability, and its ability to deliver consistent results when repeated [261, 266].

There are many forms of reliability tests in use, such as the split half, alternate form, test-retest, internal consistency etc, and their use is dependent on the nature of data – whether nominal, ordinal, or interval/ratio. For instance the

internal consistency method is suitable for assessing the reliability of items that use an interval/ratio scale; the test-retest or split-half is suitable for answers to knowledge questions. Since the scale in use was an interval scale, it was decided to measure internal consistency using the Cronbach alpha coefficient, one of the most prevalent and trusted methods of determining reliability. The Alpha statistic measures correlations between the various constituent items to determine if they measure the same concept [266 – 268].

The Alpha coefficient can range from 0 to 1, where a coefficient of '1' indicates total absence of any error and a '0' indicates an instrument full of error [269]. There is no minimum or acceptable standard for scale reliability, with some regarding 0.70 as the minimum acceptable level indicating internal consistency, while some even accept more than 0.50 as a good indicator of internal consistency [267]. It must however be understood that an Alpha coefficient of 0.75 implies that 75% of the measured variance is reliable, the balance being caused by random error.

The Alpha coefficients obtained using SPSS 20 were as follows:

Table 3.2: Cronbach Alpha for Items on Questionnaires

Reliability Statistics – Engagement Variables		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.787	.788	15
Reliability Statistics – Performance Variables		
.762	.765	19
Reliability Statistics – Safety Variables		
.856	.862	19
Reliability Statistics – Retention Variables		
.870	.873	18

The above results show that the different sets of statements have acceptable internal consistency. No items were discarded even though some showed weak correlations. These were retained in order to gather more data.

3.13.2 VALIDITY

Validity is an indicator of the degree to which the concept under investigation sufficiently reflects the true meaning of the related empirical measure [261], and is defined as the extent to which any test actually measures the construct it has been developed to measure [270]. The establishment of validity is undertaken by consulting with an expert panel as well as through field tests.

There are a number of generally recognized kinds of validity, namely Face validity, Content validity, Criterion validity, and Construct validity. Over the years, however, the distinction between these different types of validity has become a little blurred in textbooks [271].

Face Validity: This form of validity is qualitative in nature. Face validity is essentially a method of ensuring the usability of the questionnaire and not its reliability, and serves the purpose of ensuring its appropriateness for the purposes of the study. It is the easiest form of validity to ascertain and basically assesses the format of the questionnaire, with special attention to ensure that it is readable with simple and clear language, and is consistent in its formatting and style [272, 273].

Face validity was ensured through interactions with the focus group and through the pilot surveys where respondents were asked for their opinion in terms of clarity and understandability of the questionnaire.

Content Validity: Content validity is also qualitative and is essential in ensuring that the content of the items comprising the questionnaire is relevant and suitable for the purposes of the study. Content validity is an indicator that the content of the survey questionnaire does actually encompass the entire range of issues under investigation, and is usually decided by a panel of experts [274 – 277].

Content validity was ensured by enlisting the assistance of the focus group formed. All statements were analyzed by the group members, and a consensus on wording and nature of statements was arrived at prior pilot testing. The resulting final questionnaire was found to contain items that would indeed result in measuring the variables under study. The wording and language were

found suitable for the sample under consideration, and would be able to comprehensively collect data relevant to the various objectives of the study.

Criterion Validity: Criterion validity is statistically important as it measures the effectiveness of the instrument when compared with another similar survey instrument that has been accepted as valid – also called the gold standard. Good criterion validity indicates that the instrument would accurately measure the construct or concept under investigation.

Criterion validity may be concurrent or predictive. Through concurrent validity, we can compare new instruments with existing validated questionnaires or with those that can be considered "gold standards". Where no "gold standard" exists, criterion validation is ascertained by forming theories about the concept under study, and analyzing the degree to which these theories match the variables that are being investigated [274]. Predictive validity is the ability of an instrument to infer future changes in the principal variables in presumed directions [267].

One of the easiest methods of assessing criterion validity is by comparing it with an accepted standard. It has also been stated that criterion validity may not be applicable to all measurement methods in social sciences, due to the fact that appropriate criterion for assessment of every abstract concept is not available [278]. In the context of the present study, no known standards are available regarding engagement in the maritime industry. However, engagement is an accepted and validated construct, and the survey instrument has been designed from existing validated questionnaires, mainly Gallup's Q12. The theories and concepts of engagement, performance, safety and retention are well researched and correlations amongst them have been established by many surveys [19, 99, 129, 142]. The engagement levels determined through analysis are also in line with those obtained from consultancy surveys. On the basis of these, it can be concluded that the requirements of concurrent validity of the instrument are satisfied.

Predictive validity is a measure of how well a test is predictive of something related to the goal of the assessment. In the context of the present research, engagement has been measured and used to predict performance safety and

retention of Indian officers. Analysis has found high correlations between these variables as stated in Tables 4.6, 4.9, 4.12, in line with similar surveys undertaken by practitioners ashore. It can thus be stated that the questionnaire satisfies the requirements of predictive criterion validity.

Construct validity: This refers to the extent the relevant theoretical concept match the items on the questionnaire [273, 279], and is based on the logical relationships between variables [261]. As opposed to the other qualitative kinds of validity, construct validity is a quantitative measure. It measures the relationship between the construct and the indicator [280].

This can be achieved through literature review which teases out the meaning of a particular construct and its constituent elements, and also looking for counter-examples which might falsify the researcher's construction. When the confirming and refuting evidence is balanced, the researcher is in a position to demonstrate validity, and can stipulate what he takes this construct to be.

Construct validity can either be Convergent or Discriminant. Convergent validity implies that differing methods researching the same construct should give a relatively high inter-correlation; there should be a correspondence or convergence between similar constructs. Discriminant validity requires that using similar methods should yield relatively low inter-correlations, i.e., that the construct in question is different from other potentially similar constructs. Such discriminant validity can also be yielded by factor analysis, which clusters together similar issues and separates them from others [281].

Convergent Validity is intended to see how big indicators converge in a single construct, and that the items comprising each individual factor have high correlations. Nunnally [282] has suggested that "high convergence will be represented by highly correlated measures, whereas measures that are correlated near zero suggest weak or no convergence." An indicator is said to converge if it has a factor loading value that is high and significant, and a standardized factor loading estimate greater than 0.5 [283].

When there are many items, construct validity is best determined using factor analysis. Factor Analysis interprets each factor according to the items that load

highly on it, summarizing them into a small number of factors [268]. Factors are items that have a common thread and belong together, while loading is the measurement of the relationship between items and factors [284]. When items are related, they define elements of the concept that can be grouped, while the unrelated items can safely be removed from the instrument [255]. However, to be able to reliably use EFA, the sample size must be suitably large, and although the satisfactory sample size is disputed, a thumb rule of five to eight respondents per item is usually recommended [ibid].

Even though the drivers of engagement have been well described in the available literature, a factor analysis was undertaken to understand if these drivers were valid in the maritime context, and if the questionnaire did indeed measure engagement.

3.14 FACTOR ANALYSIS

SPSS 20 was used for all analysis related to the study. For factor analysis, Varimax orthogonal rotation with Kaiser normalization was used for extraction, which uses a default eigenvalue of 1 as the cutoff. However, based on the below criterion, 0.9 was taken as the eigenvalue cutoff for extraction:

- Kaiser's criterion is considered too strict and retaining all factors with an eigenvalue greater than 0.7 is suggested [285]
- Using eigenvalue criterion when number of variables is less than 20 is not reliable as too few factors are extracted [286]
- Consideration of solutions that explain 60% of the total variance in social sciences [286]
- Although scree plots are very useful in selecting factors, factor selection should not be based on this criterion alone [287]

Thus in order to explain at least 60% of the variance, and retain a suitable number of factors, an eigenvalue of 0.9 and more was considered as the best criterion. Additionally, in order to ensure higher loadings, coefficients smaller than 0.5 were excluded. This resulted in isolating reasonably more factors

explaining a larger percentage of variance.

3.14.1 ENGAGEMENT VARIABLES

Engagement was measured using 15 variables as listed in table 3.3. Correlations between variables were within acceptable limits, with no instances of multicollinearity, the determinant being 0.057 (Table 1, in Appendix 3). The communalities were higher than 0.5, the average being 0.686 (Table 2, App. 3).

Table 3.3: Engagement Variables

Variable	Statement
E1	The company values my suggestions and opinions
E2	I am proud to be a part of this Company
E3	The Company cares about my wellbeing, health and safety
E4	I get regular feedback and guidance on my performance
E5	Good work is recognized by the Company
E6	I am provided the spares/stores required to do my job well
E7	I can share my troubles and happiness with others
E8	I am given work that fully utilizes my abilities
E9	I find my work enjoyable
E10	My work is important for company profits
E11	I have good relations with other crew on board
E12	I can advance in my job based on merit and performance
E13	I am happy with my salary
E14	We can work independently without interference from the Company
E15	There is undue pressure from Company to finish jobs on time

The sampling adequacy, as measured by KMO and Bartlett's Test (Table 3 in Appendix 3), gave a test statistic of 0.860, representing great values [287].

The factor analysis isolated seven factors which collectively accounted for 68.555 % of the variability, as shown in (Table 4 in Appendix 3). The scree plot is shown in Figure 1 in Appendix 3.

Table 3.4: Rotated Component Matrix[a] - Engagement Variables

	Component						
	1	2	3	4	5	6	7
Opinions valued	.763						
Pride in company	.742						
Caring organization	.648						
Feedback & guidance	.642						
Recognition of work	.579						
Work resources	.565						
Best friend at work		.739					
Potential utilized		.686					
Nature of work		.624					
Important work			.785				
Interpersonal relations			.650				
Career advancement				.812			
Pay					.900		
Work autonomy						.931	
Work pressure							.975

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

These factors can be described as follows:

Factor 1: Organizational Support
Opinions valued
Pride in company
Caring organization
Feedback & guidance
Recognition of work
Work resources

Factor 2: Work & Co-Workers
Best Friend at Work
Potential Utilized
Nature of Work

Factor 3: Work Environment
Important work
Interpersonal relations

Factor 4: Career Advancement
Merit Based Promotions

Factor 5: Financial Rewards
Salary

Factor 6: Work Autonomy
Freedom at Work

Factor 7: Job Demands
Work Pressure

Figure 3.2: Engagement Factors

3.14.2 PERFORMANCE VARIABLES

Performance was measured using 19 variables as shown in Table 3.5 below. Correlations between variables were within acceptable limits, with no instances of multicollinearity, the determinant being 0.064 (Table 5 in Appendix 3). The average communality was 0.626 (Table 6, App. 3).

Table 3.5: Performance Variables

Variable	Statement
P1	The Company does not encourage breaking rules to achieve targets
P2	The Company never puts schedules above safety
P3	I get enough rest as per applicable regulations
P4	I get regular feedback and guidance on my performance
P5	I find the training given by the Company very useful
P6	I can maintain my performance over my entire contract
P7	I am happy with my salary
P8	I am happy with benefits like insurance, PF, paid leave etc I receive now
P9	The Company treats all seafarers equally
P10	We have all necessary personal protective equipment (PPE)
P11	I am provided the spares/stores required to do my job well
P12	I can perform jobs given to me more efficiently than at present
P13	I could contribute more by reducing wastage of materials in my work
P14	We can work independently without interference from the Company
P15	We are never blamed for our mistakes
P16	I go out of my way to ensure compliance with pollution regulations
P17	I do my best to pass third party inspections without deficiencies
P18	I prefer regular employment to against 'contract ' working
P19	My work load is too much

The sampling adequacy, as measured by KMO and Bartlett's Test (Table 7 in Appendix 3), gave a test statistic of 0.799, representing very good values. The factor analysis isolated eight factors which collectively accounted for 62.632% of the variability (Table 8 in Appendix 3); the scree plot is shown in Figure 2 of Appendix 3.

The rotated component matrix of performance variables are shown below. Variables P6 and P19, did not load significantly and hence were removed from performance score calculations.

Table 3.6: Rotated Component Matrix[a] - Performance Variables

	Component							
	1	2	3	4	5	6	7	8
Procedural commitment	.753							
Safety commitment	.664							
Rest availability	.559							
Work load								
Feedback & guidance		.739						
Training		.719						
Sustained performance								
Pay			.768					
Benefits			.655					
Equal treatment			.540					
Safety resources				.752				
Work resources				.658				
Maximizing performance					.812			
Reducing wastage					.781			
Work autonomy						.787		
No blame culture						.575		
Pollution prevention							.760	
Third party inspections							.703	
Permanent employment								.862

These factors can be described as follows:

Factor 1: Committed Organization
Procedural commitment
Safety commitment
Rest availability

Factor 2: Training & Development
Training
Feedback & guidance

Factor 3: Pay & Benefits
Salary
Benefits
Fair Treatment

Factor 4: Resources
Work resources
Safety Resources

Factor 5: Work Initiative
Maximizing performance
Reducing Wastage

Factor 6: Work Environment
Work Autonomy
No Blame Culture

Factor 7: Regulatory Compliance
Pollution Prevention
Third Party Inspections

Factor 8: Job Security
Permanent Employment

Figure 3.3: Performance Factors

3.14.3 SAFETY VARIABLES

Safety was measured using 19 variables as shown below. Correlations between variables were within acceptable limits, with no instances of multicollinearity, the determinant being 0.005 (Table 9 in Appendix 3).

The average communality was 0.648 (Table 10, App. 3). The sampling adequacy, as measured by KMO and Bartlett's Test (Table 11 in Appendix 3), gave a test statistic of 0.896, representing very good values.

The factor analysis isolated six factors which collectively accounted for 64.810 % of the variability (Table 12 in Appendix 3), and the scree plot obtained is shown in Figure 3 of Appendix 3.

Table 3.7: Safety Variables

Variable	Statement
S1	The Company places a high priority on safety training
S2	We are actively encouraged to improve safety
S3	The Company never puts schedules above safety
S4	The Company does not encourage breaking rules to achieve targets
S5	The ship's management genuinely cares about our safety and well being
S6	I get regular feedback and guidance on my performance
S7	My Company considers me an important part of itself
S8	I find the training given by the Company very useful
S9	The Company cares about my well being, health and safety
S10	I am provided the spares/stores required to do my job well
S11	We have all necessary personal protective equipment (PPE)
S12	The Company never puts costs above quality
S13	I report all unsafe acts or conditions without hesitation
S14	I am comfortable asking for help when unsure how to do a task
S15	My co-workers are safety conscious
S16	My work load is too much
S17	I get enough rest as per applicable regulations
S18	We are never blamed for our mistakes
S19	At times I have taken short cuts to finish jobs quickly

The rotated component matrix of safety variables is shown below.

Table 3.8: Rotated Component Matrix[a] – Safety Variables

	Component						
	1	2	3	4	5	6	7
Safety training	.724						
Participation in safety	.723						
Safety compliance	.705						
Adherence to SMS	.681						
Caring Shipboard management	.506						
Feedback & guidance		.788					
Valued by company		.636					
Training		.622					
Caring company		.533					
Work resources			.761				
Safety resources			.691				
Compromise on quality			.507				
Near miss reporting				.715			
Job support				.685			
Safety conscious crew				.596			
Work load					.895		
Adequate rest					.527		
No blame culture						.863	
Sacrificing safety							.902

These factors can be described as follows:

Factor 1: Safety Support
Safety training
Participation in safety
Safety compliance
Adherence to SMS
Caring shipboard management

Factor 2: Organizational Support
Feedback & guidance
Valued by company
Training
Caring Company

Factor 3: Resource Availability
Work resources
Safety resources
Compromise on quality

Factor 4: Safety Climate
Near miss reporting
Job support
Safety conscious crew

Factor 5: Job Demands
Work load
Adequate rest

Factor 6: 'Just' Culture
No blame culture

Factor 7: Safety Compliance
Sacrificing safety

Figure 3.4: Safety Factors

3.14.4 RETENTION VARIABLES

Retention was measured 18 variables as shown in Table 3.9 below. Correlations between variables were within acceptable limits, with no instances of multicollinearity, the determinant being 0.003 (Table 13 in Appendix 3). The average communality was 0.631 (Table 14, App. 3).

Table 3.9: Retention Variables

Variable	Statement
R1	I am happy with the quality of life on board
R2	The Company provides us good recreational facilities
R3	Living conditions on board are good
R4	We have good facilities for contacting family & friends
R5	The Company makes all efforts to arrange shore leave for us
R6	The Company makes all efforts to relieve me on time
R7	When I report for duty, I am treated well at the office
R8	My Company considers me an important part of itself
R9	The Company treats all seafarers equally
R10	My complaints & grievances are properly addressed
R11	I can advance in my job based on merit and performance
R12	Good work is recognized by the Company
R13	I have good career opportunities here
R14	I am involved in decision making in my work area
R15	I am happy with my salary
R16	We are never blamed for our mistakes
R17	I prefer regular employment to against 'contract' working
R18	I am happy with benefits like insurance, PF, paid leave etc I receive now

The sampling adequacy, as measured by KMO and Bartlett's Test (Table 15 in Appendix 3), gave a test statistic of 0.908, representing excellent values.

The factor analysis isolated six factors which collectively accounted for 63.125 % of the variability (Table 16 in Appendix 3), and the scree plot obtained is shown in Figure 4 of Appendix 3.

Table 3.10: Total Variance Explained – Retention Variables

	Component					
	1	2	3	4	5	6
Quality of life	.805					
Recreational facilities	.790					
On-board living conditions	.789					
Communication facilities	.589					
Shore leave	.510					
Timely relief		.645				
Treatment at office		.642				
Valued by company		.638				
Equal treatment		.637				
Grievance redressal		.521				
Merit based promotions			.756			
Recognition of work			.526			
Career opportunities			.523			
Involvement in decision making			.764			
Salary				.705		
No blame culture					.854	
Permanent employment						.957
Benefits						

The variable R18, benefits, did not show any significant loading, and were removed from Retention Score calculations.

These retention factors can be described as follows:

Factor 1: Shipboard Life
Quality of Life
Recreational Facilities
On-board Living Conditions
Communication Facilities
Shore Leave

Factor 2: Company Processes
Timely Relief
Treatment at Office
Valued by Company
Fair treatment
Grievance Redressal

Factor 3: Recognition & Career
Merit Based Promotion
Recognition of Work
Involvement in decision making
Career Opportunities

Factor 4: Remuneration
Salary

Factor 5: No Blame Culture
No Blame Culture

Factor 6: Job Security
Permanent Employment

Figure 3.5: Retention Factors

3.14.5 COMMON STATEMENTS ACROSS MEASURES

It must be noted here that some of the statements used for measurement of the four variables were common. Engagement has such a broad reach that it includes aspects of many other constructs. For example, monetary remuneration is a driver of engagement, performance as well as retention. Thus some statements had to be kept common in order to retain the true meaning of the constructs and arrive at realistic measures. However, these common statements have been kept to the minimum possible. Performance has four statements common with engagement, retention three and safety three.

As far as correlation with common items is concerned, this is known as 'spurious correlation', and when variables have common terms, there is a potential for the creation of spurious correlation and misinterpretation. A correlation between two variables is said to be spurious when its magnitude is attributable to a term common to both correlated variables. However, many statisticians dispute this with Prairie & Bird [288] stating that "it is a common misconception that correlations between variables that share a common term are statistically invalid, and the idea that such relationships are wholly or partially spurious, was rejected decades ago by statisticians".

Dunlap et al. [347] have stated that although the issue of spuriousness of correlations between ratio variables that have a common element has been raised by numerous authors those correlations are still used in industrial and organizational psychology, social psychology, educational psychology, research in organizational behavior, and management science. They quote Long (1979) in [ibid] who assert that "the use of ratio variables with common components ... , regardless of the position of the shared component, does not constrain or make more likely one sign or direction of association over another (p. 38)." They also refer to MacMillan and Daft (1979, 1980) who performed an empirical investigation of correlations among ratios with common components; in their model, the numerator changed systematically with the size of the denominator. They reported little evidence of spuriousness.

Lieberson & Fuguitt [289] argue that spurious correlation is not an issue in correlations, provided interest is exclusively in the composite variables rather

than the components; it is the researcher who has to make the distinction whether his primary interest is on the ratio or difference, or in the component measures [290]. Prairie and Bird [288] also quote Sokal and Rohlf (1981) who suggested that correlations between parts and wholes are 'not really' spurious, but are logical consequences of particular variable formulations. They suggested that there is no theoretical reason for avoiding such calculations, as long as the formulation is deliberate and well-considered." Sokal and Rohlf do not formally refer to the result as a 'spurious correlation', but rather as "logical consequences of particular variable formulation". They further emphasize that the use of ratios is acceptable if the ratio is the variable of interest.

Farley and Cohen [348], while discussing common item effects, state that "one of the techniques for the empirical investigation of common-item effects, would be to compare the results of factor analysis of the original scales (containing item overlap) with results based on truncated scales (in which all overlapping items are removed). This approach has been employed by Kassebaum, Couch, and Slater (1959), who compared their own factor analysis of the Minnesota Multiphasic Personality Inventory (MMPI), which contained item overlap, with a factor analysis by Welsh (1956) of truncated MMPI scales. They concluded that because of the close correspondence between the results of the two separate analyses, the "practical significance of the problem posed by item overlap may have been exaggerated [Kassebaum et al., 1959, p. 228]." They also state that "the studies of Kassebaum et al. (1959), Rogers and Shure (1965), and Anderson et al. (1966) indicated that truncated (or partially truncated) scales or corrected correlations provided solutions similar to solutions using original intercorrelations, suggesting a negligible effect of item overlap."

As an explanation Farley and Cohen [348] offer is that "one possible solution may lie in the notion that the number of overlapping items in factorially constructed scales has a special meaning, that is, overlapping of items between scales does not just happen, there is a reason for it. If two scales have many items in common, it is because the two scales are reflecting at least partially similar psychological characteristics, and the more items there are in common,

the greater the similarity in the characteristics. Thus the number of common items may be an indication of the relationship between scales. If this notion, which has also been suggested by Anderson and Bashaw (1966), were correct, it would be expected that the scale structure obtained through built-in intercorrelations (i.e., common-elements intercorrelations) would be similar to that obtained through item-overlapfree intercorrelations."

As discussed above, the variables under study reflect similar psychological characteristics, especially engagement which has a very broad reach and encompasses many of the traditional constructs, thereby leading to items that are common with other measures. Additionally, in the present study, the emphasis is on the measurement and inter-correlations of individual engagement, performance, safety and retention scores, and not on the individual components. In view of the above discussion, and the fact that some common items can be expected when measuring broad constructs such as those under investigation, the resulting correlations can be considered to be statistically significant allowing inferences to be drawn.

3.14.6 FACTOR ANALYSIS INTERPRETATION

The factors extracted for engagement, performance, safety and retention are the same as those identified through literature review and listed in Tables 2.2, 2.3, 2.4 and 2.5. The main area of difference has been the isolation of the shipboard environment itself as a separate factor in some of the variables, and this can be attributed to the fact that the seafarers work and living place is one and the same. On the basis of the similarities observed, it can be said that the questionnaires will indeed measure engagement, performance, safety and retention of officers.

The rotated component matrix for all the four variables also shows convergence, evident from the high factor loadings for each variable. All four extractions show a very clean factor structure. **Convergent validity** is indicated by the high loading within factors, while the absence of cross loadings testifies to **discriminant validity**. Additionally, the factors extracted for each of the variables differ significantly from the others, indicating they

are measuring different underlying constructs. It can thus be concluded that the instrument conforms to convergent as well as discriminant validity criteria.

3.15 GENERALISATION OF RESULTS FROM NON-PROBABILITY SAMPLING

Random sampling allows generalizations to be made about the population, but existing literature however does allow the use of non-probability sampling techniques for generalisation to the population. Although random or probability sampling reduces biases and allows for the extension of results to the entire sampling population, it may not always be feasible, and even efficient, suffering from high dispersion of samples inducing higher costs [291 – 293], and missing data rendering random samples invalid for traditional probabilistic statistical inference [294].

Non-probability methods such as convenience sampling, on the other hand, are not free from bias, but the data collected may still be valid for certain studies [295]. When a sample is representative, it becomes valid over the realm it represents, providing external validity, and when the sample is measured correctly, it becomes valid for the sample, thus providing internal validity [ibid]. In non-probability sampling, interpretation of results is limited to the population under study. To be valid over a greater realm or to form the basis for a theory, the study may be repeated for confirmation in a different population, still using a non-probability method [292]. It is important to state the bias clearly when the results are analyzed and interpreted so as not to mislead people into inferring general conclusions [292 – 294].

Despite its inherent bias, purposive and convenience sampling can provide reliable and robust data. A study by Campbell [296] compared the results from a sample and census survey and found the results of both methods to be highly correlated using Spearman rank order correlation. Karmel and Jain [297] compared the results of a model-based purposive sampling method and a random sample with the intention of advocating random sampling. To their surprise, the purposive method did better than the random method, encouraging statisticians to look beyond random sampling designs. Topp *et al*.

[298] also did a study comparing purposive and random techniques in a study involving users of the drug ecstasy. They found that their purposive sample approximated a random sample of the population.

Non-probability methods can be just as good and effective, and even more efficient, than random sampling as probability methods in some situations provided they are used properly [295]. To insist on randomized samples every time is to run the danger of losing efficiency and failing to recognize the existence of different types of information which can be extracted from a community in more than one way [299]. Purposive sampling, when used appropriately, is more efficient than random sampling in practical field circumstances [292, 297].

According to other psychology research methods texts, formal statistical inferences from non-random samples are possible under certain conditions [300]. Chow [301] also makes a case that using non-random samples does not necessarily detract from the findings generality, and nor does such a practice violate the requirement that data from different subjects be statistically independent. More importantly, using non-random samples is not antithetical to experimental controls.

Chow further states that "random selection is not always required for establishing the generality of the result when there is neither a theoretical nor an empirical reason to question the representativeness of the sample in the context of the experiment". The term representative has many different meanings, along the lines of the sample having the same distribution of the population on some key demographic characteristic, but it does not seem to have any agreed-upon statistical meaning [302]. Edington [303] contends that if the effects of a particular experimental treatment depend mainly on physiological functions that are almost unaffected by the social or physical environment, we might draw inferences about persons in other cultures than that from which the subjects came. On the other hand, if experimental effects were easily modified by social conditions, we would be more cautious in generalizing to other cultures [ibid].

Many people in the fields of social science and statistics believe that without

strict random sampling, no survey data is valid. However, the HCI community has a long history of using surveys without random sampling and this is considered valid and acceptable [304].

As stated by Oakes [305] that when neither sampling nor assignment are random, statistical inference is not legitimate, but "it is argued, statistical analysis is defensible if due regard is paid to the specification of the population and the judged representativeness of the sample."

3.16 ANALYTICAL TOOLS

In order to measure engagement levels, explore its relationships with performance, safety and retention, and ascertain differences in engagement levels of various categories, a number of statistical tools will be used for analysis. These are as follows:

1. Summation of engagement, performance, safety and retention scores
2. Using means to determine average engagement, performance, safety and retention levels
3. Frequency distributions to check for normality of the frequency distributions, along with Q-Q plots, Kurtosis and Skewness
4. Correlation analysis to calculate correlations between variables, along with scatter plots
5. Regression analysis to ascertain cause and effect between variables

3.17 CONCLUDING REMARKS

The research design forms the backbone of any study as it provides the framework for data collection, the absence of which can put the validity of any research study in doubt. This chapter outlined the framework adopted and followed by the researcher in arriving at the research objectives, formulating hypothesis, selecting an appropriate sample design, designing the survey instrument, pilot testing, data collection and ascertaining reliability and validity. The statistical methods to be used for analysis are also specified.

The next step is the analysis of data, and is addressed in the next chapter.

CHAPTER 4: ANALYSIS AND FINDINGS

The wind and the waves are always on the side of the ablest navigator - Edmund Gibbon

4.1 INTRODUCTION

This chapter presents the results of the data analysis, starting with an explanation of the scoring methodology used in measuring engagement, performance, safety and retention. It details the results of correlation analysis, hypothesis testing, regression analysis and independent *t*-tests. At the end, findings and a discussion of the results are presented in a summarized form.

Referring to section 3.16, while, strictly speaking, inferential statistics are only applicable in the context of random sampling, convention has been followed in reporting significance levels as convenient yardsticks even for nonrandom samples [305].

4.2 SCORING METHODOLOGY

The scoring methodology for engagement calculation used by practitioners is not available in the public domain. The methodology followed in this study is based on that used by the U.S. Merit Systems Protection Board [306].

As described in Chapter 3, engagement scale was developed using 15 items, performance and retention scales with 17 items, and safety scale with 19 items. These scales assisted in categorizing seafarers as ***Engaged, Partially Engaged*** and ***Disengaged***, apart from indicating their scores on performance, safety and retention. Each question was weighted from 5 (Strongly Agree) to 1 (Strongly Disagree). Respondents scoring '5' on all items would have a total score of 85 on performance and retention, 95 on safety, and 75 on engagement. Similarly, if the score on all items is '1', the scores would be 17 for performance and retention, 19 for safety, and 15 for engagement.

Respondents are classified as "Engaged" if they agree with each of the 15 items on engagement, i.e., they responded "Agree" which had a weightage of 4. Thus the "engaged" category would have a minimum score of 60. Each respondent achieving an engagement score of 60 may not have agreed with every single item - they could have disagreed with some and strongly agreed with others. However, this cutoff of 60 is simply the breakpoint used in categorization, as the engaged are assumed to at least agree with each of the items. The "Partially Engaged" is the segment scoring between 60 and pure neutrality, or 45 (answered each item with Neither Agree nor Disagree). The "Disengaged" category consists of those who score less than 45 overall.

A similar methodology is used for the other variables of Performance, Safety and Retention, and is depicted in figure 4.1 below:

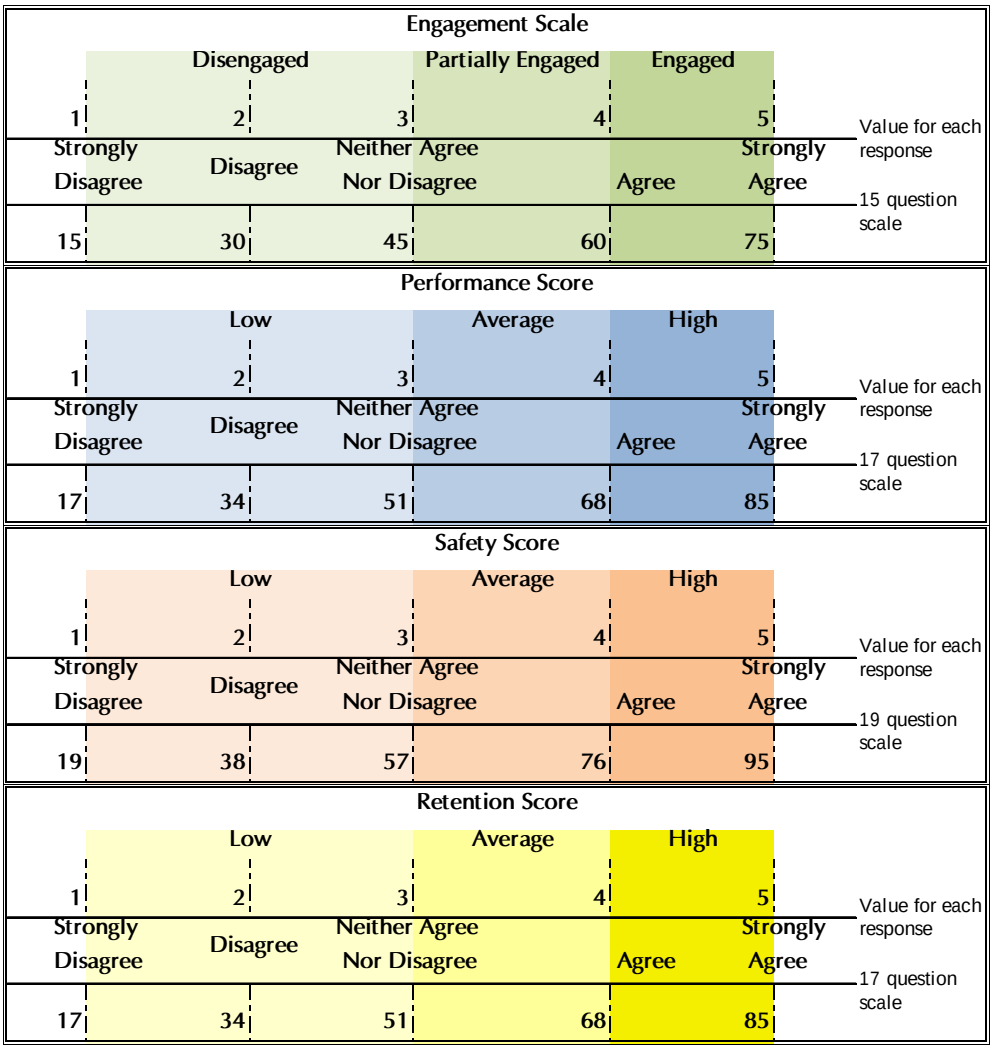

Figure 4.1: Scoring Methodology

4.3 TESTING FOR DISTRIBUTION NORMALITY

For analysis of data, the normal distribution is considered as the most significant statistical distribution; the absence of normality in the distribution makes data analysis difficult [307]. Normal distributions are symmetrical or bell-shaped, and are described by the mean (μ) and standard deviation (σ). According to the Empirical Rule, in a normal distribution,

- 68% of data lies within the interval of Mean ± 1 Standard Deviation
- 95% of data lies within the interval of Mean ± 2 Standard Deviations
- 99.7% of data lies within the interval of Mean ± 1 Standard Deviation

However, not all distributions are normal and Skewness and Kurtosis are used to ascertain the normality of the data distribution.

Skewness measures the distortion of a distribution when compared with a symmetrical one. Zero skewness indicates a symmetrical distribution. Positive values indicate a right skew while negative values indicate a skew to the left.

To determine if skewness is significant, Fishers Skewness coefficient can be used and is calculated as:

Fishers Skewness coefficient = Skewness/Standard Error of Skewness

Kurtosis is an indicator of how big are the tails of the distribution or its steepness, and normal distributions have zero as the kurtosis value. Positive values indicate more steepness, while negative values indicate flatter tops.

To determine the significance of kurtosis, Fishers Kurtosis coefficient is used and calculated as:

Fishers Kurtosis coefficient = Kurtosis/Standard Error of Kurtosis

If the resulting *z*-statistic for both the coefficients lie within ±1.96 (critical value for a two-tailed *z*-statistic at α=0.05), it indicates that the skewness and kurtosis are not significant [308].

The frequency distributions for all four variables are as shown in the histograms (Fig. 4.2, 4.3, 4.4, 4.5) on the following page.

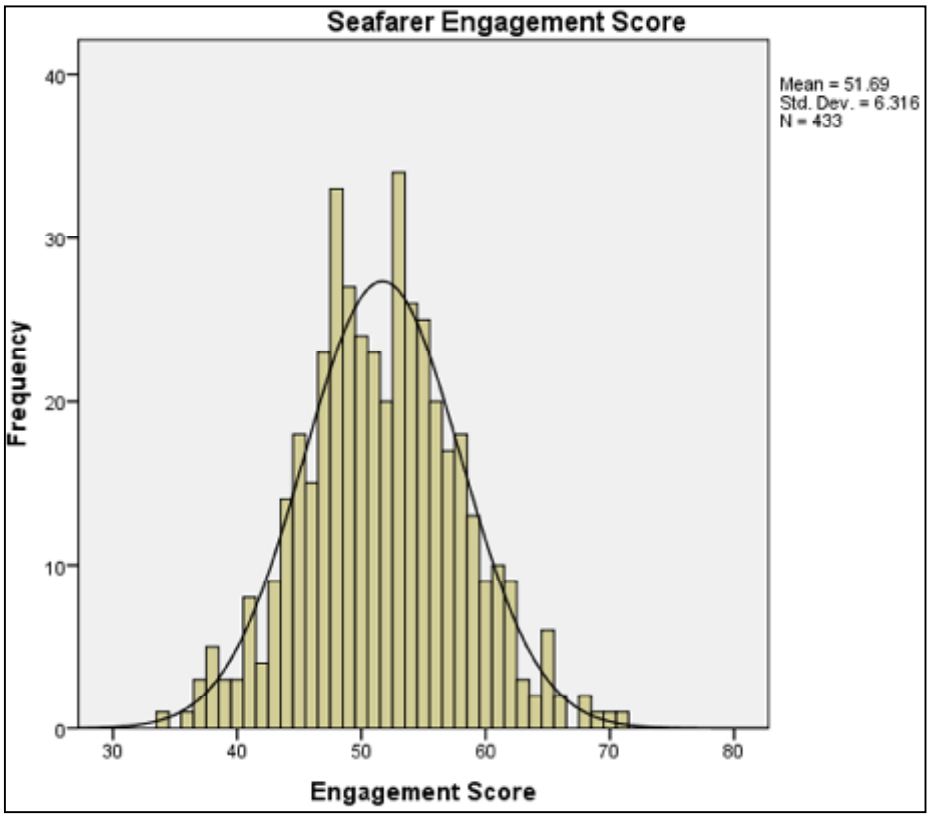

Figure 4.2: Distribution of Engagement Score

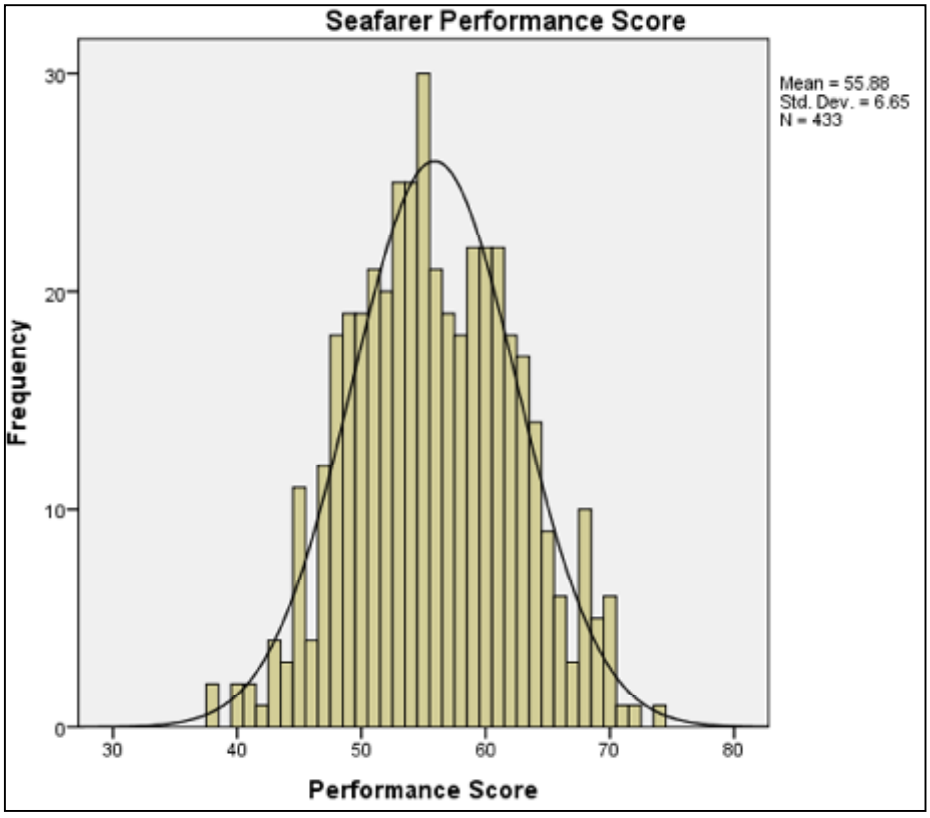

Figure 4.3: Distribution of Performance Score

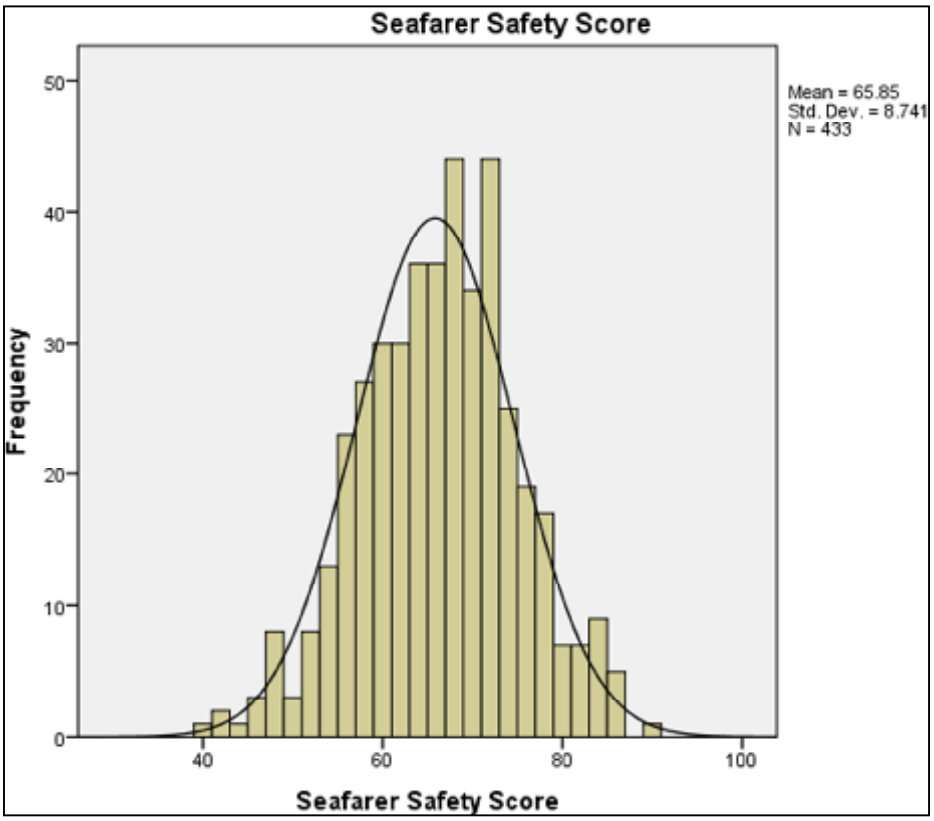

Figure 4.4: Distribution of Safety Score

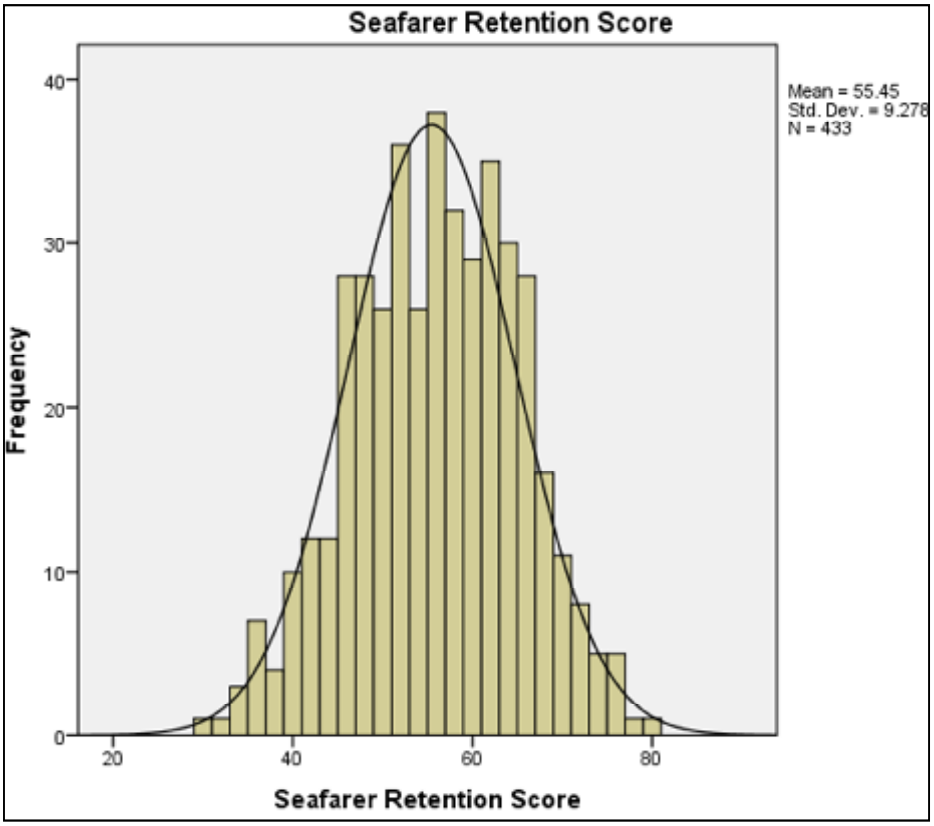

Figure 4.5: Distribution of Retention Score

Table 4.1 provides the Skewness and Kurtosis statistics for Engagement, Performance, Safety and Retention. The Coefficients of Skewness and Kurtosis are within the required values of ±1.96 for a two-tailed test, indicating that all four frequency distributions were within acceptable limits of normality, and there was no requirement for transformation [309].

Table 4.1: Skewness and Kurtosis Statistics of Variables

		Seafarer Engagement Score	Seafarer Performance Score	Seafarer Safety Score	Seafarer Retention Score
N	Valid	433	433	433	433
	Missing	0	0	0	0
Skewness		.113	.060	-.117	-.123
Std. Error of Skewness		.117	.117	.117	.117
Kurtosis		.043	-.367	-.071	-.379
Std. Error of Kurtosis		.234	.234	.234	.234
Coefficient of Skewness		.965	.512	-.993	-1.053
Coefficient of Kurtosis		.184	1.568	-.236	-.222

4.4 OBJECTIVE NO. 1 - MEASUREMENT OF ENGAGEMENT

The engagement levels of respondents were calculated based on the scoring methodology explained in section 4.2. The descriptive characteristics are as per Table 4.2 below:

Table 4.2: Descriptive Statistics – Engagement Score

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Engagement Score	433	37	34	71	51.69	.304	6.316	39.895
Valid N (listwise)	433							

The mean Engagement Score was calculated as 51.69, with a standard deviation of 6.416, and standard error of 0.304.The individual engagement scores ranged from a low of 34, to a high of 71. The 95% confidence limits for the engagement score of the population mean lies between 51.1 and 52.3.

Based on the methodology described earlier, respondents were categorized into Engaged, Partially Engaged, and Disengaged on the basis of their engagement scores. The Engaged group had scores higher than 60, the Partially Engaged between 45 and 59, and the Disengaged less than 45. On this basis, 10.6% officers can be considered 'Engaged', 11.8% 'Disengaged' and the remaining 77.6% to be 'Partially Engaged'. The resulting distribution is detailed in Table 4.3 below:

Table 4.3: Categorical Distribution of Engagement Scores

Category	Range	Number	Percentage
Engaged	60 – 75	46	10.6
Partially Engaged	45 – 59	336	77.6
Disengaged	15 – 44	51	11.8
TOTALS		433	100

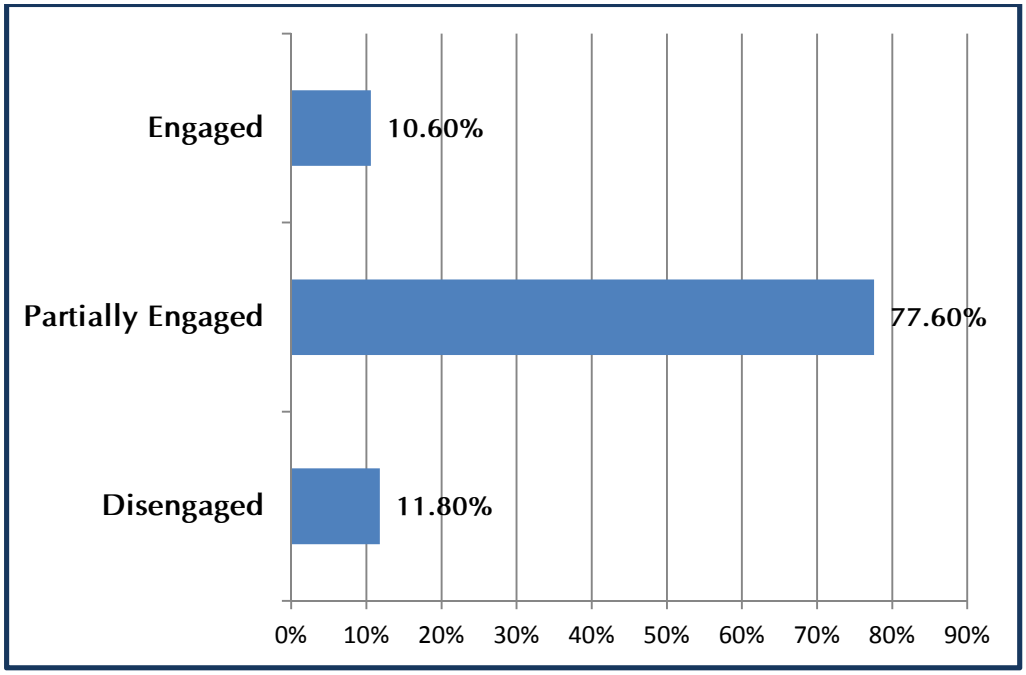

Figure 4.6: Graphical Representation of Engagement Scores

The above analysis completes the first stated objective of measurement of engagement levels.

4.5 CORRELATION ANALYSIS

4.5.1 CORRELATION COEFFICIENTS

Establishing relationships between two or more variables is the primary objective of any scientific research, arriving at a logical conclusion closer to reality. Finding such relationships is often the first step in identifying causal relationships. Correlation analysis is a statistical technique that enables one to understand the association between the quantitative variables under study, if the relationship is significant enough, and if the relationship can be used for predictive purposes [310].

This statistical relationship is quantified through the 'correlation coefficient' which represents the direction and strength of the relationship. The proximity of points to a straight line, when values of variables are plotted on a graph, indicate how strong is the relationship, while the increase or decrease in one variable when the other is manipulated determines the direction [311].

It must be noted that the coefficient of correlation is just a measure of the strength of the linear relationship, but does not imply a causal relationship.

There are many methods of calculating the correlation coefficients, such as Scatter Diagram, Pearson's Coefficient of Correlation method, Spearman's Rank Correlation method, Method of Least Squares and Kendall tau-b method.

For the kind of data used in the present study, Pearson's coefficient is best suited. Pearson's coefficient calculates how much the values of the two variables vary independently, and then contrasts this with how much they vary jointly. High values of one variable when matched with high values of the other will result in larger joint variability, and will be negative when the relationship is negative.

Pearson's correlation relies on the assumption that there is a linear relationship between the variables, points are evenly distributed along the straight line, data are drawn from normally distributed populations, and the data collected must be interval or ratio, from continuous distributions. Since the present data meets the above criteria, the use of the Pearson statistic is justified.

4.5.2 EFFECT SIZES

Even though the correlation coefficient gives the strength or significance of the relationship, it does not indicate the importance of the effect; a significant statistic does not necessarily imply a meaningful or important effect [287]. To understand the size of an effect, the "Effect Size" is used, which is a standardized and objective measure of the significance of the observed effect. Different effect size measures are used, the most popular being Pearson's correlation coefficient *r,* Cohen's *d,* and the odds ratio. Field suggests the use of Pearson's coefficient *r* which lies between zero (indicating no effect) and one (indicating perfect effect) [287].

Cohen suggests the following criteria when deciding what constitutes a large or small effect, and can be used to assess the importance of the effect [312]:

- *Small Effect* - $r = 0.10$: 1% of total variance explained by the effect
- *Medium Effect* - $r = 0.30$: 9% of total variance explained by the effect
- *Large Effect* - $r = 0.50$: 25% of total variance explained by the effect

4.6 ENGAGEMENT AND PERFORMANCE: *Hypothesis No. 1*

The distribution of performance scores was within acceptable limits, and the performance scores of all respondents were calculated using the methodology specified earlier. The descriptive characteristics are shown in Table 4.4 below.

Table 4.4: Descriptive Statistics – Performance Score

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Performance Score	433	36	38	74	55.88	.320	6.650	44.223
Valid N (listwise)	433							

The mean Performance Score was calculated as 55.88, with a standard deviation of 6.650, and standard error of 0.320. The individual performance score ranged from a low of 38 to a high of 74. The 95% confidence limits for the performance score of the sample mean lies between 55.3 and 56.5.

Performance was categorized into High, Average, and Low; the High group had scores of 68 and above, the Average group between 51 and 67, while the Low group scored less than 51. On this basis, the performance of 5.6% officers can be considered 'High', 22.4% 'Low' and the remaining 72.0% to be 'Average'. The resulting distribution is detailed in Table 4.5 below:

Table 4.5: Categorical Distribution of Performance Scores

Category	Range	Number	Percentage
High Performers	68 - 85	24	5.6
Average Performers	51 - 67	312	72.0
Low Performers	17 - 50	97	22.4
TOTALS		433	100

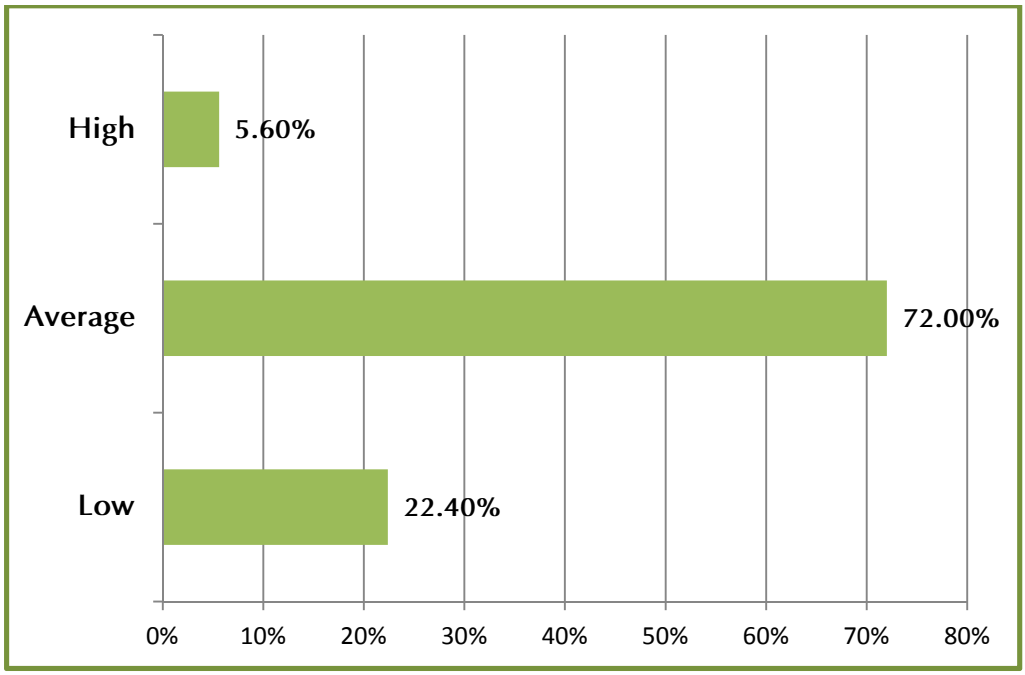

Figure 4.7: Graphical Representation of Performance Scores

4.6.1 CORRELATION – ENGAGEMENT & PERFORMANCE

To understand and determine the relationship between engagement and performance, correlation analysis was undertaken for a two-tailed prediction. The correlation analysis results are summarized in Table 4.6 below:

Table 4.6: Correlation Analysis – Engagement and Performance

		Seafarer Engagement Score	Seafarer Performance Score
Seafarer Engagement Score	Pearson Correlation	1	.786**
	Sig. (2-tailed)		.000
	N	433	433
Seafarer Performance Score	Pearson Correlation	.786**	1
	Sig. (2-tailed)	.000	
	N	433	433

**. Correlation is significant at the 0.01 level (2-tailed).

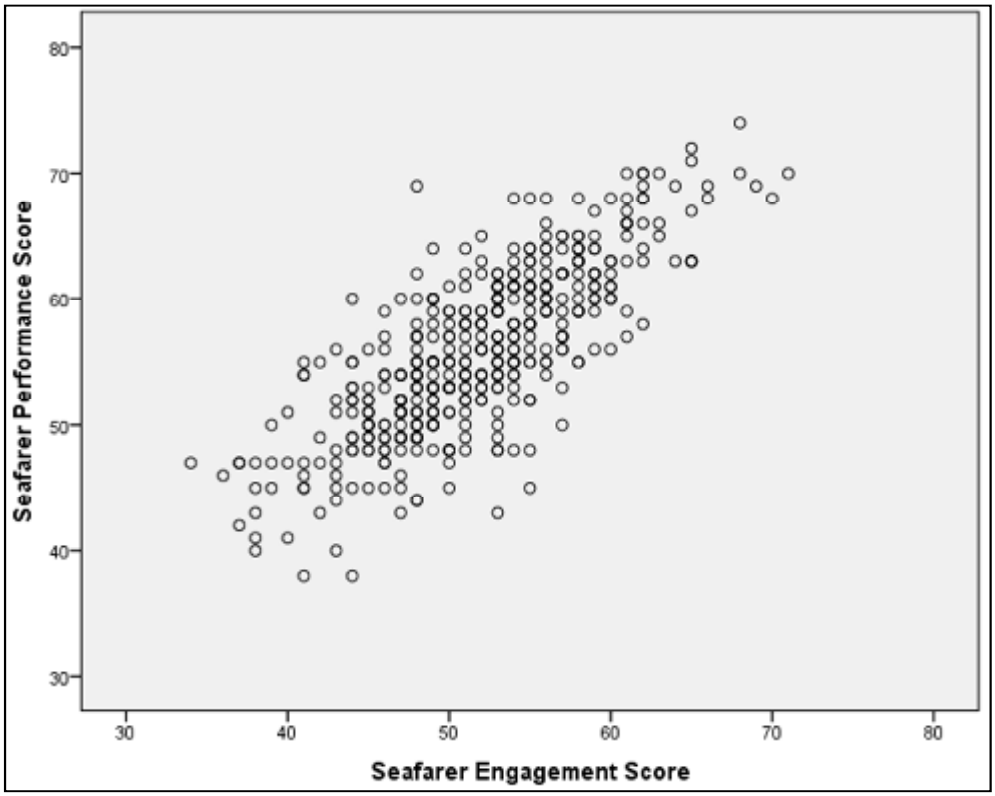

Figure 4.8: Scatter Diagram of Engagement and Performance scores

4.6.2 INTERPRETATION

The correlation analysis gives the result: $r = 0.786$, $N = 433$, $p < 0.01$. The Pearson Correlation is significant at the 0.01 level for a two-tailed prediction. The p value is shown to be 0.000. The correlation coefficient value of 0.786 indicates a large effect. The scatter diagram also shows the points falling very

close to a straight line, indicating a high correlation. These results show that as engagement increases, performance also increases, indicating a high positive correlation between engagement and performance.

Based on the above results, the Null Hypothesis $H1_{0,}$ there is no significant relationship between Engagement and Performance is ***rejected***. The Alternate Hypothesis $H1_1$ - There is a significant relationship correlation between Engagement and Performance – is ***accepted***, achieving the second objective.

4.7 ENGAGEMENT AND SAFETY: *Hypothesis No. 2*

The safety scores of all respondents were calculated using the methodology specified earlier, and the distribution was within acceptable limits of normality. The descriptive characteristics are shown in Table 4.7 below:

Table 4.7: Descriptive Statistics – Safety Score

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Seafarer Safety Score	433	49	40	89	65.85	.420	8.741	76.409
Valid N (listwise)	433							

The mean Safety Score was calculated as 65.85, with a standard deviation of 8.741, and standard error of 0.420. The individual safety scores ranged from a low of 40 to a high of 89. The 95% confidence limits for the safety score of the population mean lies between 65.0 and 66.7.

After categorizing safety scores, the High segment had scores of 76 and more, the Average between 57 and 75, and Low less than 57. On safety, 13.4% officers can be considered 'High', 14.3% 'Low', the remaining 72.3% to be 'Average'. The resulting distribution is shown in Table 4.8 below:

Table 4.8: Categorical Distribution of Safety Scores

Category	Range	Number	Percentage
High Safety Attitude	76 – 95	58	13.4
Average Safety Attitude	57 – 75	313	72.3
Low Safety Attitude	19 - 56	62	14.3
TOTALS		433	100

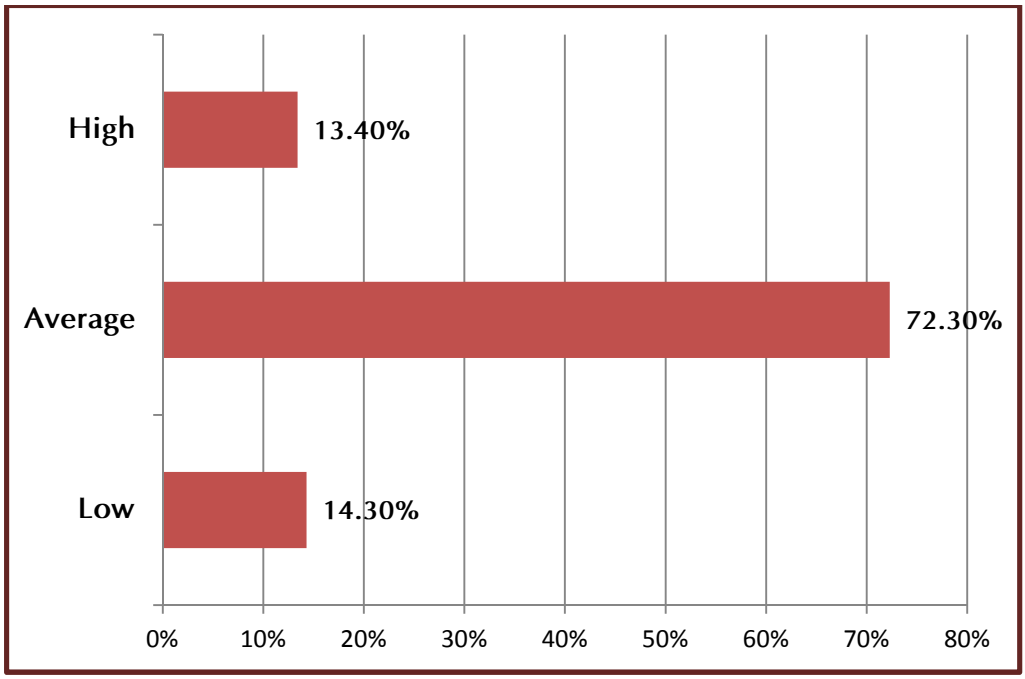

Figure 4.9: Graphical Representation of Safety Scores

4.7.1 CORRELATION – ENGAGEMENT & SAFETY

To understand and determine the relationship between engagement and safety, correlation analysis was undertaken for a two-tailed prediction, providing the results below:

Table 4.9: Correlation Analysis – Engagement and Safety

		Seafarer Engagement Score	Seafarer Safety Score
Seafarer Engagement Score	Pearson Correlation	1	.791**
	Sig. (2-tailed)		.000
	N	433	433
Seafarer Safety Score	Pearson Correlation	.791**	1
	Sig. (2-tailed)	.000	
	N	433	433

**. Correlation is significant at the 0.01 level (2-tailed).

The scatter plot of engagement versus safety obtained is shown in Fig. 4.10.

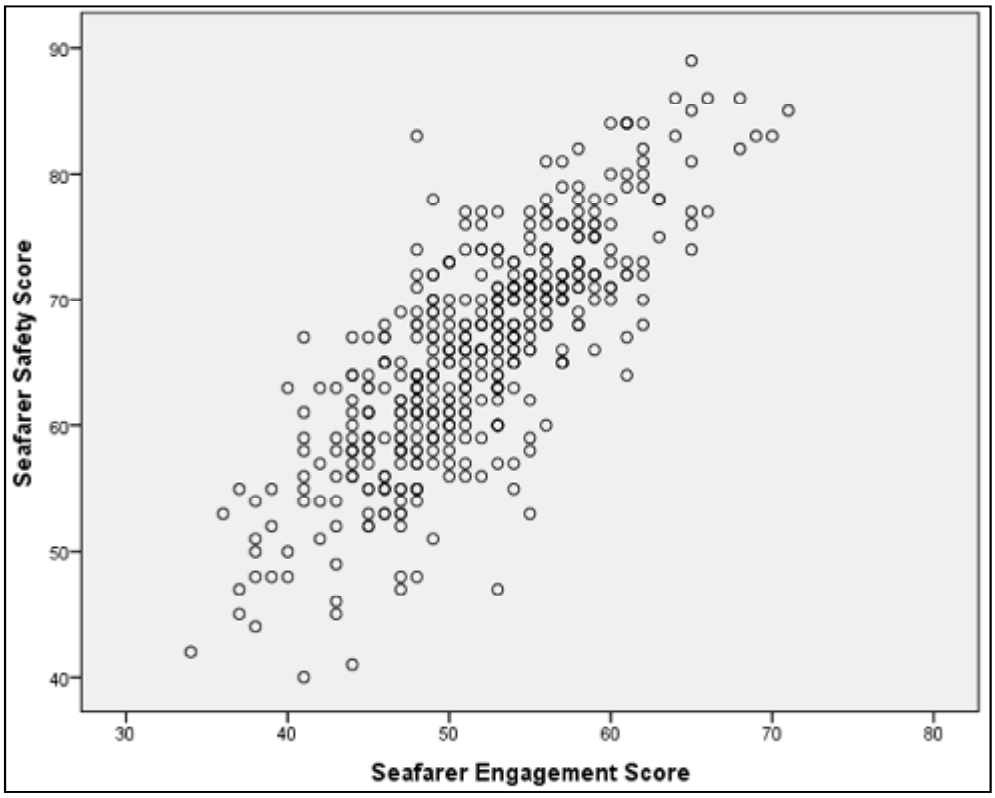

Figure 4.10: Scatter Diagram of Engagement and Safety scores

4.7.2 INTERPRETATION

The correlation analysis gives the result: $r = 0.791$, $N = 433$, $p < 0.01$. The Pearson Correlation is significant at the 0.01 level for a two-tailed prediction. The p value is shown to be 0.000. The correlation coefficient value of 0.791 indicates a large effect. The scatter diagram also shows the points falling very close to a straight line, indicating a high correlation. These results indicate that as engagement increases, safety also increases, indicating a high positive correlation between engagement and safety.

Based on the correlations above, the Null Hypothesis $H2_{0,}$ that there is no significant relationship between Engagement and Safety is ***rejected***. The Alternate Hypothesis $H2_1$ - There is a significant relationship correlation between Engagement and Safety – is ***accepted***, achieving the third objective.

4.8 ENGAGEMENT AND RETENTION: *Hypothesis No. 3*

The retention scores of all respondents were calculated using the methodology

specified in section 4.2. The distribution of retention scores was also normal, and the descriptive characteristics are shown in Table 4.10 below:

Table 4.10: Descriptive Statistics – Retention Score

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Seafarer Retention Score	433	50	30	80	55.45	.446	9.278	86.081
Valid N (listwise)	433							

The mean Retention Score was calculated as 55.45, with a standard deviation of 9.278, and standard error of 0.446. The 95% confidence limits for the retention score of the population mean lies between 54.6 and 56.3.

Respondents were categorized into High, Average, and Low on the basis of their retention scores. Scores of 68 and above were grouped into High, those between 51 and 67 as Average, and less than 51 as Low. As shown in the distribution in Table 4.11 below, 9.2% fell in the High category, 60.3% in the Average category, and 30.5% in the Low retention category.

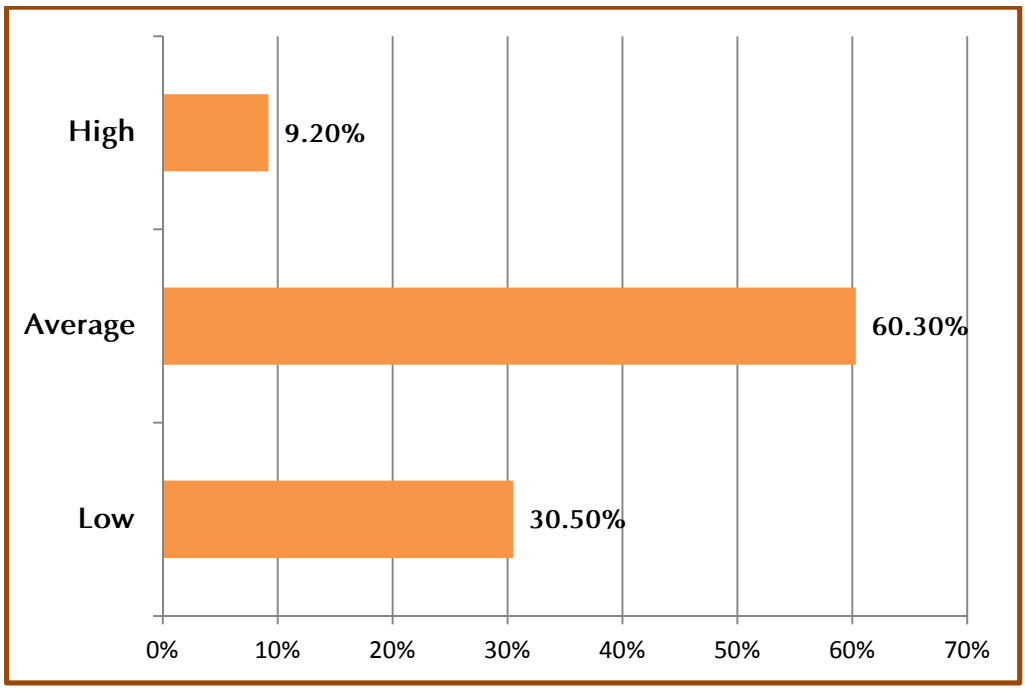

Figure 4.11: Graphical Representation of Retention Scores

Table 4.11: Categorical Distribution of Retention Scores

Category	Range	Number	Percentage
High Loyalty	68 - 85	40	9.2
Average Loyalty	51 - 67	261	60.3
Low Loyalty	17 - 50	132	30.5
TOTALS		433	100

4.8.1 CORRELATION – ENGAGEMENT & RETENTION

To determine the relationship between engagement and retention, correlation analysis was undertaken for a two-tailed prediction, giving the results below:

Table 4.12: Correlation Analysis – Engagement and Retention

		Seafarer Engagement Score	Seafarer Retention Score
Seafarer Engagement Score	Pearson Correlation	1	.811**
	Sig. (2-tailed)		.000
	N	433	433
Retention Score	Pearson Correlation	.811**	1
	Sig. (2-tailed)	.000	
	N	433	433

**. Correlation is significant at the 0.01 level (2-tailed).

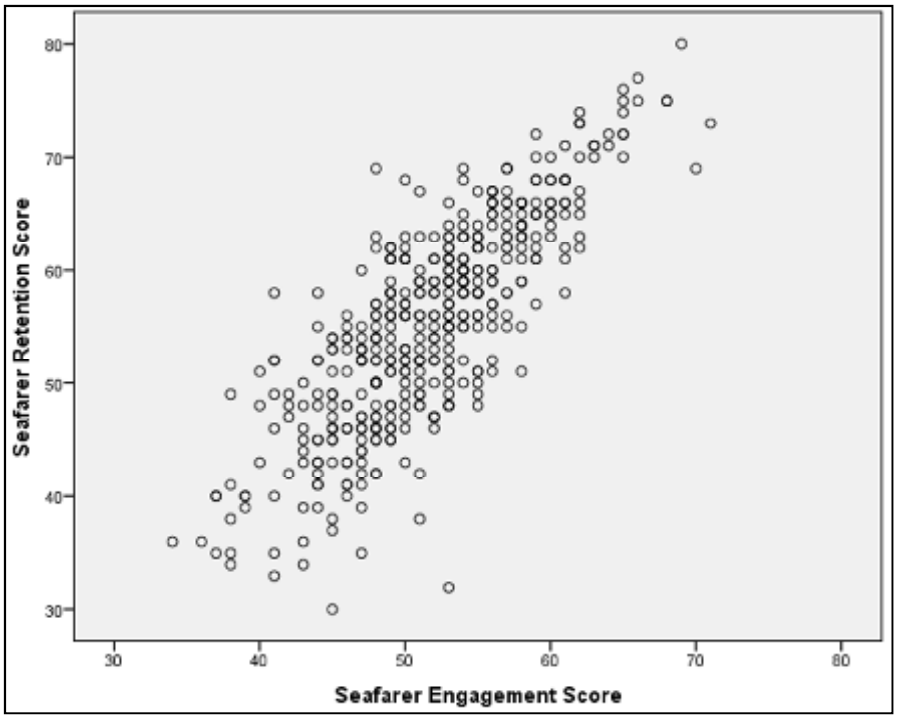

Figure 4.12: Scatter Diagram of Engagement and Retention scores

4.8.2 INTERPRETATION

The correlation analysis gives the result: $r = 0.811$, $N = 433$, $p < 0.01$. The Pearson Correlation is significant at the 0.01 level for a two-tailed prediction. The p value is shown to be 0.000. The correlation coefficient value of 0.811 indicates a large effect. The scatter diagram also shows the points falling very close to a straight line, indicating a high correlation. These results show that as engagement increases, retention also increases, indicating a high positive correlation between engagement and retention.

Based on the above, the Null Hypothesis $H3_{0,}$ that there is no significant relationship between Engagement and Retention is ***rejected***. The Alternate Hypothesis $H3_1$ - There is a significant relationship correlation between Engagement and Retention - is ***accepted***, achieving the fourth objective.

4.9 REGRESSION ANALYSIS

It has been determined in this chapter that engagement is highly correlated with seafarer performance, safety and retention. The final objective of the study is to determine if performance, safety and retention can be predicted using engagement levels of seafarers. In order to ascertain this, Regression Analysis is the best statistical tool available. The essence of Regression Analysis is that it allows a model to be fitted to the data which can be used for the prediction of the values of the dependent variable (or outcomes) from independent variables (or predictors) [287].

Multiple regression is undertaken when there are more than one independent variables, and one dependent. For the present study, engagement is the independent variable with the others being dependent; consequently Linear Regression has been used to predict the outcomes of engagement separately.

Linear correlation indicates the closeness of any relationship between two variables to a straight line [311]. The straight line that best describes this linear relationship is given by linear regression and this regression line can be obtained by drawing the line of best fit on the scatter plot. The regression line enables the prediction of the score on one variable on the basis of the value of

the other variable.

The regression line depicting the relationship between two variables X and Y can also expressed by the equation $Y = a + bX$. Here *'a'* and *'b'* are constants, whose values are respectively the intercept and slope of the regression line.

The value of R^2, known as the Coefficient of Determination, indicates the percentage of variation in the dependent variable caused by the independent variable, and is a measure of the amount of variability in one variable that is shared by the other [287].

The Model Summaries below provide the correlation coefficients which can be compared with the output from the Pearson correlation on the same data, calculated earlier.

Table 4.13: Model Summaries - Engagement vs. Performance, Safety, Retention

Model Summary - Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.786[a]	.617	.616	4.119

a. Predictors: (Constant), Seafarer Engagement Score

Model Summary - Safety

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.781[a]	.626	.625	5.350

a. Predictors: (Constant), Seafarer Engagement Score

Model Summary - Retention

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.811[a]	.657	.657	5.437

a. Predictors: (Constant), Seafarer Engagement Score

From the values of R^2 in the table above, it can be concluded that Engagement accounts for

- 61.7 percent of the variance in Performance scores
- 62.6 percent of the variance in Safety scores

- 65.7 percent of the variance in Retention scores

The adjusted R-squared adjusts for any bias in R square, taking into account the number of variables in the model, and is generally used to assess the fit. R^2 is sensitive to the number of variables and scores there are, and adjusted R^2 corrects for this [313]. The difference in the values of R^2 and adjusted R^2 indicates whether the solution fits well with the data. A significant difference between the two is an indicator of the regression equation being over-fitted, resulting in limited generalizability.

From the analysis, the Adjusted R Square values are:

- 61.6 percent of the variance in Performance scores
- 62.5 percent of the variance in Safety scores
- 65.7 percent of the variance in Retention scores

These values being very close, it can be concluded that there is minimal shrinkage based on this indicator; the models fit well with the regression line.

The Standard Error of the Estimate measures the variability of the multiple correlations and provides a measure of how dispersed the estimate of the dependent variable is around its mean. The smaller the value, the better is the fit of the data to the regression model and the consequent predictions. The standard errors obtained are:

- 4.119 in Performance scores
- 5.350 in Safety scores
- 5.437 in Retention scores

Thus the predicted score is likely to vary within plus or minus the standard estimate values, and in the study these errors are within acceptable limits.

The ANOVA tests the significance of the regression model, whether engagement does indeed explain a significant percentage of the variance in performance, safety and retention. In ANOVA the essential pieces of information needed are the *df*, the *F* value and the probability value, and are shown in the Table 4.14 below.

Table 4.14: ANOVA Analysis

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11793.100	1	11793.100	695.218	.000[b]
	Residual	7311.126	431	16.963		
	Total	19104.226	432			

a. Dependent Variable: Seafarer Performance Score

b. Predictors: (Constant), Seafarer Engagement Score

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20672.199	1	20672.199	722.228	.000[b]
	Residual	12336.434	431	28.623		
	Total	33008.633	432			

a. Dependent Variable: Seafarer Safety Score

b. Predictors: (Constant), Seafarer Engagement Score

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24447.810	1	24447.810	827.135	.000[b]
	Residual	12739.165	431	29.557		
	Total	37186.975	432			

a. Dependent Variable: Seafarer Retention Score

b. Predictors: (Constant), Seafarer Engagement Score

The ANOVA results are as follows (all requested variables entered in each of the three cases):

Performance: $F(1, 431) = 695.218$, $p = 0.000$

Safety: $F(1, 431) = 722.228$, $p = 0.000$

Retention: $F(1, 431) = 827.135$, $p = 0.000$

The *F*-ratios as stated above are all significant at $p < .001$, indicating a less than a 0.1% chance of *F*-ratios this large happening with a true null hypothesis. A significance of less than 0.01 indicates that the model is significant at 99%, while a significance of less than 0.05 makes the model

significant at 95%. From the significance calculated above, it is implied that the model of engagement being significantly correlated with performance, safety and retention can be accepted, and can conclude that the regressions obtained are statistically significant.

Table 4.15: Coefficients Table

Coefficients[a] - Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.126	1.634		8.034	.000
	Seafarer Engagement Score	.827	.031	.786	26.367	.000

a. Dependent Variable: Seafarer Performance Score

Coefficients[a] - Safety

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.234	2.122		4.351	.000
	Seafarer Engagement Score	1.095	.041	.791	26.874	.000

a. Dependent Variable: Seafarer Safety Score

Coefficients[a] - Retention

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-6.119	2.157		-2.837	.005
	Seafarer Engagement Score	1.191	.041	.811	28.760	.000

a. Dependent Variable: Seafarer Retention Score

The Coefficients output table above (4.15) gives the regression equations. The Unstandardized Coefficients B represents the values of the intercepts (Constant row) and the slopes of the regression lines (Seafarer Engagement Score row). The Standardized Beta Coefficient column indicates each individual variable's contribution to the model. From the coefficients tables it can be seen that Engagement contributes 0.786 to performance, 0.791 to

safety, and 0.811 to retention, which are the calculated Pearson's R values.

- In the case of Performance, the *t* value for Constant is 8.034, $p < 0.05$, and the *t* value for performance is 26.367, $p < 0.05$.
- In the case of Safety, the *t* value for Constant is 4.351, $p < 0.05$, and the *t* value for safety is 26.874, $p < 0.05$.
- In the case of Retention, the *t* value for Constant is -2.837, $p < 0.05$, and the *t* value for retention is 28.760, $p < 0.05$.

The above indicate that the intercept is significantly different from zero, and that the regressions are significant.

From the coefficients arrived at above, the regression equations for each of the three dependent variables can be stated as:

Performance Score	**=**	**13.126**	**+**	**0.827 Engagement Score**
Safety Score	**=**	**9.234**	**+**	**1.095 Engagement Score**
Retention Score	**=**	**-6.119**	**+**	**1.191 Engagement Score**

4.10 INDEPENDENT *t*-TESTS

The next objective requires the comparisons of means between groups to understand if these groups are statistically significantly different. One of the most popular parametric methods used for comparing two samples is the independent *t*-test [311]. However, it must be noted that the *t* test is simply a statistical technique, and indicates whether there is a difference in the performances of the two groups but not what caused the difference [ibid].

The *t* test has some underlying and the data must satisfy them in order to get meaningful results. These assumptions are:

- ☼ The samples are randomly and independently chosen from their populations
- ☼ The data collected must be interval or ratio, from continuous distributions and normally distributed populations, particularly for

large samples (over 30).

- There has to be homogeneity of variance between the two samples

The *t*-test firstly compares the differences between the means of both the samples, and secondly estimates the likely difference between means when the null hypothesis is true. If the difference in means is not bigger than the expected difference then the null hypothesis cannot be rejected.

If the difference in means is larger than the expected difference, it can be assessed whether it is large enough to reject the null hypothesis and claim that the experimental manipulation has a statistically significant effect.

The independent samples *t* test is undertaken when the samples are not related to each other and each sample has different respondents. It is also called the unrelated *t* test or the independent measures *t* test.

The *t*-test is usually used when the sample size is small (< 30), and for larger samples the *z*-test is used. However, for large samples, a *t*-test can also be used because as the sample gets larger, both the tests will tend to yield the same results [314]. Additionally, a *z*-test can be used where the population standard deviation or variance is known [ibid], while the *t*-test can be used to test hypotheses when the population standard deviation is unknown.

As regards testing if the difference between means is significant, this is checked using Levene's Test. Levene's Test tests whether the variances in both groups are equal, and is similar to the *t*-test [287]. If Levene's test produces significant results with $p \leq .05$, the null hypothesis can be rejected, concluding that there are significant differences in the variances. If, however, Levene's test gives non-significant results, with $p > .05$, it can be assumed that the variances of the two groups are roughly similar [ibid].

On the basis of the above discussion, it was decided to undertake a *t*-test instead of a *z*-test, and run Levene's test to compare the means.

4.11 ENGAGEMENT AND RANK

Research has found engagement to be strongly correlated with the employee's

role/level in the organization; people in positions of power and authority are more likely to be engaged [19]. In order to determine if this was true in shipping, a comparison of engagement levels of Senior and Junior Officers was undertaken. The summary of their engagement levels are shown in Table 4.16 below.

Table 4.16: Summary of Engagement levels of Senior vs. Junior Officers

Category	No. of Junior Officers	%age	No. of Senior Officers	%age
Engaged	32	9.7	14	13.7
Partially Engaged	250	76.0	84	82.4
Disengaged	47	14.3	4	3.9
Totals	329	100	102	100

The frequency distributions for engagement levels of both categories are normal, as shown below. Skewness and Kurtosis for both the distributions are within acceptable limits, allowing the use of the independent *t*-tests.

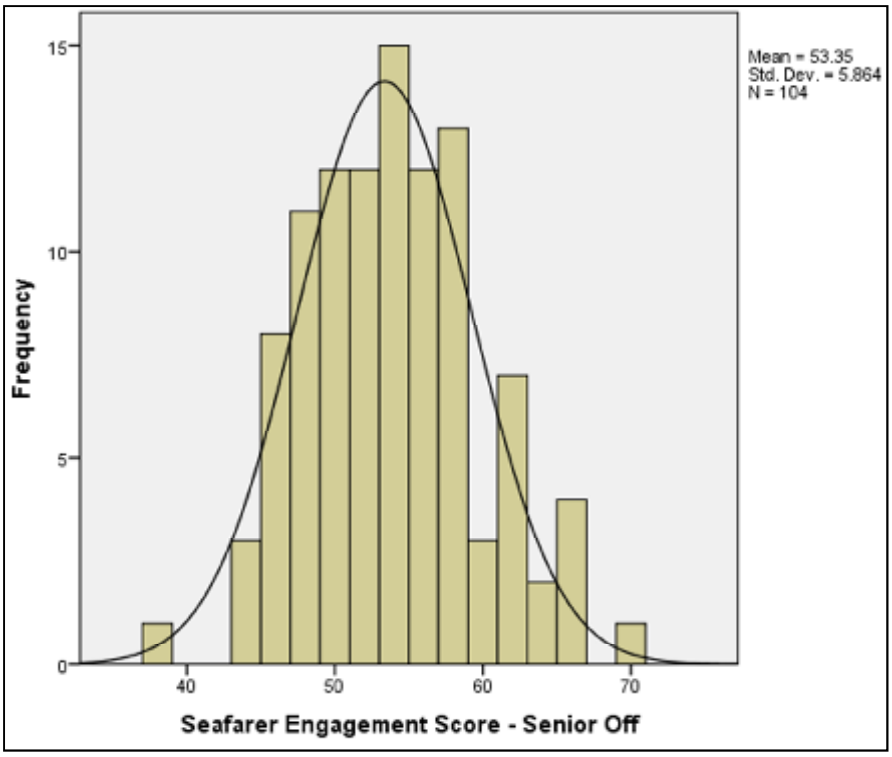

Figure 4.13: Distribution of Engagement Scores of Senior Officers

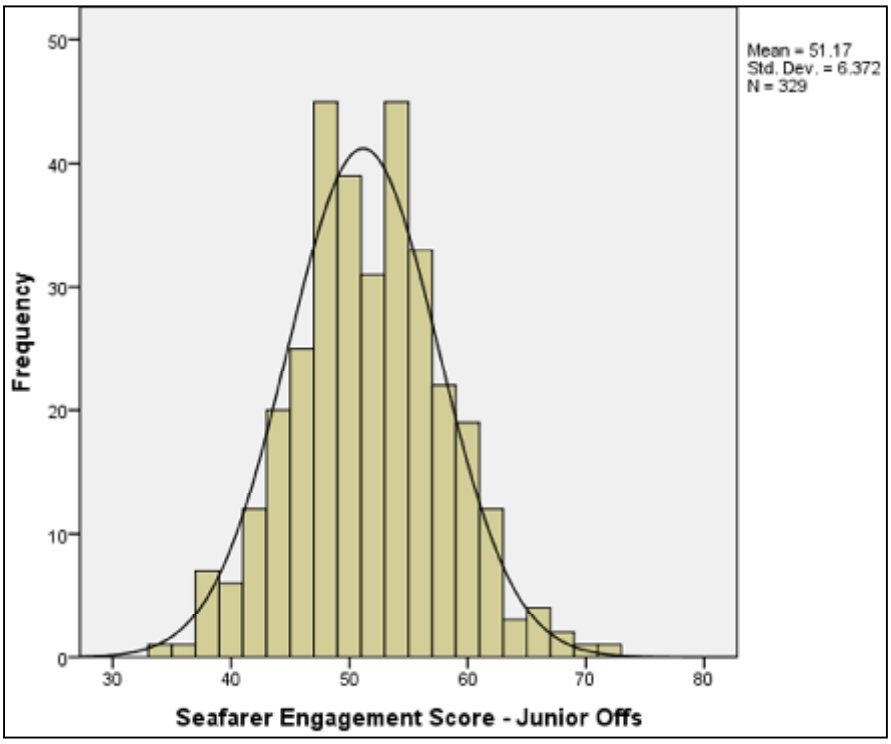

Figure 4.14: Distribution of Engagement Scores of Junior Officers

Table 4.17: Descriptive Statistics of Engagement Scores – Senior vs. Junior

		Seafarer Engagement Score	
		Seniors	Juniors
N	Valid	104	329
	Missing	0	0
Mean		53.35	51.17
Std. Error of Mean		.575	.351
Std. Deviation		5.864	6.372
Variance		34.384	40.603
Skewness		.268	.115
Std. Error of Skewness		.237	.134
Kurtosis		-.030	.042
Std. Error of Kurtosis		.469	.268
Coefficient of Skewness		1.131	.858
Coefficient of Kurtosis		-.064	.157
Range		32	37
Minimum		38	34
Maximum		70	71

In order to determine if the two groups of officers – senior and junior - are statistically different from each other, the **independent *t*-test** was used, which compares the two means. The descriptive statistics are shown in Tab 4.18:

Table 4.18: Group Statistics – Engagement of Senior vs. Junior Officers

Rank		N	Mean	Std. Deviation	Std. Error Mean
Seafarer Engagement Score	Senior Officers	102	53.35	5.864	.575
	Junior Officers	329	51.17	6.372	.351

Senior officers (N=102) had a mean engagement level of 53.4, with a standard deviation of 5.864 and standard error of 0.575. The 95% confidence limits for the safety score of the population mean lies between 52.2 and 54.5.

Junior officers (N=329) had a mean engagement level of 51.2, with a standard deviation of 6.372 and standard error of 0.351. The 95% confidence limits for the safety score of the population mean lies between 50.5 and 51.9.

The descriptive statistics indicate that there is a difference between the engagement levels of the two groups, senior officers showing a higher engagement level as compared to junior officers. The percentages of engaged and disengaged groups among seniors' also shows significant differences compared with juniors. The standard deviations indicate that the spread of scores for senior officers is smaller than that of juniors.

To ascertain if the difference in mean engagement levels is significant or due to chance, the Independent Samples Test was used. The results of the Levene's test and independent *t*-test are displayed in Table 4.19 below.

Table 4.19: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Engagement Score	Equal variances assumed	.981	.322	3.220	429	.001	2.284	.709	.890	3.678
	Equal variances not assumed			3.362	180.818	.001	2.284	.679	.944	3.624

Based on the discussion in section 4.10, in this case, Levene's test is insignificant as $p = 0.322$, indicating the variances are approximately equal. In case of equal variances, the Equal variances assumed column is used.

The independent t-test results calculate the *t*-statistic as 3.220, and the significance or two tailed value of p is 0.001 (< 0.05). Since the p-value is less than alpha it can be concluded that there is a significant difference between the means of the two samples. In other words, senior officers are more engaged than junior officers.

Whether the effect is substantial or not can be determined by converting the *t*-statistics into a value of *r,* using the values of *t* and *df in* the formula:

$$r = \frac{\sqrt{t^2}}{\sqrt{t^2 + df}}$$

The correlation coefficient is calculated as 0.154, which indicates a small sized effect, explaining about 2% of the variance.

On average, Senior Officers had higher engagement levels (M = 53.4, SE = 0.575) than Junior Officers (M = 51.2, SE = 0.351). This difference was statistically significant t (429) = 3.220, $p < 0.05$. It also represented a small sized effect r = 0.154. It can thus be concluded that there are significant differences amongst engagement levels of Senior and Junior Officers.

4.12 ENGAGEMENT AND TENURE

Recent studies have also demonstrated that engagement is strongly correlated with tenure in the organization; long term employees are more likely to be engaged [19]. In order to determine if this is valid in the maritime industry, a correlation analysis was undertaken to identify the relationship between tenure and engagement, if any. For the purpose of defining tenure, a minimum service period of 5 years with the current employer was considered as the cutoff. This resulted in a sample size of 99 officers who met the above criterion, 41 senior officers and 58 junior officers. The descriptive statistics of the sample and frequency distribution are shown below.

Table 4.20: Descriptive Statistics – Engagement for Tenure ≥ 5 years

		Seafarer Engagement Score
N	Valid	99
	Missing	0
Mean		53.29
Std. Error of Mean		.584
Std. Deviation		5.807
Variance		33.719
Skewness		-.156
Std. Error of Skewness		.243
Kurtosis		-.401
Std. Error of Kurtosis		.481
Coefficient of Skewness		-.642
Coefficient of Kurtosis		-.834
Range		27
Minimum		38
Maximum		65

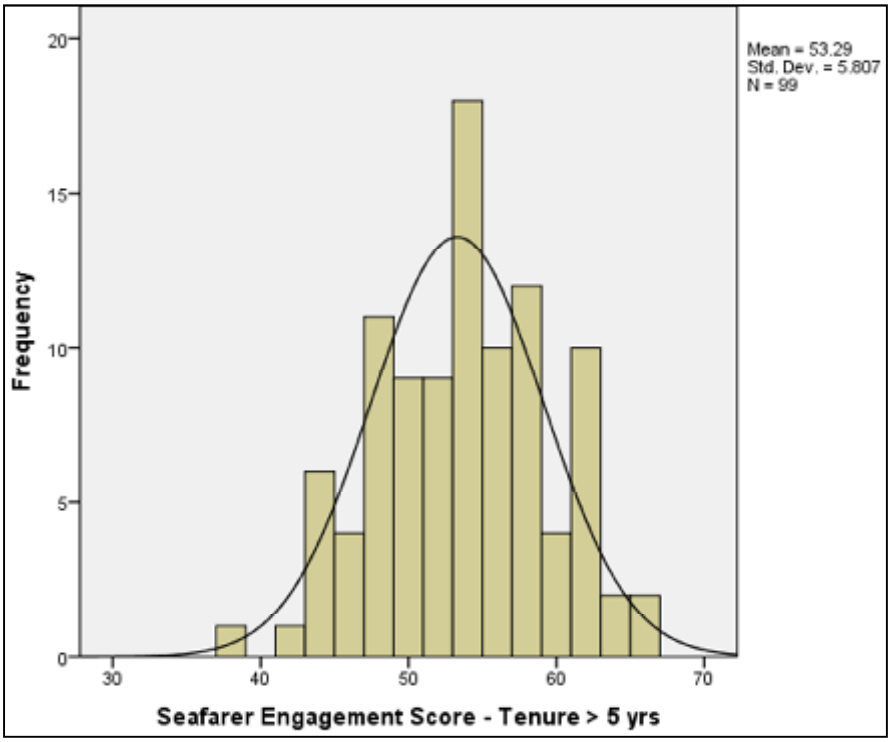

Figure 4.15: Engagement Score for Tenure ≥ 5 years

The data is normally distributed with skewness and kurtosis within acceptable limits, allowing correlation analysis to proceed for a two-tailed prediction. The results are as shown in table 4.21 below:

Table 4.21: Correlation of Engagement with Tenure

		Seafarer Engagement Score	Tenure
Seafarer Engagement Score	Pearson Correlation	1	.189
	Sig. (2-tailed)		.061
	N	99	99
Tenure	Pearson Correlation	.189	1
	Sig. (2-tailed)	.061	
	N	99	99

The correlation analysis gives the result: $r = 0.189$, $N = 99$, $p > 0.05$. Since the p-value associated with the t-test is not small ($p > 0.05$), we fail to reject the null hypothesis that there is no significant relationship between engagement and tenure. It can therefore be concluded that the engagement of officers is not related to their tenure.

4.13 FINDINGS

The findings of the study can be summarized as follows:

Finding No. 1:

The Engagement, Performance, Safety and Retention scores for all respondents was calculated, using the methodology specified in section 4.2. The resulting data was found to be normally distributed, with skewness and kurtosis within acceptable levels, allowing statistical tools to be used for further analysis.

Finding No. 2:

The average Engagement Level of Indian Merchant Naval Officers was found to be 51.7, with a Standard Deviation of 6.4. The population mean of the engagement score, at 95% confidence limits, lies between 51.1 and 52.3, with the engagement scores ranging from 34 to 71. From the scores obtained, 10.6% officers can be considered to be "Engaged", and 77.6% are "Partially

Finding No. 3:

The mean Performance Score of Officers was found to be 55.9, with a standard deviation of 6.7. The minimum performance score was 38, while the maximum was 74, the population mean score lying between 55.3 and 56.5, at 95% confidence limits. High performers constituted 5.6% of the sample. The performance of 72.0% was average, with that of 22.4% being low.

Engagement of officers was found to be highly correlated with the performance of seafarers, with a correlation coefficient of 0.786 indicating a large effect. The coefficient of determination implied that 61.7% of the variance in performance can be attributed to engagement. Thus an increase in engagement levels would lead to a corresponding enhancement of performance.

Finding No. 4:

The average Safety score obtained was 65.9, with a standard deviation of 8.7. Safety scores of respondents ranged from 40 to 89. The 95% confidence limits for the mean safety score of the population is expected to lie between 65.0 and 66.7. Officers with a high safety score were 13.4% of the sample, 72.3% were average and 14.3% had a low safety score.

Engagement was also found to be highly correlated with safety of officers; the coefficient of correlation obtained being 0.791 corresponding to a large effect size. The coefficient of determination implied that 62.6% of the variance in safety can be explained by the engagement variable. It can be concluded that increasing engagement will also improve safety of seafarers.

Finding No. 5:

The mean Retention score achieved was 55.5, with a standard deviation of 9.3. The minimum retention score was 30, while the maximum was 80. The 95% confidence limits for the mean retention score is expected to lie between 54.6 and 56.3. Officers who scored high on retention formed 9.2% of the sample, 60.3% scored average, while 30.5% had low retention scores.

Engagement and retention were also found to be highly and positively correlated, with a correlation coefficient of 0.811. The coefficient of determination indicated that 65.7% of the variance in retention can be explained by engagement, leading to the conclusion that an increase in engagement would also decrease turnover of officers.

Finding No. 6:

In order to use Engagement as a predictor of Performance, Safety and Retention, Regression analysis provided the coefficients to give the following the regression equations for each of the three dependant variables:

Performance Score	=	13.126	+	0.827 Engagement Score
Safety Score	=	9.234	+	1.095 Engagement Score
Retention Score	=	-6.119	+	1.191 Engagement Score

Finding No. 7:

There was a significant difference found in the engagement levels of senior officers versus junior officers. The percentages of the engaged senior officers were also higher than juniors, and the number of disengaged were significantly lower. The independent *t*-test indicated significant differences between senior and junior officers. The correlation, however, between engagement and rank was not very strong as indicated by the correlation coefficient of 0.154, indicating a small effect.

Finding No. 8:

Contrary to findings from engagement literature, the relationship between engagement and tenure of officers was not found to be statistically significant, leading to the conclusion that longer service with a shipping company did not result in higher engagement levels.

4.14 CONCLUDING REMARKS

This chapter presents the analysis of the data collected. It details the sequential process of calculating the scores of individual variable, testing the data for normality, carrying out correlation analysis, and finally regression analysis. Through this process, the stated hypotheses have been tested and research objectives achieved. The analysis findings have been presented in a summarized form.

The conclusions and recommendations arising out of the above analysis are discussed in the next chapter.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

The pessimist complains about the wind; the optimist expects it to change; the realist adjusts the sails - William Arthur Ward

5.1 INTRODUCTION

The current study examined the impact of employee engagement in the maritime industry through a validated questionnaire. For the purpose of study, a reliable and valid questionnaire for measuring engagement was developed and validated using focus group interaction, pilot testing and factor analysis before being group administered to the sample. The factor analysis also assisted in understanding the factors underlying engagement in the maritime industry. The review of literature revealed inadequacies in the quantity of research linking employee engagement with other critical outcome variables such as performance, safety and retention in the maritime industry. The current study addresses this research gap resulting in outcomes that can be used by shipping companies to enhance engagement.

The final chapter of this research work summarizes the study. It analyzes the results obtained and explains how and why these results are relevant to industries in general and the maritime industry in particular, in the context of existing research literature. Based on the results of the data analysis, suggestions and recommendations are put forward for the enhancement of engagement of officers, thereby allowing shipping companies to benefit from improved performance, safety and retention levels. The chapter ends with outlining the limitations of the study and directions for future research.

5.2 ENGAGEMENT IN THE MARITIME INDUSTRY

The primary objective of the study was to measure engagement of Indian

Naval officers, using a structured questionnaire. The analysis of data reveals that the majority of officers are not fully engaged. About 11% of officers can be considered to be engaged in the context of the present study, with three quarters being partially engaged and 12% disengaged.

The study finds engagement to be low in the shipping industry, apart from low levels of performance, safety and retention. The positive and significant relationship between engagement, performance, safety and retention has also been established, leading to the conclusion that enhancing engagement will have a corresponding increase in the other three variables.

In order to enhance engagement of officers, it is essential to establish its drivers and barriers in the maritime industry. The drivers of engagement identified from literature review and those extracted through factor analysis do not show any dramatic differences. This indicates that the survey has the potential of being used to measure engagement across shipping companies. However, further study is required to confirm its generalizability.

The following section summarizes the drivers identified through factor analysis, responses to the questionnaire (App. 2) and their relevance in relation with existing literature on engagement.

Organizational Support: The strongest driver identified that was predictive of engagement was the perceived organizational support (POS) from the shipping company which recognized the work of the seafarer and valued his contribution, thereby providing him with a feeling of worth. Engagement literature states that the feeling of being involved and valued was a key enabler of employee engagement, demonstrated through the concern for employees by the organization [18].

In the maritime context, this driver has elements such as recognition of work, feedback & guidance, opinions being valued, and the seafarer himself being valued. The outcomes are expected to be pride in the company, and its advocacy as a great place to work.

The survey responses revealed the following:

- 50.5% agreed that good work was recognized by the company
- 44.8% were satisfied with the feedback and guidance they received
- 31.1% considered their opinions being valued
- 42.3% felt valued by the company
- 53.3% were proud to be a part of their organization, and
- 57.7% would recommend their company to others.

The responses above indicate that even though less than half the officers felt positively about the supportive culture of the company, slightly more than half felt pride and would advocate their company. The relationship between 'being valued' and engagement would thus not appear to be as linear in the shipping industry as described in literature. There may be other elements that could contribute to pride and advocacy, requiring further research to identify these.

POS has, however, attracted more attention in HR and OB literature, as the perceptions of employees of the organizational support received by them has been found to have significant influences on the extent of employee reciprocation towards the employer. Stemming from organizational support theory [315], it is the appraisal employees make of the extent their employer values their contribution, and shows concern for their well-being [316]. Based on this appraisal, they not only determine how their socio-emotional needs will be met at work, but also the disposition of the employer towards rewards for additional efforts [317]. It has been argued that favourable work experiences strengthen POS, as well as the belief that the decisions making these favourable experiences have been voluntary and discretionary, and not a consequence of regulatory compliance [315, 316, 318].

This is also borne out by the 'reciprocity' of the social exchange theory, through which employees respond with extra effort and dedication in exchange for tangible incentives such as pay, as well as for socio-emotional benefits, such as esteem, approval and caring [319]. Thus higher levels of POS would generate employee concern for greater organizational success [316], and result in higher engagement levels.

In the maritime context, POS holds special relevance, as most of the decisions to make the workplace safer and enjoyable have come as a result of regulatory pressures, be it from the IMO (Port State Control, ISM, MLC), trade unions (bargaining agreements), or even customers (vetting). Thus any voluntary decisions taken by shipowners for the benefit of seafarers will go a long way in enhancing organizational support, and demonstrate to employees their genuine concern for seafarer well-being.

Work & Co-Workers: Among the many factors that influence engagement, the nature of the work, and utilization of potential have a significant role to play [96], and Kahn also considered 'psychological meaningfulness' to be caused by the nature and challenge of the work [1]. Along with the work, engagement levels are also affected through teamwork and close friendships at work [159, 160]. Thus the work environment should be able to provide enjoyable work, and a sense of teamwork that allow workers to safely express themselves, leading to higher engagement levels.

The shipping industry fares favourably in these aspects, with the survey finding

- 64.4% finding their work enjoyable
- 71.3% consider their potential being utilized
- 46.9% developed close relationships at work

The above show that even though the majority is favourably disposed towards the nature of their work, utilization of potential, and good interpersonal relations on board, this still does not translate into correspondingly higher engagement levels. This could indicate that engagement is more with the 'work' than with the 'organization', as suggested by [72], and will be explored further later in this chapter.

The majority of seafarers enjoy their work, feel their abilities are used fully and have excellent relations with other crew on board, resulting in the right environment for promotion of engagement. As regards the low formation of close friendships at work, this could be attributed to the transient nature of

shipboard employment, where seafarers work and interact together for short and variable periods of time; conditions that may not favour the development of close ties.

The strongest appeal of a seafaring career has been "the pride in the vessel, the job and the comradeship which accompanies this pride" [34]. A career at sea provides responsibility at an early age in a truly international industry, has independence and freedom of the working environment, and provides total job interest, whether deck, engine or catering [ibid]. This is one aspect of a maritime career that can be used to advantage by the industry to increase engagement and position itself as a career of choice.

Work Environment: Engagement is also influenced by the feeling of worth that is derived by employees from the tasks assigned to them as well as by the teamwork that allows objectives to be realized. The perceived role of employees in the organization, cooperative co-workers, and the resulting effective teamwork are all essential in ensuring engaged employees. The shipping industry fares very well in this regard with

- 89.1% agreeing that they had good relations with other crew, and
- 84.5% felt that their work was important for organizational outcomes

Workplace relationships have been found to impact meaningfulness [77], and it also satisfies the relatedness needs of individuals who derive greater meaning from their work through rewarding interpersonal relations [320]. Interpersonal work relationships and teams built on mutual support, openness, and trust promote employee engagement and an environment in which workers feel safe to use their abilities to the full without fear of reprisals [1].

Career Advancement: On a global level, career advancement opportunities have been found to be the second most important driver of engagement worldwide [321]. All employees wish to advance in their careers and they should perceive a fair system that allows them to do so.

On the issue of career advancement, nearly three quarters of officers (72.3%) agreed that they could advance in their jobs based on merit and performance.

However, this does not seem to rank as high a driver as found in studies undertaken ashore. This should be seen in the light of two facts. Firstly, promotions at sea are essentially based on acquiring certificates of competencies for the necessary ranks, and one automatically becomes entitled to promotions once these are required, albeit up to a certain rank. The second fact refers to the shortage of officers being experienced, where the possession of a certificate of competency can be considered grounds enough for promotions. Thus the issue of promotions may not weigh very heavily on seafarers, as this may be considered assured as long as the shortage persists.

Career advancement opportunities are however good for retention [321] and provides shipping companies with the opportunity to demonstrate their trustworthiness by fostering employee career development.

Financial Rewards: Pay and benefits have been found to be the top driver of engagement globally across all age groups [128]. The amount of compensation an employee receives is considered by many as a measure of the importance of their work and their contribution, and mismatches may arise when financial rewards are considered insufficient leading to burnout [74].

In the case of seafarers, pay did not rank as high a driver with 44.1% expressing satisfaction with their salaries. This conforms to a confirmatory view found in literature which argues that pay in itself was not enough to build engagement [141, 155]. On the issue of benefits, less than a third of officers (30.8%) expressed satisfaction with the benefits they received.

Research has found that money may not be the only or even the primary motivator for everyone, although there is overwhelming evidence that money is an important motivator for most people [322]. However, it has also been unequivocally shown that “dissatisfaction with pay can have important and undesirable impacts on numerous employee outcomes” [220].

A larger amount of literature also attests to the critical importance of employee benefits to HR outcomes, such as organizational citizenship behavior, job satisfaction, and retention [323]. Satisfaction with benefits has been found to be a predictor of employee turnover [324], and job satisfaction has been found

to be an outcome of satisfaction with employee benefits [325].

The strategic importance of benefits needs to be emphasized, as research clearly finds employee benefits to be related to important HR outcomes, increase individual performance, as well as provide a competitive advantage to organizations [323]. Providing adequate and meaningful benefits is perceived by the employee as the employer's genuine concern of employee well-being [ibid].

Absence of benefits may be construed as a lack of concern for employee well-being, acting as a barrier to engagement, as well as to performance and retention.

Work Autonomy: Functional autonomy is an important driver of engagement as it gives freedom at work allowing for creativity and initiative [321, 326]. Autonomy empowers employees, who interpret this as the organization's trust in employee capabilities, through involvement in problem-solving and decision-making [327], and has been found to be positively related to job satisfaction [328].

Less than one third (30.5%) of officers considered that they could work on board without interference from the shipping company. Although not very high on the list of drivers, the lack of autonomy is revealed as one of the barriers to the engagement of seafarers.

Autonomy has many potential benefits, as it has been considered a job resource that can mitigate the adverse effects of job demands [329]. Work autonomy also assists in the reduction of strain at work by providing employees with the freedom to decide how to meet job demands [330]. It has been found negatively correlated with stress [331], and positively related to safety communication and commitment [332].

Job Demands: Excessive job demands have been shown to create burnout, the antithesis of engagement [82]. Excessive job demands cause exhaustion of employees' mental and physical resources, increasing burnout and hindering engagement [329].

On the issue of work load and commercial pressures,

- 17.1% officers agreed to their workload not being excessive, and
- 47.1% considered themselves to be under pressure from the company to finish jobs on time

The above findings confirm that engagement is linked to the quantum of demands made on seafarers. Excessive work load also leads to fatigue which has a detrimental impact on performance as well as safety [329], and affects decision making abilities.

Workloads have been considered a barrier to engagement [96], and job demands require employees to put in sustained physical and psychological effort, leading to significant physiological and psychological costs [81, 89]. The presence of job demands has significant relationships with burnout, absenteeism, decreased performance and engagement [82, 329]. High-risk workplaces have their own set of job demands, such as exposure to hazardous materials, cognitively challenging work, or physically demanding work, and these also have the probability of producing different employee outcomes such as workplace accidents, injuries, and fatalities. Working conditions have also been categorized as job demands, such as noise and materials, the existence of risks and hazards, physical demands and complexity of the work, and the conditions in which work is performed [81, 82].

The shipping industry is essentially a high risk workplace owing to its environment. This in itself brings in additional high job demands caused by the complexity of the work, the physical demands on seafarers, as well as mental demands. In today's age where ships are being managed by minimum crews, job demands hold special relevance as it not only impacts engagement, but performance and more importantly the safety of seafarers.

5.3 ENGAGEMENT – PERFORMANCE RELATIONSHIP

The analyses of the previous chapter show that engagement has positive and significant relationships with the performance of Indian Merchant Naval Officers. Engagement was found to explain 61.7% of the variability in

performance, the balance contributed by other causes. There is no shrinkage as indicated by the coefficient of determination, thereby attesting that the data fits the proposed regression model.

The results can be interpreted to indicate that increasing engagement will lead to higher performance levels of officers. The categorical distribution of both engagement and performance however were significantly different for the high and low categories. As opposed to about 11% highly engaged, the high performers were only about 6%, while 12% of the disengaged corresponded to nearly 22% of the low performers. The middle group was similar with approximately equal percentages on both scores. This could indicate that increasing engagement may not directly result in an increase in performance in the same ratio, confirming that the relationship between engagement and performance is more linear than exponential, indicating that higher engagement may not equal higher performance in the same proportion [131]. Additionally, there could be other factors that can contribute towards higher performance levels. However, the comparatively larger percentage of low performers (22.4%) can be a cause of concern for ship owners.

Individual engagement is a complex phenomenon that cannot be directly used to explain changes in performance; engagement surveys merely uncover the symptoms of performance rather than its drivers [ibid]. However, the strength of the relationship indicates that high engagement is significantly related to higher performance levels.

Factor analysis also identified the underlying structure of performance in the shipping industry, and isolated eight factors contributing to seafarer performance. These were 1) committed organization, 2) training & development, 3) pay and benefits, 4) work and safety resources, 5) work initiative, 6) work environment, 7) regulatory compliance, and 8) job security.

The results indicated that seafarers felt positively about training received by them, work on board and interpersonal relations, and career advancement opportunities. On the working environment, the barriers to performance were found to be insufficient recognition of good work, improper feedback and guidance, absence of sufficient work autonomy, the lack of a no blame culture,

and the loss of challenging work due to predefined operating procedures. Job demands were also reported as high, with workloads not found acceptable, along with inadequate rest. From an employment perspective, nearly half were satisfied with salaries, one third with their benefits and treatment, while two thirds preferred the security of a permanent job.

Seafarers have the potential of contributing more, as it was found that 73.9% officers agreed that they could perform their jobs more efficiently, and 73.4% could contribute more by reducing wastage at work. However, more than half (51.1%) stated that they would follow orders even if a better way of doing the job was available. This points to the conclusion that there are environmental factors that do not allow the true potential of officers to be realized, and conditions must be righted for shipping companies to benefit. In order for shipping companies to have standard or even elevated levels of performance, the barriers identified must be addressed so that seafarers can be engaged resulting in higher performance levels.

5.4 ENGAGEMENT – SAFETY RELATIONSHIP

Engagement has a significant and positive relationship with safety, with 62.6% of the variation in the safety score explained by engagement, the rest caused by other factors. The same is demonstrated through the similarities with engagement groups, with 13.4% scoring high on safety, 72.3% in the average group, and the low category with 14.3% respondents.

The review of literature has shown evidence that engagement results in better safety of employees and this is borne out in the shipping industry as well. Recent research has found that engagement motivates employees and is positively related to working safely [329]. Kahn also defined engagement as being physically present and involved in the job [1]. Engaged officers are expected to be focused on the job and aware of the safety hazards likely to exist, allowing them to work in ways to avoid any safety incident.

The underlying structure of safety was analyzed using factor analysis, which determined seven factors contributing to safety attitudes of officers. These

were 1) safety support, 2) organizational support, 3) resource availability, 4) safety climate, 5) job demands, 6) 'just' culture, and 7) safety compliance.

Respondents were satisfied with the level of support on safety perceived by them in terms of safety training, participation in safety, conforming to safety procedures, and shipboard management's commitment to safety. They were also favourably disposed to the safety climate on board which encouraged them to report near misses, ask for assistance when required, safety consciousness of co-workers, and the availability of personal protective equipment.

The feedback on perceived organizational support is however not positive as nearly half the officers did not find their company valuing them or demonstrating genuine concern for their well being. About half those surveyed expressed satisfaction with the available of work resources, but only a quarter found their employers preferring quality over costs. Job demands were again an area of concern with more than half reporting inadequate rest and high workloads. Job demands were also heightened by the absence of a no-blame culture, with only 18% attesting to such a culture in their organizations.

It can thus be seen that although the environment on board does promote safety, there are essentially many more barriers that need to be addressed in order to have an effective safety culture. With only 40% officers agreeing to never having taken short cuts on safety to finish jobs faster, this effectiveness of the safety culture on ships is brought to question.

It can be argued that many of the working conditions that contribute to engagement will also enable seafarers to manage the risks inherent in their jobs. Increasing engagement levels has the probability of improving safety on board, allowing ship owners to benefit from the savings associated with fewer accidents and injuries.

5.5 ENGAGEMENT – RETENTION RELATIONSHIP

Correlation analysis determined that engagement had a significant positive relationship with seafarer retention. The coefficient of determination indicated

that engagement explained 65.7% of the variation in retention scores, and the regression model fits well with the data.

As far as the categorization into high, average and low is concerned, the relationship between engagement and retention appears to be linear, 10.6% of the engaged officers comparing with 9.2% scoring high on retention. The remaining categories however show a different picture with the middle group containing 60.3% and the low retention group consisting of 30.5% respondents.

This discrepancy can be understood in light of the literature review, where it has been noted that even though engagement has an impact on retention, the linkage is not straightforward; engagement in itself cannot assure retention [105, 128]. Even though the engaged employees may be less prone to shifting employment, nearly 40% are passive job seekers, always open to external offers [ibid], and the same would appear to be applicable to Indian officers. Internationally more high performers are planning to quit, and even with rises in engagement level only a third of employees plan to continue with their current employers [14, 19].

The low retention scores obtained can be better understood by analyzing the six factors arrived at through factor analysis, namely, 1) shipboard life, 2) organizational support, 3) recognition of merit, 4) remuneration, 5) just culture, and 6) job security.

The first factor refers to the quality of work/life, represented by the demarcation between ‘work’ and ‘off work’ activities, allowing seafarers to balance their work, rest and family lives. The responses indicate that a majority of officers are dissatisfied with the quality of life, recreational and communication facilities, and shore leave arrangements.

Work/life balance has attracted considerable concern as imbalances in work life have been linked to health related issues, declining productivity and competency levels, and monotony at work [334]. A recent survey results show that fifty-eight percent of employees cite the flexibility to balance work/life issues as a very important aspect of job satisfaction [335], and work/life

balance was ranked the third out of the top 10 attraction drivers for the last two years [336].

In the case of seafarers, the traditional boundaries between work and life are blurred, as they are always ‘on call’, 24 hours a day, seven days a week. This alters expectations about appropriate work hours, and heightens work demands, detracting from time usually reserved for non-work activities [337]. Seafarers have to spend months away from their families, and even though this gap cannot be bridged, reasonable efforts can be made by ship owners to offer them a better quality of life on board, so that there can be a semblance of balance at least between work and shipboard life.

Perceived organizational support and feelings of value are also low as evidenced by a lack of fair treatment and grievance redressal, and timely relief arrangements.

The absence of job security and a no-blame culture also appear to be major barriers and merits additional attention. Job security is not only an important driver of employee engagement, but also a factor of motivation that drives retention [338], and lack of employment security can lead to demotivation [339]. Employees need to be able to see their future with the organization and in the absence of a foreseeable future, engagement cannot result. In a recent survey, more than three quarters of employers stated that their permanent staff was more loyal; only 2.1% favoured non-permanent staff [340].

The majority of employment in the shipping industry is contractual in nature with officers signing contracts varying between 3 to nine months on an average. Two thirds of the officers (66%) surveyed declared their preference for permanent employment over contractual terms.

Job security has been found to be an important job resource [82] and leads to engagement, while job insecurity is one of the factors that block well-being and limit potential engagement levels [341]. Job insecurity is an established stressor and builds feelings of insecurity about the future in employees, and is positively associated with burnout [342].

Satisfaction is viewed differently by individuals, with some being satisfied

with attractive remuneration, while others desire job security [ibid]. In the current trend of contract work seafarers may not be motivated to do their best, as the future with the organization remains uncertain, and there is a lack of reciprocity perceived between effort and reward.

Officers however find themselves involved in work related decision making, good career opportunities, and capable of advancing based on merit and performance. Many of the above can be considered to be barriers to retention, and removing them has the potential of increasing engagement as well as retention.

It has also been cautioned that enhancing engagement does have the possibility of increasing employee turnover. The training and development emphasized by engagement results in the increase of employee skills and capabilities, causing them to search for more lucrative opportunities outside their present organizations [126].

However, in times of diminishing loyalty, employee engagement can turn out to be powerful retention strategy, with the benefits outweighing the disadvantages. Engagement addresses nearly three quarters of the variability in retention, thus there are others causes too which may be equally relevant. With nearly half the officers (47.1%) expressing their comfort working for any company, shipowners thus need to address the barriers of retention, as not removing them not only causes current officers to leave their employer, but eventually the industry also.

5.6 ENGAGEMENT – RANK & TENURE RELATIONSHIP

Recent studies have also demonstrated that engagement is strongly correlated with tenure in the organization; long term employees are more likely to be engaged [19, 48]. Research has found engagement to be strongly correlated with the employees role/level in the organization; people in positions of power and authority are more likely to be engaged [19, 48].

The Blessing White Engagement Report [19] reports that "*there is a strong correlation between engagement levels and age, role/level, and tenure in the*

organization. Older employees and people in positions of power and authority are most likely to be engaged. Employees who work in departments closest to strategy decisions and customer relationships tend to be more engaged as well."

From the analysis carried out, it was found that as far as rank is concerned, there was a difference in the engagement levels of senior officers vis-a-vis junior officers, seniors having a higher engagement level. However, the difference was not very significant (53 for seniors/51 for juniors) and the correlation coefficient of r = 0.154 showed only a small sized effect. This finding can be considered a cause of concern for ship owners and managers, as the immediate manager has been considered to be a major driver of engagement [10, 18, 98, 99, 153]. For the junior staff on board ships to be engaged, the engagement of the senior staff on board is extremely desirable; it is they who are responsible for the dissemination of the organizations objectives, aims, goals and cultures on board. If the senior management on board is itself not synergized with the shore establishment, the engagement of junior staff on board may be a difficult proposition to achieve.

Engagement is expected to increase with tenure of employees [19, 346]. However, the analysis did not find any significant relationship between engagement and tenure. The tenure used for analysis was 5 years, which can be considered to be very high considering the considerable attrition of seafarers, something accentuated by the fact that only 23% of the sample had an average service of more than 5 years with their current employers.

Hewitt [346] state that "double digit growth (DDG) companies demonstrate higher levels of engagement as tenure increases, and can more successfully maintain employee engagement levels than other companies." They also found that at most companies, employee engagement declines after two years, and then, gradually increases after six to nine years

Of the top ten respondents with tenure of more than 13 years (ranging from 13 – 30 years) with their current employer, only two were engaged, seven partially engaged, while one was disengaged. This therefore presents the conclusion that even after continued service of more than 13 years, there is no

resulting engagement attesting to the disconnect that exists between the senior officers on board and the shore based management, clearly a cause of concern.

5.7 ENGAGEMENT – JOB OR ORGANIZATIONAL

The analysis of the drivers of engagement reveals that even though the majority of officers feel favourably about their job characteristics such as the nature of their job, utilization of potential, team work, friendships at work, this has not resulted in proportionately higher engagement levels. In this context, the distinction made between job engagement and organizational engagement is relevant in understanding the probable cause of this difference.

In the literature on engagement and burnout, a distinction has been made between job and organizational engagement. Work engagement is engagement with the work itself, while organizational engagement is with the organization [72]. Employees have multiple roles in an organization, and personal engagement, as proposed by Kahn, was the application of employee's efforts to the work role [1, 77, 145], the degree of engagement varying by the role in question [333]. In burnout literature too, work engagement has been defined as a 'fulfilling, work-related state of mind' [97].

Based on this premise, the work role has been considered separate from the organizational role by Saks [72]. He contends that there are differences in the engagement of employees; the attachment one has to the organization, organizational engagement, and the connection with the work itself, or job engagement.

Saks' study demonstrated that although job and organizational engagement were related, they were meaningfully distinct constructs. He also found that participants' scores were higher for job engagement than organizational engagement. Perceived organizational support (organization values their contribution and cares about their well-being) was a predictor of both job and organizational engagement, job characteristics predicted job engagement, and procedural justice predicted organization engagement.

Saks thus differentiates between the antecedents of job and organizational

engagement, contending that employees will have higher job as well as organizational engagement if they perceive higher organizational support. Employees, who are provided with work that is high on job characteristics such as skill variety, task identity, task significance, autonomy, and feedback, will have higher job or work engagement.

This theory merits consideration as the job of seafarers is high on job characteristics; the majority of officers attest to enjoying their work, having their potential utilized, performing important work, forming good work teams, involvement in decision making on board, participation in safety, and other aspects directly related with their jobs that promote job engagement. However, the majority do not perceive high organizational support in the form of being valued by the organization, provided fair treatment, organization genuinely interested in their well being, recognition of good work, and valuing opinions, elements essential for the promotion of organizational engagement.

The subject of job and work engagement is considerably under-researched in literature, and thus it cannot be concluded with certainty if engagement of seafarers can be distinguished on this basis. However, it does explain to a certain extent the fact that the positive nature of shipboard work does not translate into higher engagement, an area that could be researched further.

5.8 RECOMMENDATIONS

Engagement is not an on/off switch, but a continuum, with employees falling at various places on this continuum [170]. The key to engagement is to move employees further along this continuum over time, to full engagement [ibid]. This holds true in the case of officers, where the bulk appears to be partially engaged. It is this segment that needs to be focused upon to move them to the engaged category with the minimum effort, as these employees are the most responsive to engagement enhancement initiatives [50].

Analyzing the drivers of engagement identified through literature review, factor analysis and an analysis of the response of officers to the questionnaire, the following recommendations can be made for the enhancement of

engagement of officers:

1. **Provide Organizational Support:** The lack of sufficient organizational support has emerged as the biggest barrier to engagement, and consequently to performance, safety and retention. Seafarers should perceive organizational support for their role in the operation of ships through recognition and appreciation of their work; they should be treated as valued members of the organization.

   Senior ships officers are given independent charge of managing assets worth millions of dollars, and this should be seen as a matter of mutual trust, and valued accordingly. Their engagement can be considered to be vital to the success of the organization. Trust in executives can have more than twice the impact on engagement levels than trust in immediate managers does [19]. Senior officers should thus readily perceive themselves as valuable to the overall organization, and shipping companies can demonstrate this by considering them as equal partners, treating them fairly when reporting for duty, ensuring procedural justice by addressing their complaints and grievances, and valuing their need for work/life balance through providing timely relief, and shore leave.

2. **Job Security:** The foundation of today's maritime employment – the contract system – is itself based on impermanency. One could argue that retention should not be an issue where the employment is contractual in nature. However all shipping companies do want the same officers returning to them, but may not be willing to take on the additional financial burden placed on them through regular employment. Most officers prefer regular employment which assures them employment security, a sense of belonging to the company and a sense of purpose. Changing to a regular employment system, or other means of providing employment security such as through rejoining incentives, will go a long way in enhancing engagement as well as retention.

3. **Benefits:** Research has found that commitment has a stronger relationship with pay satisfaction than with the actual income [164], but the addition of benefits to augment pay packages has a positive effect on retention [ibid].

Where the possibility of increasing salaries are low, shipping companies could focus on increasing benefits such as provident fund, medical insurance for the family all round the year, and paid vacation, among others. This will greatly enhance the sense of belonging even when on leave and contribute to engagement.

4. **Work Culture:** One of the drawbacks felt by officers is the absence of autonomy at work that does not allow them to conduct shipboard operations without interference from ashore. Lack of autonomy has the possibility of creating disinterest on the part of officers on board, who may tend to lose their creativity and initiative in the process, being content with following procedures even in non-standardized conditions; a fact attested to by more than half the officers stating that they would follow procedures even if a better way was available. The lack of a 'No blame Culture' also does not help, as the ship's staff is hesitant to exercise the 'discretionary effort' and 'go the extra mile' so vital to engagement. Reduced autonomy and standing for masters and senior officers due to increased day-to-day direction from shore management has been found to be one of the barriers to retention at sea [33]. Seen in light of the highly valuable assets charged to officers on board, there must be a certain level of devolution of powers from the shore to the ship. Autonomy at work and a no blame culture are essential in engaging the seafarer, thereby ensuring that they go the 'extra mile' for the organization.

5. **Quality of Shipboard Accommodation:** Various studies have highlighted the monotony of working and living aboard modern cargo ships – and many of the changes within the industry can be said to have exacerbated the boredom and social isolation which have always been a feature of a seafarer's working life [343]. On board ships, seafarers are expected to spend months in cabins measuring 60 – 70 sq. ft. Most of the times a ships interior appear "institutional" on good ships and prison-like on the rest; with the flagging out of ships and internationalization of labour, there appears to be no need to improve living conditions for the contract workers and part-timers from the third world who man the majority of

today's ships [344]. The report goes on to say that "the extra $500,000 or $1,000,000 needed to improve living conditions on a 65 or 100 million dollar vessel may begin to look like a small investment in improving retention, and increasing recruitment [ibid]. Better quality and well appointed cabins would result in seafarers feeling more relaxed when back from work, allowing them to rejuvenate in a different environment before commencing their next duty. It is high time ship owners stopped accepting the 'norms' of shipbuilders, and make decisions in favour of their employees.

6. **Communication Facilities:** Shipboard life is spent in isolation, away from friends, community and family; the ship's crew forms a community which is itself isolated. These feelings of isolation and loneliness can be diminished by maintaining contact with family and friends. Modern seafarers spend at least three quarters of their working lives away from their families and local communities [343]. From the survey, 38.6% officers were not satisfied with the communications made available to them.

   Today is the age of communication technology and it is unfortunate that shipboard staff has limited access to affordable connectivity with the outside world. Communication costs have come down dramatically since the advent of INMARSAT technology three decades back, and economical communication systems are available that can provide seafarers with the much needed connection to their family and friends. Even Intertanko has recognized the importance of communications and developed their 'Best Practice Guidance on Internet Access for Crew On board Ships' [345]. Many shipping companies have invested in V-Sat terminals for their crew and this itself makes these companies attractive to seafarers. Shipping companies should explore various options available, and provide the best possible options in order that their employees stay better connected with family and friends.

7. **Recreation Facilities:** The drive to reduce costs has resulted in living quarters being cut down to the smallest possible, thereby eliminating swimming pools, gymnasiums etc from the accommodations of most ships

[344]. Recreational facilities aboard ship are not a luxury but a necessity for the preservation of seafarers' good mental health. They provide a release from boredom and, frequently, an opportunity to socialize with other crew members. Good recreational provision can counter the development of anti-social behaviour and practices amongst crews such as solitary drinking, drug abuse, and extreme behaviour during shore leave [343]. Modern day safety procedures have also been stretched to the limit where a simple stroll on deck may also require safety equipment to be worn and possibly check lists filled up. Usually the only means of recreation provided is in the form of films on CD's or DVD's supplied at infrequent intervals, along with some magazines on a monthly basis. Many ships do have gymnasiums, but more often than not, these are of such a size as to pose safety risks to its users. Better holistic recreational facilities should be provided which results in extracurricular interaction amongst the crew, improving the quality of life on board. Senior management on board should also understand the importance of crew interaction in relieving stress and promote harmony on board.

8. **Workload and Fatigue:** The work environment at sea is essentially a high risk one, with numerous conditions that can be considered job demands – extreme weather conditions, physically and cognitively challenging work, presence of risks and hazards, sound, vibrations, being some. Excessive job demands leads to burnout and can result in accidents, many catastrophic for the ship, lives on board and the company itself. Excess work and inadequate quantity or quality of rest result in fatigue which is a major factor on board with ships being run on skeletal crews. Fatigue has been found to be a major cause of accidents and its adverse consequences have been accepted by all stakeholders in the maritime industry [196]. Ship owners should take positive steps to reduce workloads of seafarers, through simplification of procedures, elimination of unnecessary paperwork, better coordination of inspections and even through the supply of additional crew on board. The costs incurred in reducing workloads and fatigue may be miniscule compared to potential of the consequent adverse repercussions.

9. **Communications:** Two-way open and clear communications are essential in ensuring engagement, as it is only then can the company communicate its strategic vision to seafarers also, who are eventually going to implement it. In this regard, seafarers should be taken in confidence and their opinions and views valued. This will also be perceived as organizational support and increase the seafarers' sense of inclusiveness. It is only through such wide and open interaction can shipping companies hope to be able to take the shipboard staff along with them in achieving organizational objectives.

It must be cautioned that engagement drivers may be different for different shipping companies, and each organization will have to analyze the barriers that exist within and take steps accordingly. There are many shipping companies that follow excellent HR practices and value their seafarers; these companies are already benefiting from high performance, safety and retention of officers. Other companies should also analyze the best practices being followed across the maritime industry as well as land based industries and adapt their own engagement programs accordingly. The elimination of most of the barriers do not require any capital investments, and thus shipping companies can balance their approach depending on the availability of necessary resources, especially in the depressed markets of today.

An issue worth mentioning is that, from the discussion in this study, it would appear that the onus on improving engagement lies completely with the ship owners, with the seafarer more than willing to be engaged given the right conditions. This may not be as simplistic as it appears, as the quality of seafarers themselves has been falling over the years [parsons], and the professionalism of present day seafarers has been questioned, apart from their mercenary nature. This is similar to the 'chicken – and – egg' conundrum, whether sub-standard shipping attracts sub-standard seafarers or vice versa. This aspect requires further research, but given the fact that ship owners are the larger stakeholders in the industry, and stand to gain much more from the outcomes of engagement, they should be expected to take the lead. An added benefit to the industry can be in the form of isolation of sub-standard ship owners as well as unprofessional officers.

It is hoped that addressing the barriers of engagement and following the recommendations, engagement levels of officers across the industry can be increased, resulting in increased earnings from higher performance, reduction in safety related incidents and associated costs, as well as the costs and detrimental consequences of high employee turnover.

5.9 LIMITATIONS OF THE STUDY

The research study has been limited by the following factors:

1. Due to the lack of availability of a sampling frame, probability sampling could not be carried out, convenience sampling used instead. While, strictly speaking, inferential statistics are only applicable in the context of random sampling, convention has been followed in reporting significance levels as convenient yardsticks even for nonrandom samples [305]. Although all care was taken to minimize any bias, caution should be exercised when generalizing the results across the entire population of Indian officers.
2. The survey was carried out only on Indian officers; each culture and nationality has its own priorities and the results are relevant only to Indian officers.
3. The survey was carried out in Delhi and NCR region, where most of the respondents could largely be from the north of the country. Due to cultural differences between different parts of the country, a proportional representation has the chance of providing more inclusive results.
4. The distribution of senior officers, junior officers, engineers and deck officers was not proportional. A proportionate representation may provide more balanced results.
5. There is limited literature available on the human resource aspects of a career at sea, searches on well known online journals revealed the subject to be under researched.
6. Requests to shipping companies (twelve) for information regarding financial, safety, employee turnover, and performance data did not yield

any results, most requests going unanswered. The study could not thus be supported by economic data.

7. All thirteen major P&I Insurance clubs were approached for data on safety costs. Only one P&I Club provided data on conditions of anonymity, many stating that the data was not available for public consumption.
8. The researchers own experience at sea is also a limitation as it has the possibility of inducing bias. However, all precautions have been taken to keep the study as objective as possible.

5.10 FUTURE DIRECTIONS

There is considerably more work that can be carried out in future, in the field of engagement in the maritime industry. Some of these areas are:

1. Further research may be undertaken to identify whether the engagement of seafarers is 'work' or 'organizational'. The antecedents of engagement for each can then be identified separately to allow a deeper understanding of engagement in the maritime industry.
2. The study of engagement of nationalities other than Indians can be undertaken. This study was restricted to Indians only; different cultural and socio-economic backgrounds between nations can have an impact on engagement.
3. The study was also restricted to officers. The scope can be expanded to include ratings too, as they also form a part of the operations of ships. Their contribution may be lesser than officers, but being an integral part of the industry, they should not be discounted.
4. Many shipping companies have excellent HR practices for their crew. The impact of these practices on engagement levels can be studied to assess the effectiveness of such measures.

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Appendix 1

Respondent ID:

Seafarer Engagement Survey

The following statements are about different aspects of your job. Please indicate the level of agreement by putting a tick **(√)** mark in the appropriate box.

Ask Yourself: How much do I agree about the statement about this aspect of my job

5 means	Strongly Agree
4 means	Agree
3 means	If Neutral
2 means	Disagree
1 means	Strongly Disagree

Note: Company refers to your employer – Ship Manager or Owner. Ship's management refers to the senior management staff on board ship.

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Good work is recognized by the Company	5	4	3	2	1
2.	I have good career opportunities here	5	4	3	2	1
3.	I find the training given by the Company very useful	5	4	3	2	1
4.	I am provided the spares/stores required to do my job well	5	4	3	2	1
5.	I am involved in decision making in my work area	5	4	3	2	1
6.	I am happy with my salary	5	4	3	2	1
7.	I have good relations with other crew on board	5	4	3	2	1
8.	The Company cares about my well being, health and safety	5	4	3	2	1
9.	I find my work enjoyable	5	4	3	2	1
10.	I get regular feedback and guidance on my performance	5	4	3	2	1
11.	I am proud to be a part of this Company	5	4	3	2	1
12.	The Company values my suggestions and opinions	5	4	3	2	1
13.	My work is important for Company profits	5	4	3	2	1
14.	The Company treats all seafarers equally	5	4	3	2	1
15.	I can share my troubles and happiness with others	5	4	3	2	1
16.	I am given work that fully utilizes my abilities	5	4	3	2	1
17.	I can perform jobs given to me more efficiently than at present	5	4	3	2	1
18.	I could contribute more by reducing wastage of materials in my work area	5	4	3	2	1
19.	I follow orders even if a better way of doing a job is available	5	4	3	2	1
20.	I find it easy to work as per the Company Quality Manuals	5	4	3	2	1
21.	I go out of my way to ensure compliance with all pollution regulations	5	4	3	2	1

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
22.	I do my best to pass vetting/PSC/third party inspections without deficiencies	5	4	3	2	1
23.	I am happy with benefits like insurance, PF, paid leave etc I receive now	5	4	3	2	1
24.	I feel I am an important part of the Company	5	4	3	2	1
25.	When I report for duty, I am treated well at the office	5	4	3	2	1
26.	I can advance in my job based on merit and performance	5	4	3	2	1
27.	My Company considers me an important part of itself	5	4	3	2	1
28.	I would recommend this Company to my friends	5	4	3	2	1
29.	I prefer regular employment to against 'contract' working	5	4	3	2	1
30.	Senior officers/Superintendents are good role models	5	4	3	2	1
31.	I am happy working for any Company	5	4	3	2	1
32.	Living conditions on board are good	5	4	3	2	1
33.	The Company provides us good recreational facilities	5	4	3	2	1
34.	My complaints & grievances are properly addressed	5	4	3	2	1
35.	We have good facilities for contacting family & friends	5	4	3	2	1
36.	Morale amongst the crew is high	5	4	3	2	1
37.	The Company makes all efforts to relieve me on time	5	4	3	2	1
38.	At times I have taken short cuts to finish jobs quickly	5	4	3	2	1
39.	My co-workers are safety conscious	5	4	3	2	1
40.	I report all unsafe acts or conditions without hesitation	5	4	3	2	1
41.	I get enough rest as per applicable regulations	5	4	3	2	1
42.	The Company makes all efforts to arrange shore leave for us	5	4	3	2	1
43.	The Company does not encourage breaking rules to achieve targets	5	4	3	2	1
44.	I am comfortable asking for help when unsure how to do a task	5	4	3	2	1
45.	I feel that procedures & paperwork have made work less challenging	5	4	3	2	1
46.	We can work independently without interference from the Company	5	4	3	2	1
47.	My work load is too much	5	4	3	2	1
48.	The Company encourages us to give ideas & suggestions	5	4	3	2	1
49.	There is undue pressure from Company to finish jobs on time	5	4	3	2	1
50.	I feel motivated to do more than just my job requirement	5	4	3	2	1
51.	I am happy with the balance between my work and family life	5	4	3	2	1
52.	We are never blamed for our mistakes	5	4	3	2	1
53.	The ship's management genuinely cares about our safety and well being	5	4	3	2	1
54.	The Company never puts schedules above safety	5	4	3	2	1
55.	The Company places a high priority on safety training	5	4	3	2	1

No	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
56.	We are actively encouraged to improve safety	5	4	3	2	1
57.	We have all necessary personal protective equipment (PPE)	5	4	3	2	1
58.	I am happy with the quality of life on board	5	4	3	2	1
59.	The Company never puts costs above quality	5	4	3	2	1
60.	I can maintain my performance over my entire contract	5	4	3	2	1

Please tell me about yourself:

Department	Deck/Engine	**Rank**	Sr. Officer/ Jr. Officer
Type of Company	Ownership/Management	**Years with Company**	
Joined Sea (Year)		**No of Companies worked for**	
Age		**No of Years expect to sail**	

THANK YOU VERY MUCH FOR YOUR TIME AND ATTENTION

Appendix 2: Analysis of Responses

The following table details the percentage of responses for each statement on the questionnaire, along with the means for each statement.

No	Statement	Mean	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Good work is recognized by the Company	3.45	9.2	41.3	35.3	12.9	1.3
2.	I have good career opportunities here	3.63	10.9	50.8	28.4	9.9	0
3.	I find the training given by the Company very useful	3.64	13.9	46.8	29.3	8.8	1.2
4.	I am provided the spares/stores required to do my job well	3.31	6.5	40.9	32.3	18.2	2.1
5.	I am involved in decision making in my work area	3.84	15.0	60.3	18.9	5.6	0.2
6.	I am happy with my salary	3.16	7.6	36.5	27.7	20.8	7.4
7.	I have good relations with other crew on board	4.18	28.6	60.5	10.7	0.2	0.0
8.	The Company cares about my well being, health and safety	3.47	10.9	40.6	33.7	13.9	0.9
9.	I find my work enjoyable	3.69	14.5	49.9	26.1	8.6	0.9
10.	I get regular feedback and guidance on my performance	3.28	4.4	40.4	36.5	15.9	2.8
11.	I am proud to be a part of this Company	3.55	12.2	41.1	37.9	7.4	1.4
12.	The Company values my suggestions and opinions	3.11	3.0	28.1	47.6	19.2	2.1
13.	My work is important for Company profits	4.06	24.0	60.5	13.4	1.6	0.5
14.	The Company treats all seafarers equally	2.91	5.3	30.3	25.6	27.9	10.9
15.	I can share my troubles and happiness with others	3.34	4.6	42.3	37.0	14.5	1.6
16.	I am given work that fully utilizes my abilities	3.73	9.9	61.4	21.3	6.9	0.5

No	Statement	Mean	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
17.	I can perform jobs given to me more efficiently than at present	3.82	13.4	60.5	22.2	3.4	0.5
18.	I could contribute more by reducing wastage of materials in my work area	3.84	16.2	57.1	21.7	4.8	0.2
19.	I follow orders even if a better way of doing a job is available	3.39	12.5	38.6	27.3	19.3	2.3
20.	I find it easy to work as per the Company Quality Manuals	3.72	14.3	52.9	23.3	9.3	0.2
21.	I go out of my way to ensure compliance with all pollution regulations	4.00	30.3	46.2	17.6	5.2	0.7
22.	I do my best to pass vetting/PSC/third party inspections without deficiencies	4.65	66.7	31.7	1.6	0.0	0.0
23.	I am happy with benefits like insurance, PF, paid leave etc I receive now	2.88	7.9	22.9	31.2	25.5	12.5
24.	I feel I am an important part of the Company	3.22	6.7	33.3	38.8	18.2	3.0
25.	When I report for duty, I am treated well at the office	3.55	11.3	51.3	21.5	13.1	2.8
26.	I can advance in my job based on merit and performance	3.76	10.9	61.4	22.2	4.3	1.2
27.	My Company considers me an important part of itself	3.29	2.8	39.5	42.7	14.1	0.9
28.	I would recommend this Company to my friends	3.44	6.9	50.8	26.3	11.6	4.4
29.	I prefer regular employment to against 'contract' working	3.77	29.3	36.7	18.5	12.7	2.8
30.	Senior officers/Superintendents are good role models	3.36	7.4	40.4	37.9	9.7	4.6
31.	I am happy working for any Company	3.29	7.1	40.0	32.6	15.7	4.6
32.	Living conditions on board are good	3.58	11.3	51.7	23.8	9.9	3.3
33.	The Company provides us good recreational facilities	3.08	5.3	31.4	36.5	19.9	6.9

No	Statement	Mean	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
34.	My complaints & grievances are properly addressed	3.10	2.5	34.6	38.8	18.8	5.3
35.	We have good facilities for contacting family & friends	3.00	7.4	31.2	27.3	22.6	11.5
36.	Morale amongst the crew is high	3.37	3.2	46.2	37.0	12.0	1.6
37.	The Company makes all efforts to relieve me on time	3.02	6.5	36.7	24.5	16.6	15.7
38.	At times I have taken short cuts to finish jobs quickly	2.84	2.3	30.9	26.8	28.2	11.8
39.	My co-workers are safety conscious	3.74	9.4	59.4	26.6	4.6	0.0
40.	I report all unsafe acts or conditions without hesitation	3.91	21.0	54.0	20.3	4.2	0.5
41.	I get enough rest as per applicable regulations	3.12	7.2	34.6	29.8	19.6	8.8
42.	The Company makes all efforts to arrange shore leave for us	2.46	2.8	17.1	25.6	32.8	21.7
43.	The Company does not encourage breaking rules to achieve targets	3.80	20.8	49.4	21.5	6.0	2.3
44.	I am comfortable asking for help when unsure how to do a task	4.08	21.9	66.3	9.9	1.7	.2
45.	I feel that procedures & paperwork have made work less challenging	3.30	6.7	40.9	32.3	15.9	4.2
46.	We can work independently without interference from the Company	3.01	3.5	27.0	40.2	26.1	3.2
47.	My work load is too much	3.29	6.7	33.9	42.3	15.7	1.4
48.	The Company encourages us to give ideas & suggestions	3.50	5.8	52.9	28.2	11.5	1.6
49.	There is undue pressure from Company to finish jobs on time	3.41	7.4	39.7	40.4	11.3	1.2
50.	I feel motivated to do more than just my job requirement	3.64	9.0	56.4	25.4	7.8	1.4
51.	I am happy with the balance between my work and family life	2.98	3.2	32.1	33.7	21.3	9.7

No	Statement	Mean	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
52.	We are never blamed for our mistakes	2.52	3.5	14.5	28.4	37.7	15.9
53.	The ship's management genuinely cares about our safety and well being	3.48	8.5	47.6	30.3	10.6	3.0
54.	The Company never puts schedules above safety	3.51	10.4	46.0	29.3	12.9	1.4
55.	The Company places a high priority on safety training	3.92	19.4	58.8	16.9	4.2	0.7
56.	We are actively encouraged to improve safety	4.04	20.1	66.5	11.3	1.8	0.2
57.	We have all necessary personal protective equipment (PPE)	3.99	24.0	54.7	17.1	4.2	0.0
58.	I am happy with the quality of life on board	3.31	6.9	41.6	31.4	15.7	4.4
59.	The Company never puts costs above quality	2.88	5.3	22.9	35.6	26.8	9.5
60.	I can maintain my performance over my entire contract	3.62	15.2	47.1	25.2	9.5	3.0

Appendix 3: Statistical Analysis Tables

Table 1: Correlation Matrix - Engagement Variables

Correlation Matrix[a]																
		E1	**E2**	**E3**	**E4**	**E5**	**E6**	**E7**	**E8**	**E9**	**E10**	**E11**	**E12**	**E13**	**E14**	**E15**
Correlation	**E1**	1.000														
	E2	.472	1.000													
	E3	.523	.538	1.000												
	E4	.419	.388	.425	1.000											
	E5	.416	.290	.402	.309	1.000										
	E6	.329	.417	.320	.265	.259	1.000									
	E7	.264	.283	.227	.321	.164	.130	1.000								
	E8	.244	.279	.162	.270	.174	.125	.349	1.000							
	E9	.188	.312	.325	.349	.163	.173	.353	.288	1.000						
	E10	.210	.198	.219	.132	.174	.186	.144	.178	.200	1.000					
	E11	.199	.304	.271	.189	.096	.162	.250	.183	.318	.244	1.000				
	E12	.217	.207	.232	.121	.265	.105	.194	.186	.112	.162	.122	1.000			
	E13	.178	.274	.264	.161	.249	.243	.109	.183	.201	.059	.162	.091	1.000		
	E14	.150	.151	.157	.154	.120	.136	.145	.075	.057	.059	.123	.151	.046	1.000	
	E15	.042	.055	.007	.083	-.020	.048	.046	.037	.063	.019	-.018	.069	.030	.005	1.000

Table 2: Communalities - Engagement Variable

	Initial	Extraction
Opinions valued	1.000	.647
Caring organization	1.000	.584
Pride in company	1.000	.625
Feedback & guidance	1.000	.641
Recognition of work	1.000	.618
Work resources	1.000	.529
Best friend at work	1.000	.616
Potential utilized	1.000	.581
Nature of work	1.000	.575
Important work	1.000	.761
Interpersonal relations	1.000	.643
Career advancement	1.000	.739
Pay	1.000	.866
Work autonomy	1.000	.901
Work pressure	1.000	.957

Extraction Method: Principal Component Analysis.

Table 3: KMO and Bartlett's Test - Engagement Variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.860
Bartlett's Test of Sphericity	Approx. Chi-Square	1217.922
	df	105
	Sig.	.000

Table 4: Total Variance Explained – Engagement Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.101	27.343	27.343	4.101	27.343	27.343	2.806	18.705	18.705
2	1.260	8.401	35.743	1.260	8.401	35.743	1.848	12.319	31.024
3	1.066	7.107	42.850	1.066	7.107	42.850	1.284	8.558	39.582
4	1.039	6.928	49.778	1.039	6.928	49.778	1.166	7.771	47.354
5	.965	6.431	56.209	.965	6.431	56.209	1.121	7.476	54.829
6	.950	6.333	62.542	.950	6.333	62.542	1.035	6.898	61.727
7	.902	6.012	68.555	.902	6.012	68.555	1.024	6.827	68.555
8	.784	5.224	73.778						
9	.719	4.792	78.570						
10	.660	4.399	82.970						
11	.610	4.067	87.036						
12	.575	3.836	90.872						
13	.528	3.518	94.390						
14	.449	2.996	97.386						
15	.392	2.614	100.000						

Extraction Method: Principal Component Analysis.

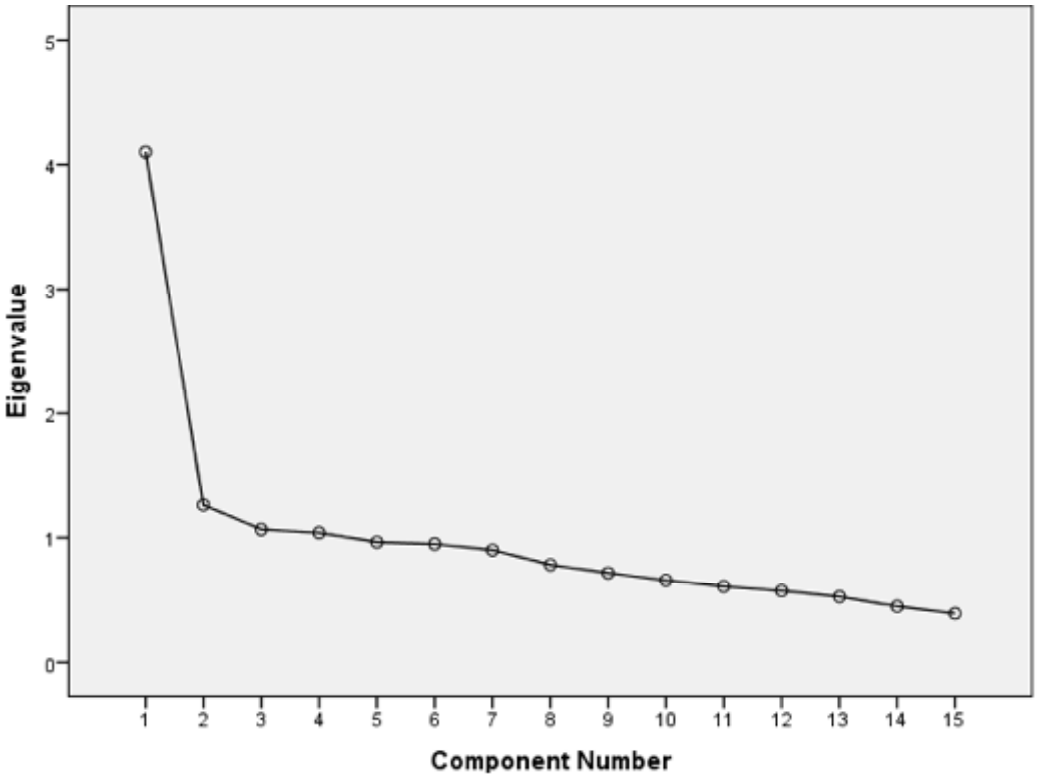

Figure 1: Scree Plot – Engagement Variables

		P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	Table 5 - Correlation matrix Performance Variables
Correlation	P1	1.000																			
	P2	.446	1.000																		
	P3	.312	.318	1.000																	
	P4	.146	.223	.243	1.000																
	P5	.190	.183	.236	.338	1.000															
	P6	.135	.162	.164	.241	.257	1.000														
	P7	.155	.148	.257	.161	.158	.085	1.000													
	P8	.207	.229	.276	.286	.249	.229	.300	1.000												
	P9	.214	.258	.268	.291	.253	.240	.231	.327	1.000											
	P10	.309	.327	.317	.141	.223	.225	.165	.197	.221	1.000										
	P11	.235	.276	.239	.265	.270	.266	.243	.213	.203	.382	1.000									
	P12	-.023	-.043	-.020	-.024	-.060	-.109	.033	-.052	-.069	-.047	.031	1.000								
	P13	-.052	-.038	-.003	-.060	-.073	-.061	.040	.017	.000	-.041	-.002	.350	1.000							
	P14	.114	.136	.094	.154	.045	.199	.046	.072	.139	.194	.136	-.055	-.065	1.000						
	P15	.123	.263	.220	.182	.147	.151	.135	.180	.210	.174	.189	.008	-.017	.250	1.000					
	P16	.225	.158	.094	.127	.110	.140	.070	.070	.123	.063	.096	-.060	-.071	.036	-.028	1.000				
	P17	.066	.071	.007	.071	.020	.132	.014	.047	.106	.214	.032	-.154	-.138	.021	-.011	.293	1.000			
	P18	.064	.087	.041	.045	.039	-.041	-.034	.008	.043	.114	.079	-.084	-.130	.044	.065	.066	.156	1.000		
	P19	.193	.096	.288	.121	.119	.089	.068	.116	.039	.143	.133	-.006	-.061	-.052	.065	.043	-.024	-.068	1.000	

Table 6: Communalities - Performance Variables

	Initial	Extraction
Procedural commitment	1.000	.634
Safety commitment	1.000	.595
Rest availability	1.000	.517
Feedback & guidance	1.000	.612
Training	1.000	.588
Sustained performance	1.000	.629
Pay	1.000	.646
Benefits	1.000	.542
Equal treatment	1.000	.505
Safety resources	1.000	.706
Work resources	1.000	.596
Maximizing performance	1.000	.687
Reducing wastage	1.000	.647
Work autonomy	1.000	.665
No blame culture	1.000	.519
Pollution prevention	1.000	.712
Third party inspections	1.000	.649
Permanent employment	1.000	.799
Work load	1.000	.652

Extraction Method: Principal Component Analysis.

Table 7: KMO and Bartlett's Test - Performance Variable

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.799
Bartlett's Test of Sphericity	Approx. Chi-Square	1167.525
	df	171
	Sig.	.000

Table: 8: Total Variance Explained – Performance Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.792	19.958	19.958	3.792	19.958	19.958	1.896	9.980	9.980
2	1.622	8.536	28.494	1.622	8.536	28.494	1.667	8.774	18.754
3	1.246	6.557	35.050	1.246	6.557	35.050	1.607	8.459	27.213
4	1.199	6.312	41.362	1.199	6.312	41.362	1.479	7.784	34.997
5	1.154	6.075	47.437	1.154	6.075	47.437	1.409	7.415	42.412
6	1.012	5.326	52.763	1.012	5.326	52.763	1.378	7.252	49.664
7	.961	5.057	57.820	.961	5.057	57.820	1.372	7.219	56.883
8	.914	4.812	62.632	.914	4.812	62.632	1.092	5.749	62.632
9	.841	4.424	67.057						
10	.804	4.233	71.290						
11	.724	3.810	75.099						
12	.690	3.633	78.733						
13	.674	3.546	82.279						
14	.642	3.379	85.658						
15	.625	3.290	88.947						
16	.596	3.134	92.082						
17	.556	2.929	95.011						
18	.490	2.579	97.589						
19	.458	2.411	100.000						

Extraction Method: Principal Component Analysis.

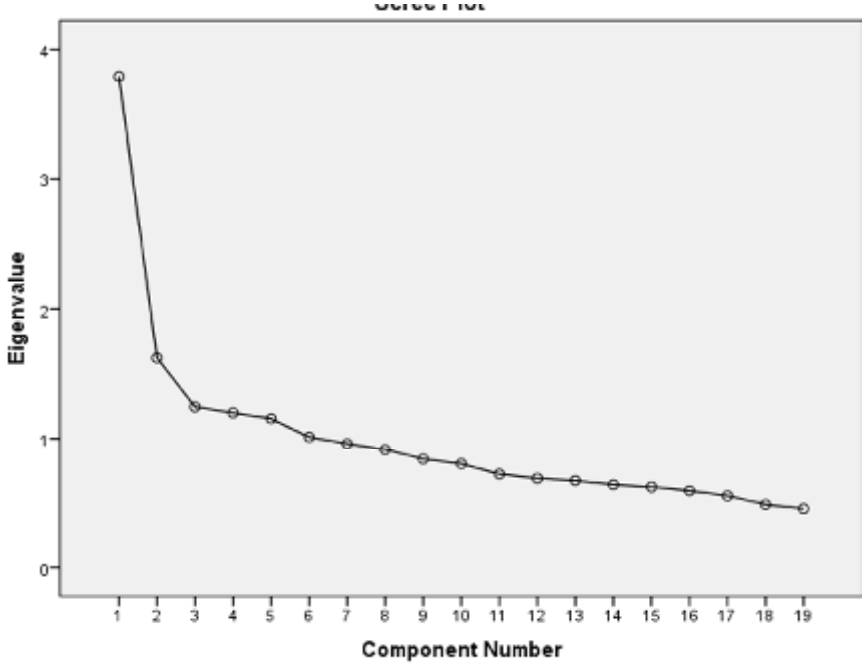

Figure 2: Scree Plot – Performance Variables

Correlation Matrix - Safety Variables

		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19
Correlation	S1	1.000																		
	S2	.698	1.000																	
	S3	.481	.459	1.000																
	S4	.418	.384	.446	1.000															
	S5	.420	.417	.441	.393	1.000														
	S6	.249	.234	.223	.146	.333	1.000													
	S7	.355	.348	.326	.294	.412	.404	1.000												
	S8	.346	.308	.183	.190	.289	.338	.306	1.000											
	S9	.419	.381	.387	.350	.470	.388	.478	.344	1.000										
	S10	.280	.234	.276	.235	.307	.265	.263	.270	.417	1.000									
	S11	.435	.402	.327	.309	.364	.141	.246	.223	.353	.382	1.000								
	S12	.364	.358	.302	.236	.426	.319	.338	.256	.356	.368	.397	1.000							
	S13	.266	.267	.214	.237	.205	.251	.169	.200	.238	.156	.223	.217	1.000						
	S14	.238	.255	.205	.325	.196	.118	.103	.075	.224	.188	.287	.142	.305	1.000					
	S15	.289	.336	.323	.270	.326	.265	.174	.229	.255	.227	.354	.249	.302	.251	1.000				
	S16	.067	.040	.096	.193	.131	.121	.043	.119	.145	.133	.143	.085	.143	.107	.082	1.000			
	S17	.305	.321	.318	.312	.281	.243	.302	.236	.328	.239	.317	.329	.234	.169	.271	.288	1.000		
	S18	.209	.190	.263	.123	.275	.182	.204	.147	.223	.189	.174	.316	.158	.060	.160	.065	.220	1.000	
	S19	.198	.129	.076	.061	.117	-.016	.100	.117	.088	.045	.097	.062	.237	-.044	.039	.069	.036	.069	1.000

a. Determinant = .005

Table 9: Correlation Matrix - Safety Variables

Table 10: Communalities - Safety Variables

	Initial	Extraction
Safety training	1.000	.707
Participation in safety	1.000	.670
Safety commitment	1.000	.607
Procedural commitment	1.000	.622
Shipboard management	1.000	.516
Feedback & guidance	1.000	.724
Valued by company	1.000	.598
Training	1.000	.534
Caring organization	1.000	.569
Work resources	1.000	.678
Safety resources	1.000	.680
Quality commitment	1.000	.582
Reporting without fear	1.000	.739
Frank communications	1.000	.639
Safety conscious workers	1.000	.500
Work load	1.000	.820
Rest availability	1.000	.520
No blame culture	1.000	.781
Bypassing safety	1.000	.828

Extraction Method: Principal Component Analysis.

Table 11: KMO and Bartlett's Test - Safety Variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.896
Bartlett's Test of Sphericity	Approx. Chi-Square	2227.969
	df	171
	Sig.	.000

Table 12: Total Variance Explained – Safety Variables

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.797	30.511	30.511	5.797	30.511	30.511	3.011	15.850	15.850
2	1.323	6.965	37.475	1.323	6.965	37.475	2.172	11.432	27.282
3	1.183	6.226	43.702	1.183	6.226	43.702	1.745	9.184	36.466
4	1.133	5.963	49.664	1.133	5.963	49.664	1.625	8.551	45.017
5	1.003	5.281	54.945	1.003	5.281	54.945	1.294	6.811	51.828
6	.969	5.101	60.045	.969	5.101	60.045	1.291	6.796	58.625
7	.905	4.765	64.810	.905	4.765	64.810	1.175	6.185	64.810
8	.823	4.333	69.143						
9	.726	3.822	72.965						
10	.698	3.672	76.637						
11	.634	3.337	79.973						
12	.605	3.183	83.156						
13	.575	3.027	86.183						
14	.506	2.665	88.848						
15	.494	2.599	91.447						
16	.466	2.453	93.900						
17	.444	2.334	96.234						
18	.430	2.265	98.499						
19	.285	1.501	100.000						

Extraction Method: Principal Component Analysis.

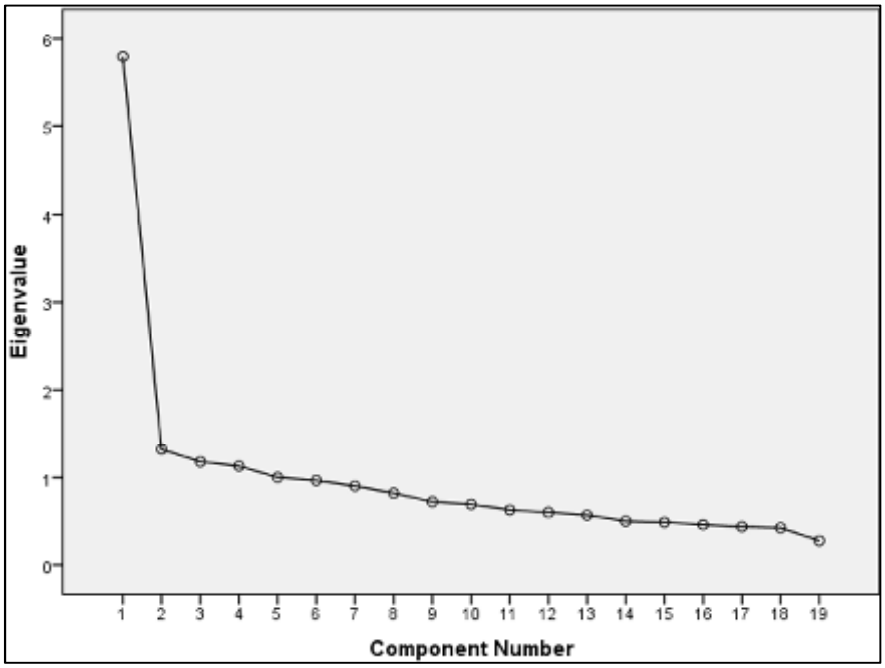

Figure 3: Scree Plot – Safety variables

Table 13: Correlation Matrix - Retention Variables

Correlation Matrix - Retention Variables																		
		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18
Correlation	R1	1.000																	
	R2	.595	1.000																
	R3	.625	.596	1.000															
	R4	.422	.533	.414	1.000														
	R5	.467	.452	.366	.456	1.000													
	R6	.311	.387	.311	.456	.424	1.000												
	R7	.315	.339	.326	.287	.332	.433	1.000											
	R8	.378	.331	.328	.324	.373	.443	.554	1.000										
	R9	.340	.264	.288	.250	.296	.327	.321	.381	1.000									
	R10	.448	.567	.454	.463	.428	.503	.495	.443	.388	1.000								
	R11	.143	.132	.121	.099	.177	.239	.243	.319	.118	.178	1.000							
	R12	.361	.327	.234	.239	.372	.380	.358	.468	.242	.324	.265	1.000						
	R13	.357	.263	.274	.265	.284	.276	.351	.293	.259	.281	.207	.329	1.000					
	R14	.245	.264	.268	.235	.246	.325	.294	.216	.231	.289	.091	.249	.206	1.000				
	R15	.223	.303	.218	.215	.247	.273	.091	.204	.210	.234	.156	.253	.128	.135	1.000			
	R16	.063	.056	.088	.062	.035	.088	.006	.098	.043	.024	.030	.069	-.016	-.034	.065	1.000		
	R17	.398	.464	.330	.346	.413	.284	.302	.335	.327	.398	.123	.297	.264	.300	.180	.008	1.000	
	R18	.193	.256	.231	.221	.172	.224	.259	.255	.134	.328	.204	.292	.301	.289	.172	.061	.172	1.000

Table 14: Communalities - Retention Variables

	Initial	Extraction
Quality of life	1.000	.719
Recreational facilities	1.000	.718
On-board living conditions	1.000	.672
Communication facilities	1.000	.508
Shore leave	1.000	.513
Timely relief	1.000	.605
Treatment at office	1.000	.664
Valued by company	1.000	.672
Equal treatment	1.000	.459
Grievance redressal	1.000	.585
Merit based promotions	1.000	.616
Recognition of work	1.000	.503
Career opportunities	1.000	.530
Involvement in decision making	1.000	.755
Salary	1.000	.682
No blame culture	1.000	.807
Permanent employment	1.000	.921
Benefits	1.000	.432

Extraction Method: Principal Component Analysis.

Table 15: KMO and Bartlett's Test - Retention Variables

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.908
Bartlett's Test of Sphericity	Approx. Chi-Square	2429.873
	df	153
	Sig.	.000

Table 16: Total Variance Explained – Retention Variables

Compo -nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.084	33.801	33.801	6.084	33.801	33.801	3.401	18.897	18.897
2	1.365	7.585	41.386	1.365	7.585	41.386	2.698	14.991	33.888
3	1.091	6.063	47.449	1.091	6.063	47.449	1.720	9.556	43.444
4	.980	5.444	52.894	.980	5.444	52.894	1.399	7.774	51.217
5	.933	5.183	58.077	.933	5.183	58.077	1.101	6.116	57.333
6	.909	5.048	63.125	.909	5.048	63.125	1.043	5.792	63.125
7	.832	4.624	67.749						
8	.764	4.247	71.996						
9	.736	4.086	76.083						
10	.682	3.789	79.872						
11	.660	3.668	83.539						
12	.566	3.144	86.683						
13	.506	2.809	89.492						
14	.483	2.683	92.175						
15	.408	2.265	94.440						
16	.365	2.026	96.466						
17	.328	1.821	98.287						
18	.308	1.713	100.000						

Extraction Method: Principal Component Analysis.

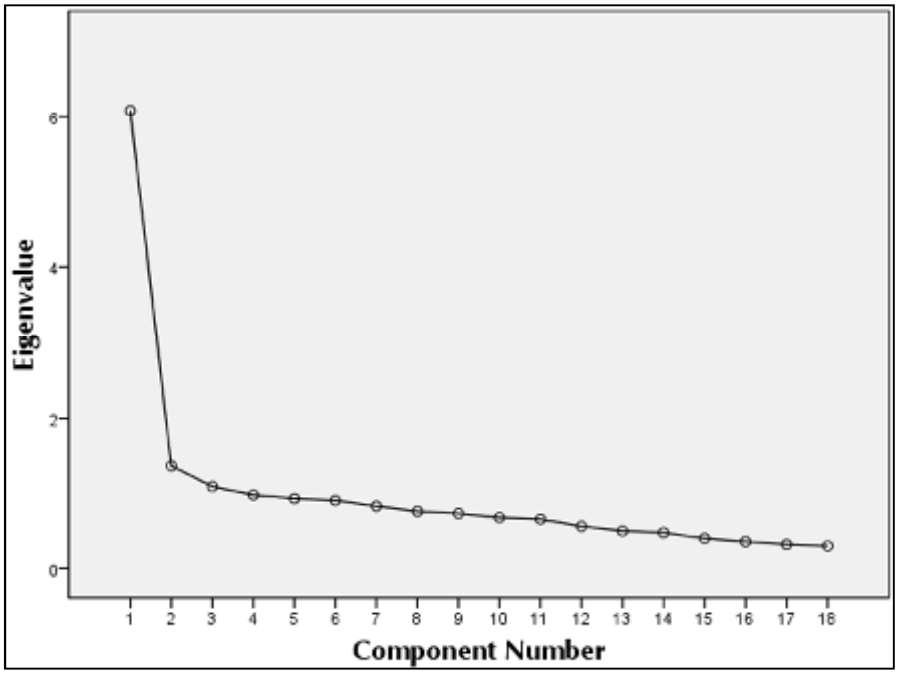

Figure 4: Scree Plot – Retention Variables

Appendix 4: Focus Group Members

The following experts were part of the focus group that assisted in the development of the questionnaire:

1. Dr. (Capt) Syamantak Bhattacharya
   Associate Professor, International Shipping & Port Management
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   University of Southern Denmark

3. Capt. Sanjay Ramnathan
   General Manager at SE Shipping Lines Pte Ltd
   Singapore

4. Mr. Tapash Bose
   Sr. DGM, Bharat Electronics Limited
   Faridabad

5. Capt. Mahesh Garimella
   Director, Northern Marine
   Mumbai