



Title The impact of the diversity of cultures
upon the implementation of the international
management code for the safe operation of
ships and for pollution prevention

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**THE IMPACT OF THE DIVERSITY OF CULTURES
UPON THE IMPLEMENTATION OF
THE INTERNATIONAL MANAGEMENT CODE
FOR THE SAFE OPERATION OF SHIPS
AND FOR POLLUTION PREVENTION**

by

Sean Michael TRAFFORD

A thesis submitted in accordance with the requirements
for the degree of Doctor of Business Administration of the
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ABSTRACT

Shipping is a fragmented, global industry operating in a culturally diverse environment. As a result of rising maritime accident rates and pollution incidents in the 1970s and 1980s, the International Maritime Organisation introduced two conventions that entered fully into force in 2002: the International Management Code for the Safe Operation of Ships and Pollution Prevention (ISM Code), and the 1995 revision of the 1978 Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Code).

Introduction of the conventions served to focus the attention of the international maritime community on the need to raise industry-wide safety standards, but questions were raised about whether it was possible to develop a safety culture in a fragmented, global industry and what effects the diversity of cultures might have upon implementation of the ISM Code. This study explores those questions.

Subsequent to a review of the literature, a model of the working of the ISM Code is developed and used to identify the constraints and pressures, particularly those that might be influenced by cultural values and attitudes, that impact upon the development and implementation of a Safety Management System in individual shipping organisations, which is the essence of the ISM Code.

A comparative case study methodology is adopted for the empirical research and a number of investigative techniques are used to test the ISM Code model and obtain both qualitative and quantitative data to determine whether the impact of culturally influenced constraints and pressures would be best addressed by

stricter enforcement of existing regulatory provisions or greater emphasis on education and training.

From analysis of the data collected, the study concluded that:

- Professional, vocational and safety training correctly utilised are effective in harmonising culturally influenced safety perspectives, thus improving safety performance; and
- Culturally influenced constraints and pressures can be dealt with by the application of standard management techniques which, in a multi-cultural environment requires good cross-cultural management skills.

The most common method of determining how effective a company has been in dealing with the various constraints and pressures affecting safety performance is to evaluate the efficacy of the organisation's Safety Management System by analysis of accident records, lost time incidents and hazardous occurrences (ACNSI, 1993). These data, reported under the provisions of Clause 9 of the ISM Code, are therefore analysed and compared with an industry sector benchmark.

The study however, goes beyond such a purely quantitative approach and establishes the relative safety climate of the case study companies by means of perceptual audit of salient, safety-related factors. This qualitative technique draws together all the main research elements of the study and a Safety Climate Comparator is developed that provides a useful indicator of the relative status of those culturally influenced factors that ultimately affect a company's safety performance. By extension, the technique may be used to provide a Relative Safety Culture Maturity Model to measure the safety climate of other shipping companies relative to a benchmark standard.

DEDICATION

This thesis is dedicated to the worldwide seafaring community who deserve the utmost admiration for the work they do, frequently under challenging conditions and often under difficult circumstances.

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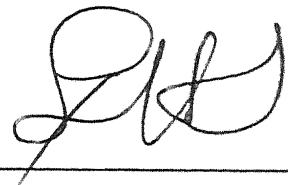
DECLARATION

I declare that this thesis is my own unaided work. It is being submitted for the degree of Doctor of Business Administration at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

Sean Michael Trafford

Signature: _____

A handwritten signature in black ink, appearing to be 'SMT', written over a horizontal line.

Date: 15th December 2006

PART I

INTRODUCTION, CONTEXT AND APPROACH TO THE STUDY

CHAPTER I

BACKGROUND AND OVERVIEW

1.1 AIMS AND OBJECTIVES OF THE STUDY

This study sets out to determine what obstacles the global diversity of cultures presents to the development and implementation of safe practices throughout the shipping industry and by what means it may be possible to overcome those obstacles.

The overriding statutory instrument governing operational safety within the shipping industry today is the International Management Code for the Safe Operation of Ships and for Pollution Prevention, otherwise known as the International Safety Management Code or simply the ISM Code. Using material drawn from a review of the relevant literature and the provisions of the ISM Code itself, a multi-stage model of the working of the ISM Code is developed, in part to assist with making predictions regarding the effectiveness with which safety management systems of individual companies meet the objectives of the Code and in the main to provide an organising framework to help identify:

- Where and in what manner cultural influences might reasonably be expected to impact upon the interpretation and implementation of the provisions of the ISM Code; and
- The industry levels at which empirical research could most beneficially be carried out to better identify the impact of those cultural influences on the implementation of the provisions of the ISM Code in shipping organisations.

From a review of the literature and subsequent empirical research, the study aims to determine whether stricter enforcement of existing regulations, possibly by Port State Control inspectorates (a practice that recognises heterogeneity), or greater emphasis on education and training such as that provided for in the 1995 revision of the 1978 Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Code) (an attempt at homogeneity) is the better path to follow to counter the effects of those culturally influenced constraints and pressures upon the way shipping companies interpret and implement the ISM Code.

1.2 BACKGROUND TO SAFETY LEGISLATION IN THE SHIPPING INDUSTRY

Ninety-five percent of world trade by volume – raw materials, finished goods and energy supplies – is transported by sea (*Slater, 2001*) and a large amount of capital is invested in shipping. The world wide ship building order book at June 2001 stood at US\$ 54 billion, with a total of 1,824 new vessels due for delivery within two to three years (*Papalexis, 2001*). By July 2005 the number of ships on order had increased to 4,324 vessels totalling 226.7 million dwt (*SSMR, 2005*).

Shipping is inherently a global industry. A ship built in one country may be owned by a company incorporated in another country, flagged out to a third country, managed by a company in another country, crewed by nationals of yet another country and trade internationally. This has led to difficulties both in establishing and in policing common safety standards throughout the industry. However, if safety rules differ, or if they are interpreted differently from one country to another, then an unnecessary and unwanted element of uncertainty and possibly confusion would be introduced into international maritime voyages with the potential for serious resultant consequences.

Internationally recognised standards of safety within the shipping industry are therefore, of the utmost importance, not only to ensure human safety and protection of the marine environment, but also for purely economic reasons.

In order to achieve an industry-wide safety-culture there must be rules and regulations specifying minimum standards for the building, operation and maintenance of ships, and there must also be a common understanding of those rules and regulations. Procedural and technical safety rules and regulations result from past experience, technical progress, scientific research, reflective deliberation and risk assessment. Where necessary, they are codified by State legislatures and the resultant statutes, such as the Health and Safety at Work etc Act 1974 in England and Wales, are implemented by public and commercial organisations, monitored by executive bodies such as the United Kingdom Health and Safety Executive and, in the event of severe breaches, enforced by the judiciary.

Many safety rules also exist that are not subject to legislative enforcement but do carry persuasive force. The standards developed by the Society of International Gas Tanker and Terminal Operators (SIGTTO) (*McGuire and White, 1996*) and the Rules For the Classification of Steel Ships developed by the Classification Societies such as Bureau Veritas (*Bureau Veritas, 2004*) are examples of safety rules that have persuasive rather than legislative force.

Seafaring has traditionally been regarded as a hazardous occupation. Historically, the main hazards were associated with perils of the sea because sailing vessels were very much at the mercy of the elements, although not all hazards were the result of natural providence: poor workmanship, overloading of vessels and failure to maintain vessels in a seaworthy condition also played their part.

With the advent of the industrial revolution came the use of iron and steel to construct ships and development of steam and internal combustion engines to power them. Ships were no longer so susceptible to the vagaries of the elements. The invention of the telegraph in the mid-nineteenth century made rapid communications possible, and by the latter part of the nineteenth century a global communications network was in existence. Ever more rapid and ever cheaper means of communication, coupled with ships that were no longer dependant upon wind power for propulsion, resulted in more companies being able to trade in a much wider market place than ever before.

With the industrial revolution at its height in Britain there was an increasing need for imports to supply raw materials for the fabrication of finished goods for export. International trade soared. As Amin (*Amin, 1997*) quoting Hirst and Thompson (*1996*) pointed out, at the height of the imperial age between 1878 and 1914 international flows of investment, exports and people exceeded current levels.

However, commensurate with technical progress and the increase in shipping in the nineteenth century, there was also an increase in the losses of ships and their crews. New hazards more readily associated with industrial accidents than with perils of the sea were introduced to seafaring.

In 1836 in response to growing public concern about maritime safety, the British government appointed a committee to investigate the growing number of shipwrecks. Subsequently, in 1850 legislation was passed creating the Marine Department of the Board of Trade with a brief to enforce laws governing crewing, crew competency, and the operation of merchant vessels.

Regulations were introduced requiring Masters, Mates and Engineers of British ships to be in possession of Certificates of Competency, issued by the Board of Trade. British seafarers could sit examinations for the Certificates in centres world wide and the Marine Department of the Board of Trade was responsible for ensuring uniformity of standards at all examination centres.

In response to public pressure to improve the safety of shipping, the British government also enacted the Merchant Shipping Act of 1875 providing *inter alia* for the marking of a load line on the hull of every ocean going cargo ship flying the British flag or leaving a British port. Subsequent adoption of similar regulations by other States for vessels flying their own national flags resulted in the introduction of the International Load Line.

In 1914 the British government convened an international conference with the aim of establishing international maritime safety regulations. The outcome of the conference was the adoption of the first Convention for the Safety of Life at Sea (SOLAS). According to Özçayir (Özçayir, 2001) the title of the Convention was significant because it was the first time in shipping history that protection of human life rather than vessels and their cargoes became a priority.

Due to the outbreak of the First World War the SOLAS Convention of 1914 was not implemented and it was not until 1929 when the United Kingdom hosted another conference that a second SOLAS Convention was adopted, the Convention entering into force in 1933. Subsequently, at a further conference in 1948 hosted by the United Kingdom the third SOLAS Convention was adopted and in the same year the newly established United Nations Organisation began to take an interest in the regulation of international shipping.

1.3 ESTABLISHMENT OF THE INTERNATIONAL MARITIME ORGANISATION

From the mid-nineteenth century to the mid-twentieth century the United Kingdom dominated the international shipping industry. British shipping companies carried over 50% of world trade, owned a similar percentage of world tonnage and Britain was the world's leading shipbuilding nation (*Talbot-Booth, circa 1940; Aldcroft, 1968; Podolny & Scott-Morton, 1998*). This enabled the United Kingdom government to exercise sufficiently strong administrative control to impose uniform, internationally recognised, maritime rules throughout the world shipping industry.

Political and sociological changes during the twentieth century led to cultural and organisational fragmentation within the industry. Today, ship ownership is predominately in the hands of Greek and Chinese companies (*Lloyd's Maritime Directory 2001; 2000*), the leading ship building nations are Japan and Korea (*Guide to Shipbuilding, Repair and Maintenance 2000/2001; 2000*), and ships' crews are drawn mainly from the former eastern bloc countries, the Philippines and the Indian sub-continent (*Seafarers International Research Centre, 1999*) with Filipino seafarers accounting for approximately 20% of the shipping industry's total labour force (*International Transport Workers Federation, 1998*).

This administrative, organisational and cultural fragmentation within the shipping industry is the manifestation of a phenomenon recognised by Fröbel *et al* (1980) as a new international division of labour. According to Fröbel, global reproduction of Western economic institutions has resulted in the transplantation of many Western dominated industries to other regions around the world where cheaper labour forces are available, resulting in considerable restructuring of trans-national companies and industries, and subsequent problems associated with the restructuring.

Fragmentation in the shipping industry in the twentieth century led to increasing difficulties in establishing and policing uniform safety standards throughout the industry. In 1948 the United Nations Organisation (UN) convened a conference in Geneva to consider regulation of international shipping, which led to the introduction of a Convention establishing the International Maritime Consultative Organisation (IMCO) as an agency of the United Nations. The Convention was ratified in 1958 by a quorum of UN Member States and IMCO, renamed the International Maritime Organisation (IMO) in 1982, convened its first meeting in 1959.

1.4 IMO AND SOLAS

When a qualified majority of signatory States ratify an IMO Convention the provisions of that Convention enter into force. By this means IMO introduced a series of internationally applicable regulations, commencing with the 1960 revision of the 1948 SOLAS Convention, followed *inter alia* by the 1974 Convention on Safety of Life at Sea (SOLAS), (IMO 1991; 1986), the 1978 Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) and a substantial revision of the 1978 STCW Convention in 1995.

But according to an Organisation for Economic Co-operation and Development report (OECD, 1996), the legislative approach had not been effective in raising levels of safety in shipping operations and practice, possibly because the resources necessary to police the situation have not always been forthcoming and also there are economic advantages to be gained by ship owners who avoid following the rules. The report concluded that enforcement and implementation of SOLAS regulations varied from one country to another and from one owner to another, with unscrupulous owners disregarding even the most basic safety requirements.

Contrary to the view expressed by the OECD, the United Kingdom Health and Safety Executive (HSE) (*Health and Safety Executive, 1999*) is of the opinion that short-term financial gains resulting from perceived competitive advantages from non-observance of rules and standards, agreed by convention to be safe, might well be outweighed by long term economic disadvantages, the appreciation of which might in itself be subject to differing cultural interpretation between companies based in developing countries and those based in developed countries.

The impact of economic forces in today's shipping industry may also have been somewhat mitigated by the current profitability of the industry. Beale (*Beale, 2004*) estimated the 2003 earnings of ship owners at US\$110bn and their profit at \$80bn resulting from the 'best-ever trading conditions'. Beale noted also that despite the world fleet recently increasing in size and value, ship owners were paying 30% less in insurance premiums than a decade ago. The presumption therefore is that ship owners are getting much better returns on their investments than hitherto and economic forces are thus less pressing than previously.

The significance of economic forces on the way a business is managed was also questioned by Drucker (*Drucker, 1996*) who argued that people, not forces create and manage a business and management's actions are not determined, but merely constrained, by economic forces.

Constraints imposed by economic forces are however, recognised as being important influences on the development and implementation of safety management systems, safe working practices and personal safety awareness, (*Weyman, 1998*).

1.5 THE INTERNATIONAL SAFETY MANAGEMENT CODE

In 1994 in an endeavour to ensure uniform implementation of the provisions of international Conventions regarding maritime safety and environmental protection, IMO introduced as an amendment to the 1974 SOLAS Convention, the International Management Code for the safe Operation of Ships and for Pollution Prevention, otherwise known simply as the ISM Code, which applies not only to ships and their crews but also to ship owners, managers and operating companies. In the terms used by Lau *et al* (1996) drawing on McMahan and Woodman (1992), the introduction of the ISM Code was a standard system-wide intervention.

Central to the ISM Code is a requirement for each ship operating company to establish and implement a Safety Management System (SMS). However, the ISM Code is prescriptive in outcome rather than prescriptive in process, and in recognition of the global nature of shipping and the wide differentials existing within the industry, the Code was drafted in broad terms based upon general principles and objectives (*ISM Code, Preamble, para.4 and 5*), allowing sufficient latitude to accommodate the specific needs and varied conditions facing individual ship owners and operators.

The report by the Organisation for Economic Co-operation and Development (*OECD, 1996*), although written prior to implementation of the ISM Code, acknowledged that its impending introduction represented the latest attempt to improve minimum standards of safety and provided owners and operators with a useful industry-wide organisational framework to co-ordinate the improvement effort.

Implementation of the ISM Code was forecast to result in lower insurance claims and hence premiums (*Barr, 1999*) and a recent survey carried out by the Swedish Club, a ship owners' mutual protection and indemnity insurance association, indicated that members of the Club who had fully implemented the ISM Code provisions had seen reductions of more than 30% in hull insurance claims and a similar improvement in protection and indemnity insurance claims (*Marine Engineers Review, October 2001*). The findings support the HSE argument that any short-term economic advantages gained by non-observance of safety regulations are outweighed by long-term advantages gained by observance of the rules.

However, there remains a great deal of debate within the shipping industry concerning the efficacy of the ISM Code (*Mulrenan, 2003*). Some writers believe that the Code is being ignored by ships' senior officers for fear that in the event of an accident and subsequent investigation data recorded under the provisions of an approved SMS may be used against them or their employers in a court of law (*Anderson, 2002*). Other writers report a general negative response from the industry as a whole with a growing number of key players writing off the industry's response to the ISM Code as a flop (*De Bievre, 2001*).

1.6 ADMINISTRATION OF THE ISM CODE

The fundamental principle embodied in Article 92(1) of the 1982 Law of the Sea Convention (*UNCLOS, 1982*) is that jurisdiction over a vessel on the high seas may be exercised only by the Administration of the State whose flag the vessel is entitled to fly. There exists also a general presumption under customary international law that a flag State shall ensure vessels flying its flag implement the provisions of Conventions which the State has ratified and adopted.

But, not all flag States have been equally conscientious in ensuring that vessels flying their national flag comply with the provisions of the ISM Code. As a result, the principle of sole jurisdiction by flag States has been eroded in recent years with *ad hoc* powers of inspection and detention of vessels being exercised by port States, i.e. those States whose ports a vessel enters or through whose territorial water a vessel sails. This is explored more fully in Chapter IV, Section 4.2.

But if individual nation States differ in the degree to which they ensure that ships flying their flags comply with internationally agreed rules and regulations, possibly because the States have markedly different cultural values and norms from each other, then the enforcement by a port State of the obligations and duties accepted by a flag State as a party to an internationally recognised Convention, can clearly lead to conflicts of opinion between the States in question regarding the seaworthiness of a vessel and the acceptability of its on-board safety procedures.

Furthermore, since individual safety perspectives are influenced by various factors, some of which, such as education and training, may themselves be influenced by national culture, it is logical to suppose that national cultures might also impact upon how seagoing personnel conceptually perceive safety and how safety regulations are interpreted and implemented by people of different cultures in management positions ashore.

The apparent non-observance of the provisions of the SOLAS Convention by some ship owners may therefore, owe more to cultural diversity than to perceptions of short term gain, fear of retribution, or mere negative attitude. It is this possibility that provides the chief focus of the research reported in this thesis.

1.7 CULTURE AND SAFETY

The contextual environment in which the shipping industry operates is inherently culturally diverse and cross-cultural management therefore plays an important role in the management and operations of shipping organisations, not only with regard to national and corporate cultures but also to safety cultures.

Trompenaars (2000; 24) quoting Geertz (1973) defines national culture as the means by which people communicate, perpetuate, and develop their knowledge about attitudes towards life. Culture is the fabric of meaning in terms of which human beings interpret their experience and guide their action. Trompenaars continues by offering a means of measuring culture, arguing that cultures can be distinguished from each other by the differences in shared meanings they expect and attribute to their environment.

Schein (1992) on the other hand, implies that for organisational studies to advance culture needs to be observed more than measured. The views of Trompenaars and Schein may not be mutually exclusive however, since the former's approach may quantify the degree to which cultures differ and the latter's approach may indicate how those differences may impact on organisational functions such as management styles and risk assessment.

A number of value frameworks for use in international business research have been compiled, the most common being the dimensions identified by Hofstede (1991) and Trompenaars (2000) along which national cultures differ from one another, each dimension having quite distinct characteristics. The cultural dimensions represented by the value frameworks provide the context within which trans-national companies

operate and present a knowledge management task to be dealt with by the application of cross-cultural management techniques (*Holden, 1992*).

Trompenaars (*2000, p7*) notes that culture manifests itself at different levels, such as national or regional cultures, corporate cultures and the culture of particular functions within organisations such as marketing, or research and development. Organisations also frequently refer to safety cultures and the Advisory Committee on the Safety of Nuclear Installations (*ACNSI, 1993*), commented in its third report that safety culture is a sub-set of, or at least profoundly influenced by, the overall culture of an organisation.

Some authors (*Cooper, 2000; Young, 1989*) argue that far from reflecting shared values and beliefs, corporate culture is the result of conflict and alignment of many sub-cultures within an organisation. According to this concept, corporate culture is a heterogeneous not homogeneous phenomenon, and Cooper questions whether an industry-wide homogenous safety culture can ever arise, let alone a global one.

Others propose that globalisation has blurred the differences between cultures, (*Amin, 1997*). They hypothesise that people are influenced by their environment and that influence takes place partly through institutionalised patterns of social interaction which are in a globalised society, global institutions (*Spybey, 1996*).

It can also be argued that whilst the twin pillars of globalisation, increasingly rapid communications and increasingly rapid transportation, have brought about an ever-increasing rate of exposure of cultures to each other (*Czarniawska and Joerges, 1996*), the effects of such exposure are selective, (*Hofstede, 1991*), different cultures responding differently to the same external agency.

1.8 SAFETY, EDUCATION AND TRAINING

In addition to concluding that the legislative approach has not made much of an impact on raising the levels of safety in shipping operations and practice, the 1996 OECD report, also expressed concerns about the professional training of seafarers.

Because the OECD report was published in 1996 the authors were not in a position to assess the effects of the 1995 revision of the 1978 Convention on Standards of Training, Certification and Watchkeeping for Seafarers undertaken by IMO in an endeavour to provide a common minimum standard of education and training for seafarers throughout the shipping industry.

The new Convention, which entered into force in February 2002, strongly emphasises the need for greater safety training. However, despite the notion that safety training will cure most ills in regard to accidents, evidence exists showing that it is not always effective, (*Hale, 1984*), which may be related to the variability of the quality of training given or, alternatively, to the cultural attitudes of the trainees. Furthermore, safety training should not be seen as a substitute for, or adjunct to professional training but as an integral part of professional training.

Locus of control, a personality construct developed by Rotter (*Rotter, 1966*) that has been extensively researched (*Boone et al 1996; BEM 1994; Burger 1993; etc.*) is relevant in the context of education and training. The construct recognises that some people perceive the outcome of their actions as being controlled principally by themselves whilst others perceive the outcome of their actions as being controlled principally by external factors. The former are said to have an internal locus of control orientation and the latter an external locus of control orientation.

From his observations Rotter concluded that given identical conditions for learning, different people learn different things from the same lesson dependent upon their locus of control orientation, which sits well with Hofstede's observation that different people react differently to the same external stimuli. This suggests there may be a significant correlation between locus of control orientation and an individual's cultural background, which may have important implications with regard to using education and training as a means of developing common attitudes towards safety in a global industry.

According to Rotter's and Hofstede's observations and as confirmed by Hale, safety training even if integrated with professional training, may not be effective in establishing common safety standards within the shipping industry. If that is the case, then it would be better to recognise the existence of heterogeneous attitudes towards safety and to overcome such diversity by placing greater emphasis on policing and enforcing existing regulations to ensure individual vessels comply with the strictures of the ISM Code.

Holden (2002) however, contends that cultural differences are not a barrier to trans-national organisational harmonisation but present simply another knowledge management task. He argues also (Holden 2002, p.22) that whilst culture shapes behaviour and influences one's view of the world, culture is also learned: it is therefore not a static dimension and can be changed. This implies that there may be a correlation between locus of control and an individual's cultural background and also that there may be a chronological aspect to locus of control orientation such that it may shift from external to internal as people feel increasingly competent to control events in their lives, as they gain knowledge from experience, education and training.

If this were the case, then greater emphasis on education and training such as that provided for in the 1995 STCW Convention would be the better path to follow to achieve a more homogenous attitude to safety amongst seafarers and the maritime community in general, thus ensuring that the objectives of the ISM Code are fulfilled.

This chapter has outlined the background to the development of the modern shipping industry and how it has attempted to deal with safety in face of the industry's fragmentation and cultural diversity. The next chapter describes the research design adopted to investigate the potential problems presented to safety in the shipping industry by the diversity of cultures and the steps that need to be taken to address them.

CHAPTER II

APPROACH TO THE STUDY

2.1 DEVELOPMENT OF THE RESEARCH DESIGN

It is useful at this point to recapitulate and provide a synopsis of the study's objectives. They are:

- To identify how the diversity of cultures impacts upon the implementation of maritime safety regulations;
- To determine what obstacles that impact may present to the development of safe practices and attitudes within the shipping industry;
- To ascertain whether stricter enforcement of existing regulations or more emphasis on education and training is the better way to overcome those obstacles.

The vehicle to be used for studying and measuring safe practices within the shipping industry is the effectiveness with which individual shipping companies have implemented the provisions of the ISM Code.

Following a comprehensive review of the relevant literature, a model of the working of the ISM Code is developed, based upon:

- A five-level safety hierarchy;
- Five levels at which economic and socio-cultural influences impact upon nation States, industry bodies, shipping companies and individuals;
- A connecting thread of relational contract practice running between the organisations and people involved at the various hierarchal levels of safety

management: flag State Administrations, Port State Inspectorates, shipping organisations and individuals.

From the multi-stage model, development of which is described in Chapter IX, it is evident that there are a number of hierarchal levels at which the empirical study could be carried out, ranging from international governmental level at the upper end of the hierarchy to the individual behavioural level of seafarers on board ships at the other end of the hierarchy.

However, it is also evident from the model that the most fruitful area of research would be within individual shipping companies, amongst their employees ashore and on board ship. That is where corporate safety policies and procedures are formulated, safety regulations are promulgated, safety management systems are developed and implemented and work procedures are undertaken. It is at this operational level rather than the administrative levels of government and industry bodies, that the OECD report and much of the criticism in the marine press regarding the efficacy of the ISM Code have been directed.

2.2 IDENTIFYING THE RESEARCH STRATEGY

The methodology used during the empirical stage of the study is described in detail in Part III, Chapter X, but it is useful to briefly describe here the methodology used and why it was chosen.

The data to be gathered during the empirical phase of the study being both quantitative and qualitative in nature, it was decided that of the four most common research approaches used by those carrying out small-scale research projects,

experiment, survey, action research and case study (*Blaxter et al, 2000*), the latter was the most appropriate, being not only well suited to the needs and resources of the small scale researcher (*Blaxter et al*) but also capable of accommodating a mix of both qualitative and quantitative data (*Yin 1994*).

The methodology of choice therefore, was a comparative case study, the methodology being described more fully in Part III, Chapter X. In order to strengthen the rigour of the empirical research by enhancing content generalizability and validation, it was decided to compare and contrast two shipping companies operating in the same sector of the industry but in two different geographical regions and employing personnel from countries having distinctly different cultures.

From the literature review it became evident that at the hierarchal safety levels at which the empirical research was to be carried out, there exist three specific elements that are important in the development, implementation and effectiveness of an SMS:

- Leadership style / Senior Management commitment;
- End user involvement; and
- Suitability of the SMS.

Associated with these three elements are a number of culturally influenced risk factors that could have either a positive or negative influence on the effectiveness of an SMS. It would therefore be necessary to identify and analyse the predominant cultural influences prevailing within each particular company's organisational structure. This would be achieved by using a number of indicators such as the nationality of senior managers, supervisory staff and vessels' crews,

then applying Hofstede's cultural dimensions in order to determine their corresponding positive or negative effects upon the salient organisational elements.

Having also determined from the literature review that an individual's locus of control may be influential in determining how useful education and training might be in establishing common attitudes towards safety across culturally diverse groups, Rotter's (1966) scale is used to develop a questionnaire for measuring the locus of control of two samples of seafarers and selected shore staff together with their following details:

- Nationality;
- Age and experience;
- Professional qualifications; and
- Academic attainment.

Having collected sufficient data from the foregoing procedures, it would be reviewed together with each company's SMS:

- To determine whether or not the SMS was well suited to the organisation being studied; and
- To identify the organisation's strengths and weaknesses that might impact upon the company's overall safety culture.

This would enable predictions regarding the effectiveness of the SMS to be made which could be confirmed by reviewing the company's annual safety statistics and safety records together with documentation regarding vessel classification status, ship detentions as a consequence of Port State Control inspections, etc.

Subsequently, having determined whether prevailing cultural factors contributed to or detracted from the effectiveness of the SMS, it would be necessary to establish the extent to which regulatory control on the one hand and education and training on the other hand were factors in determining the effectiveness of the SMS.

Whilst this could possibly have been determined by a questionnaire style survey it would have involved a great deal of subjectivity, both on the part of the respondents and of the researcher. It was decided therefore that the most cognitively unbiased way of establishing the role both of regulatory control and of education and training was by:

- Reviewing company documentation, particularly safety records, staff training policies and any references to ship detentions by Port State Control;
- Observing the manner in which staff approached safety matters, their degree of involvement and commitment;
- Asking questions by way of formal interview of key personnel; and
- Relational discussions with various company employees both ashore and on board ship.

From the foregoing it is evident that in each case study company there were several units or sub-units to be researched. Therefore, although the overall approach to the study would be holistic there would also be embedded components (*Yin, 1994*). This aspect of the comparative case study will be further discussed in Chapter X where details of the methodology and techniques utilised are provided.

PART II

A REVIEW OF THE LITERATURE

CHAPTER III

THE INTERNATIONAL SAFETY MANAGEMENT CODE

3.1 ISM CODE OBJECTIVES

Clause 1 of the ISM Code Preamble states that the purpose of the Code is to provide an international standard for the safe management and operation of ships and for pollution prevention. Clause 1.2 of the Code refines this overall purpose by identifying three specific objectives, namely to ensure:

- Safety at sea
- Prevention of human injury or loss of life, and
- Avoidance of damage to the marine environment

The remainder of the Code is devoted to guidance on how the objectives are to be achieved, in particular the introduction of a Safety Management System (SMS) by each ship operating company.

3.2 AN INTERNATIONAL STANDARD

The provision of an international standard as cited in the ISM Code Preamble implies that certain criteria are agreed by all IMO Member States that are contracting States to the ISM Code Convention. This would involve considerable cross-cultural agreement since IMO has 166 Member States of which 156 States with approximately 99% of the world's merchant fleet gross tonnage on their registers are contracting States to the Convention (*IMO, 2005*).

Under the 'Guidelines on the Implementation of the ISM Code by Administrations' (the Guidelines) adopted under Resolution A.788(19), it is the flag State Administration, i.e. the Government of the State whose flag a ship is entitled to fly, that is responsible for verifying compliance with the ISM Code. By extension therefore, there is a presumption that all contracting States to the ISM Code have a common understanding of the aims and objectives of the Code.

This presumption however, is not irrebuttable since the Preamble declares that the ISM Code is based on general principles and objectives and expressed in broad terms so that it can have widespread application. The inference therefore, is that there is wide scope for interpretation of the provisions of the Code.

Indeed, the Guidelines at Clause 2.1.3 recommend that in determining conformity or non-conformity of the SMS elements specified in the ISM Code, Administrations should limit the development of criteria in the form of prescriptive management system solutions and leave the shipping company itself to develop the solutions which best suit that particular Company, that particular operation or that particular ship. Furthermore, the Guidelines at Clause 2.1.4 recommend that Administrations should ensure that these assessments are based on determining the effectiveness of the SMS in meeting specified objectives rather than detailed requirements in addition to those contained in the ISM Code.

From this it is clear that it is the objectives specified in the Code that are of overriding consideration and companies are free to develop SMS elements in accordance with their operating requirements, provided that the SMS achieves the specific objectives of safety at sea, prevention of human injury or loss of life, and avoidance of damage to the marine environment, as outlined in the Code.

To remove some of the subjectivity and latitude afforded to companies developing an SMS, Clause 1.4 of the Code introduces functional requirements for safety management systems and elaborates on each requirement in further clauses. The correlation between the functional requirements and the elaborating clauses is shown in the following table, adapted from the tabulation by Sagen (1999):

Basic Functional Requirements	Elaboration Clauses
1.4 Every company should develop, implement and maintain a safety-management system (SMS) which includes the following functional requirements: .1 A safety and environmental protection policy; .2 Instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State requirements; .3 Defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel; .4 Procedures for reporting accidents and non-conformities with the provisions of this Code; .5 Procedures to prepare for and respond to emergency situations; and .6 Procedures for internal audits and management reviews	Cl. 11 Cl. 2 / 1.2 Cl. 6, 7 and 10 Cl. 3 and 5 Cl. 9 Cl. 8 Cl. 12

TABLE 1: SMS FUNCTIONAL REQUIREMENTS (AFTER SAGEN, 1999)

However, although providing guidance to shipping companies and Administrations regarding the minimum functional requirements that must be included in an acceptable SMS, neither the functional requirements nor the elaboration clauses are prescriptive in nature. Thus, companies and Administrations are still left with considerable latitude in how they address the requirements of the Code.

There remains also a need for them to exercise subjective judgement both in interpreting the objectives of the Code and in deciding whether or not any particular SMS will lead to the objectives being satisfactorily addressed.

3.3 SAFETY CULTURE AND THE ISM CODE OBJECTIVES

Sagen (1999) terms the introduction of the ISM Code a paradigm shift in international ship operation and holds that the key factor in fulfilling the intentions and objectives of the ISM Code is the establishment of a Safety Culture in Ship Operation, noting the often quoted statement of former IMO General Secretary, William O'Neill that the ISM Code will provide ship owners with real business advantages, provided they truly want to change towards a Safety Culture.

By prefacing the words Safety Culture with the indefinite article rather than the definite article both Sagen and O'Neill are presumably using the term generically to imply the observance of internationally agreed rules and regulations and the introduction of industry-wide working practices and attitudes agreed by convention to be safe, not simply that there is only one Safety Culture acceptable throughout the entire shipping industry. Indeed, the former is a basic assumption of the model on which the current study rests.

A Safety Culture may be defined as the attitude of employees within an organisation towards managing personal, corporate or environmental safety within their sphere of work (Shaw, 2001). Whilst there are links between corporate, or organisational, culture and the way in which tasks are performed, including the development of safety consciousness within organisations (Carnall, 1995), national culture undoubtedly has a very strong influence upon both corporate

culture and safety culture (Hale, 1984; Hofstede, 1991; ACSNI, 1993). This being the case, the interpretation and implementation of the ISM Code will have as much to do with beliefs and values as it will with mandatory regulatory compliance.

In assessing whether a specific company's SMS will be successful in achieving the stated objectives of the ISM Code, the person making the assessment on behalf of the flag State Administration must make a subjective judgement based upon his own experience, education and training, all of which will inevitably be influenced by his own socio-cultural background. This is illustrated in figure 1 below for two different cultures, and the model may be extended to any number of cultures.

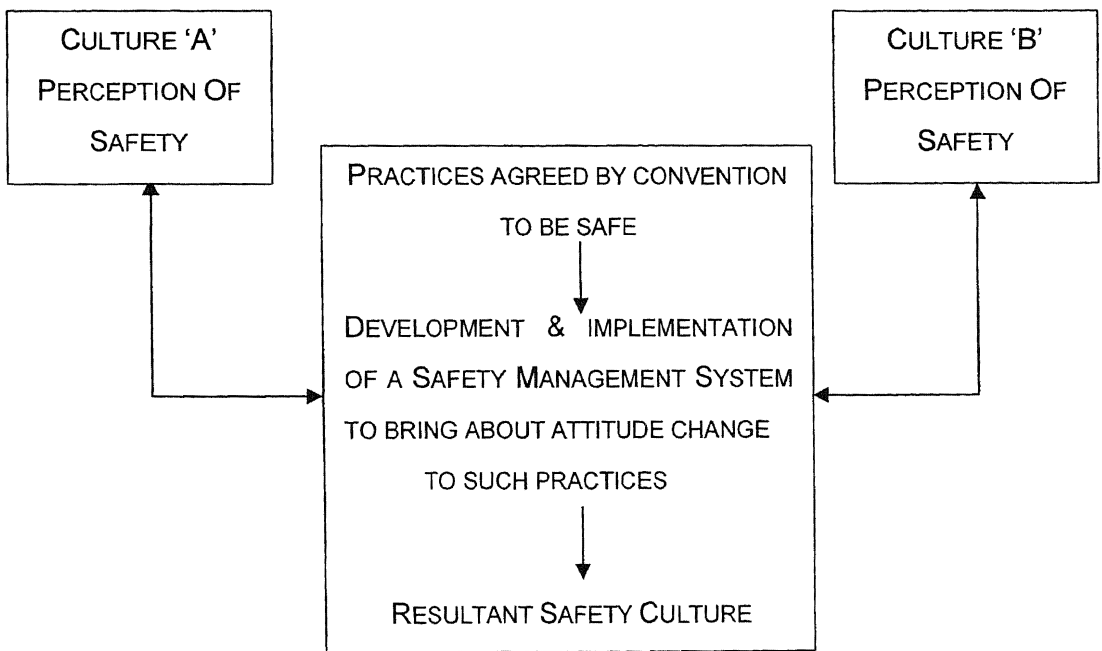


FIGURE 1 – IMPACT OF CULTURE ON SAFETY MODELS

Shaw (2001) on the other hand is of the opinion that the notion of a safety culture *per se* is outdated and that safety should be viewed as an integral part of business, forming part of a company's overall risk management strategy.

In the case of the ISM Code it is possible that there is no dichotomy in this respect, since the Code requires each ship operating company to develop its own integrated SMS, i.e. a systematic approach to integrating safety into work planning and execution, encompassing protection of employees, the public, and the environment.

3.4 OBLIGATIONS ENGENDERED BY THE CODE

As an International Convention the ISM Code places an obligation upon all States that are contracting parties to the Convention to ensure that its provisions are implemented within their jurisdictions.

Specific provisions within the ISM Code relate to how the objectives are to be achieved, in particular the introduction of an SMS by each ship operating company. The Code creates therefore, a legal obligation for ship operating companies to address those specific provisions, to develop, implement and administer an SMS and for flag States to ensure that this obligation is fulfilled.

The ISM Code also contains an objective declared in conceptual rather than specific terms: to provide an international standard for the safe management and operation of ships and for pollution prevention and thus ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the marine environment. However, safety is a relative rather than an absolute concept (Section 3.3 above) and different positions may be held by different people on what constitutes 'safety'. The stated objective of the Code therefore, creates a moral obligation for ship operating companies to develop an SMS that satisfies the spirit of the Code and for flag States to ensure that this obligation is fulfilled. This is discussed more fully in Chapter VII, sections 7.1 and 7.2.

CHAPTER IV

AUTHORITY TO ADMINISTER THE ISM CODE

4.1 FLAG STATES & INTERNATIONAL LAW

4.1.1 The Nationality of Ships

The idea of the secular nation State with sovereign rights was a philosophy initially developed by writers of the Renaissance period, prior to which the imperial concept prevailed (*MacLean, 1994*). The subsequent emergence of a plurality of nation States, each with its own sovereign authority, was paralleled by a need to regulate relationships between sovereign States and was the driving force behind the development of modern international law.

Today, the notion of the nation State, which sees all people in a geographical area as subject to one set of municipal laws, is the generally accepted political doctrine that governs international relations between States throughout the world.

With the development of the nation State as the sovereign power came the concept of nationality. However, the concept of the nationality of merchant ships was not fully developed until the end of the 18th century (*Özçayır, 2001*), prior to which the principal point of legal reference was the nationality of a vessel's owner rather than the flag the vessel flew. Today however, the fact that ships have nationality is recognised in international law under Article 90 of the 1982 United Nations Law of the Sea (LOS) Convention (*UNCLOS, 1982*), which provides that every State whether coastal or land-locked has the right to sail ships under its flag on the high seas.

Article 91 of the 1982 LOS Convention further provides that:

- Each State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag.
- Ships have the nationality of the State whose flag they are entitled to fly.
- There must exist a genuine link between the State and the ship.
- Each State shall issue to ships to which it has granted the right to fly its flag documents to that effect.

The 1982 LOS Convention came into force on 28 July 1996 and as of August 2006 has been ratified by 123 of the 151 UN Member States participating in the Agreement. By virtue of the provisions of the Convention the nationality of a ship is evidenced by the ship's papers and its flag, and is determined by registration with a nation State's ship registry, the conditions for which are laid down by the municipal law of the particular State and vary from State to State, with some States having less stringent conditions than others.

Churchill and Lowe (1999) and Özçayir (2001) are of the opinion that the requirement for a genuine link between the State and the ship was introduced into the Convention in light of the judgement in the *Nottebohm Case (Liechtenstein v Guatemala, 1955)* in which the Court held *inter alia* that, "... international law leaves it to each State to lay down the rules governing the grant of its own nationality..... On the other hand, a State cannot claim that the rules it has thus laid down are entitled to recognition by another State unless it has acted in conformity with this general aim of making the legal bond of nationality accord with the individual's genuine connection with the State which assumes the defence of its citizens by means of protection against other States".

Thus, in accordance with Article 91 Of the 1982 LOS Convention and the principle established in the *Nottebohm* case, the right to enjoy the privileges of the nationality of a State under international law, arises only where there is a genuine link between the State and its national. But what constitutes a genuine link between a State and a ship is a matter of some debate within the shipping community.

In some States, simply incorporating a company in the particular State is sufficient to establish a genuine link as far as the municipal law of that State is concerned, although it is debatable whether that would be sufficient to satisfy public international law. However, the 1982 LOS Convention is silent on the consequences of there being no evidence of a genuine link between State and ship, and some maritime administrations have abandoned altogether any requirement for such a link as a condition for inclusion of vessels on their registers. The Marshall Islands Registry for example requires that vessels registered in the Republic of the Marshall Islands must be owned by a Marshall Islands citizen *or national of a qualified foreign maritime entity* (emphasis added). Foreign Maritime Entities are described in Section 3 of the Vessel Registration and Mortgage Procedures (2005) as 'legal entities created under the laws of a jurisdiction other than the Marshall Islands that are eligible to own vessels when registered in the Marshall Islands pursuant to Section 119 of the BCA'.

Ship owners may be motivated to flag out their vessels to a foreign country where the link between the flag State and a ship is somewhat tenuous in order to reduce operating costs by taking advantage of that country's cheap registration fees, low or non-existent taxes and cheap labour costs.

When a ship registry offering such fiscal advantages also fails to demonstrate either the ability or the willingness to ensure that vessels on its register meet the operating, maintenance and safety standards contained in international Conventions, then that State is said to be a flag of convenience country. As of August 2003, the International Transport Workers Federation (*ITF, 2003*) named thirty-two nation States as offering a flag of convenience.

The requirement for a genuine link was introduced partly in an attempt to limit the use of flags of convenience. That was considered necessary because it was apparent that some flag States were primarily interested in the revenue generated by ship registration and were not conscientious in fulfilling their obligations to ensure that ships flying their flags complied with the standards accepted by the flag State under the international conventions to which it was party. The revenue generated by a ship registry may be considerable. For example, between 1949 (when it was established) and 1999 the Liberian registry remitted around US\$700 million to the Liberian government and in the year 2000 generated some US\$18 million (*Africa Confidential, 2005*)

It is interesting to note that the ship registries of many maritime administrations associated with flags of convenience are not operated as part of the municipal administrative systems of those States but are incorporated as companies that operate on a purely commercial basis. Even their headquarters may be located in other States, as for example that of the Marshall Islands Registry, which is located in New York (*Vessel Registration and Mortgage Recording Procedures, 2005*).

But commercial pressures currently prevail over the scruples of public international law and the majority of ships registered in the world's largest ship registries,

Panama, Liberia, Honduras and the Marshall Islands, are owned by foreigners who register their ships in those States for fiscal, monetary and economic reasons. Even traditional maritime nations such as Norway now have second, or open registers, that have more favourable fiscal arrangements than their main registers.

Clearly, if individual nation States differ in the degree to which they ensure ships flying their flags comply with internationally agreed regulations and if ship owners are free to select the State whose flag they wish to fly, then disparities may well arise between the standards to which different ships are maintained and operated, not only between ships sailing under different flags but also between ships flying the same flag but having different ownership.

4.1.2 Jurisdiction over Vessels

Custom as a source of international law is recognised in Article 38(1) of the Statute of the International Court of Justice. However, in the *Asylum Case: Columbia v Peru (1950)*, the court held that, "The Party which relies on a custom of this kind must prove that this custom is established in such a manner that it has become binding on the other Party". This view was supported in the *North Sea Continental Shelf Cases (1969)*, in which the court held that, "Not only must the acts concerned amount to a settled practice, but they must also be such, or carried out in such a way, as to be evidence of a belief that this practice is rendered as obligatory by the existence of a rule of law requiring it..... The States concerned must therefore feel that they are conforming to what amounts to a legal obligation. The frequency or even habitual character of the acts is not itself enough".

Under customary international law the fundamental principle is that only the flag State may exercise jurisdiction over a vessel on the high seas (*MacLean, 1994*),

and this principle is now embodied in Article 92(1) of the 1982 LOS Convention (*UNCLOS, 1982*), which provides *inter alia* that:

Ships shall sail under the flag of one State only and, save in exceptional circumstances provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas.

The exceptional circumstances covered by the Convention refer to a limited number of criminal acts such as piracy, slave trading and unauthorised broadcasting.

But as discussed in 4.1.1 above, not all flag State administrations are as effective or as conscientious as each other. And as each flag State is a sovereign power it enjoys sovereign immunity, there being no higher temporal authority to which it is answerable. As a UN agency IMO can be regarded as a supranational body, but as pointed out by Lord Donaldson (*Donaldson, 2001*) the flag States are all voting members of IMO thus rendering improbable any possibility of censure of an errant flag State.

The question arises therefore, as to whether States other than a vessel's flag State can enforce the obligations and duties accepted by the flag State as signatory to an internationally recognised IMO Convention.

4.2 PORT STATES AND INTERNATIONAL LAW

Under the 1982 LOS Convention, coastal States do have some rights over foreign flag vessels entering and transiting their territorial waters, particularly jurisdiction relating to navigation, defence and protection of the environment. These rights are provided for in Article 21 and Article 25 of the 1982 LOS Convention.

A port is generally considered to be part of a State's internal waters, and the general rule is that when a vessel voluntarily enters a foreign port it becomes subject to the coastal State's sovereignty and therefore a coastal State may enforce its national laws against foreign ships in its internal waters. This general rule was expressed in *Wildenhus's Case (1887)* by Wait CJ who held that, "It is part of the law of civilised nations that when a merchant vessel of one country enters the ports of another for the purposes of trade, it subjects itself to the law of the place to which it goes, unless by treaty or otherwise the two countries have come to some different understanding or agreement". By way of explanation he continued, "As the owner has voluntarily taken of his vessels for his own private purposes to a place within the dominion of a Government other than his own, and from which he seeks protection during his stay, he owes that Government allegiance for the time being as is due for the protection to which he becomes entitled".

However, the rule does not provide the coastal State with exclusive jurisdiction over the vessel. Matters that affect only the vessel and do not impact upon the coastal State or the port harbouring the vessel remain a matter for the flag State. Also, with regard to a ship's general condition and seaworthiness, the port State can not force the vessel to meet standards higher than those recognised by the flag State. Provided the ship's papers and certificates are in order and the vessel presents no perceived environmental threat, the port State is not at liberty to carry out detailed inspections of the vessel. These matters were discussed in the *Nimbus case (Sellers v Maritime Safety Inspector, 1998)* in which William Rodman Sellers, master of the cutter *Nimbus*, had refused to carry the radio and emergency beacon equipment required as a minimum by the New Zealand Director of Maritime Safety. Sellers subsequently sailed the vessel from Opuā

without obtaining the requisite port clearance. He was prosecuted for a breach of the New Zealand Maritime Transport Act 1994. His appeal was dismissed in the High Court but he was granted leave to appeal to the Court of Appeal.

Allowing the appeal, Keith J stated, 'Our conclusion on the relevant rules of international law is, accordingly, that a port state has no general power to unilaterally impose its own requirements on foreign ships relating to their construction, their safety and other equipment and their crewing if the requirements are to have effect on the high seas. Any requirements cannot go beyond those generally accepted, especially in the maritime conventions and regulations In addition, any such port state powers relate only to those foreign ships which are in a hazardous state'.

The court also held that 'Legislation regulating maritime matters should be read in the context of the international law of the sea and, if possible, consistently with that law' and the United Nations law of the Sea Convention 1982 (*UNCLOS 1982*) was referenced several times. Under that Convention a vessel's flag State has primacy of jurisdiction over the vessel but Articles 211(3), 218 and 219 of the Convention provide a basis for port State jurisdiction, particularly with respect to pollution avoidance and containment, and to detain a vessel which is in violation of applicable international rules and standards relating to seaworthiness of vessels and thereby threatens to damage the marine environment (Article 219).

The first SOLAS Convention of 1914 also included a provision for a coastal State signatory to the Convention to inspect the papers of a ship flying the flag of a contracting party in order to ensure that they were valid and that the vessel therefore met the required standards. During recent years Port State Control

provisions have been incorporated in a number of IMO Conventions. In particular Özçayir (2001) cites:

- SOLAS 74, reg. I/19, reg. IX/6 and reg. XI/4;
- Load Lines 66, Art.21;
- MARPOL 73 / 78, Arts. 5 and 6, reg. 8A of Annex I, reg.15 of Annex II, reg. 8 of Annex III and reg. 8 of Annex V;
- STCW 78, Art. X and reg. I/4;
- Tonnage 69, Art. 12.

Also, regulation 6 of Chapter IX of SOLAS 1974 refers specifically to Port State Control in respect of operational requirements with regard to the ISM Code. There are also provisions under the International Labour Organization No. 147, Merchant Shipping (Minimum Standards) Convention 1976 for port States to inspect vessels to ensure that minimum standards agreed to in the Convention are not being breached.

4.3 PORT STATE CONTROL

Primary responsibility for ensuring that a vessel complies with national and international regulations unquestionably lies with the ship's owner. It is the owner who is responsible for ensuring that the vessel is adequately maintained, properly crewed, sufficiently funded and well managed.

Secondary responsibility lies with the flag State. It is the duty of the flag State to ensure that the ship's owner is meeting the provisions of the State's municipal rules and the international conventions to which the State is a contracting party. If the ship's owner is not meeting those provisions then the flag State has both the

authority and the responsibility to insist that non-conformities are rectified, failing which it may remove the ship from its register, thus removing from the vessel the protection and privileges afforded by the State.

But as noted in Section 4.1 above, not all flag State administrations are as effective or as conscientious as each other, and since they are all voting members of IMO any possibility of censure of an errant flag State is rendered improbable.

A final defensive system against the operation of sub-standard shipping is provided by the littoral States, i.e. the coastal nations through whose territorial waters all vessels have the right under the 1982 LOS Convention to navigate unhindered. If a vessel founders in the territorial waters of a coastal State then it is the environment and citizens of the coastal State that are affected, not those of the flag State (*Donaldson, 2001*). This possibility has led to development of the Port State Control (PSC) system under which a percentage of ships entering a coastal State's ports are inspected. Any deficiencies found during the inspection are recorded and, if they are sufficiently serious, the vessel is detained until the deficiencies have been remedied.

To make the system as effective as possible, regional groupings of port States have combined to produce comprehensive regional policies. The first regional grouping was formed by fourteen nation States that were signatories to the Paris Memorandum of Understanding (Paris MOU) 1982, to which a further five nations subsequently became signatories.

The Paris MOU served as a model for other coastal States interested in developing systems of Port State Control with the result that the Tokyo MOU 1993

and the Caribbean MOU 1996 were established, both of which are recognised by the Paris MOU. A number of other regional groupings are currently developing MOUs for the Black Sea, the Indian Ocean, Latin America and the Mediterranean (Özçayir, 2001). The USA and Australia each have their own unilateral Port State Control policies.

Unlike the ISM Code which is prescriptive in outcome, the Paris MOU is prescriptive in process and spells out in considerable detail precisely what a PSC inspector shall examine and what shall constitute a deficiency.

4.4 SUMMARY

This chapter looked at who is responsible for administering the ISM Code and ensuring that vessels meet the minimum legal criteria for ensuring safety of life, property and the environment. In order of priority they are:

- The Owner of the vessel
- The manager / operator of the vessel
- The vessel's flag State
- Port States

Each of these entities has a different interest in the vessel and therefore each may prioritise safety issues differently from the others. The cultural and socio-economic pressures acting upon each of these entities will be looked at in more detail in the following chapter.

CHAPTER V

SAFETY MANAGEMENT

5.1 SAFETY MANAGEMENT HIERARCHY

Le Guen (1999) refers to a risk control hierarchy originally advocated by the Robens Committee and since promoted by the Health and Safety Executive and the European Union. The concept of a hierarchy of norms associated with risk may be compared to Kelsen's pure theory of law (*Kelsen, 1967*) which argues that within a legal system there is a hierarchy of norms beginning with the more abstract at the higher level to the more concrete at the practical level.

In using the term 'norm' Kelsen is referring to the way things ought to be or the way a person ought to behave in particular circumstances. Kelsen's theory is relativistic insofar as it rejects the concept of there being only one single truth, holding instead that norms are relative to the individual or social group under consideration (*Wacks, 1993*). According to Kelsen's theory a norm is valid only if it is authorised by another norm, which in turn must be authorised by a higher norm and so on until the basic norm, or as Kelsen called it the Grundnorm, is reached. Harris (2004) explains that in the case of a legal system the basic norm might be the written constitution of a State or, if the State has no written constitution, the norm-creating effect of custom.

Based upon Kelsen's model it is possible to consider safety as a system or order of norms for it is convenient to break down the overall concept of safety management in accordance with a number of hierarchal levels that, although

comprehensively linked together, can be reviewed separately from each other with respect to how they impact upon, or are influenced by, the development of Safety Management Systems. For the purposes of this thesis it has been found useful to categorise safety under the following five heads:

- Level 1. Imperative Safety Management - (the basic or constitutional norm).
- Level 2. Institutional Safety Management - (general norm).
- Level 3. Organisational Safety Management - (particular norm).
- Level 4. Operational Safety - (particular concretised norm).
- Level 5. Behavioural Safety - (particular fully concretised norm).

These five categories, reviewed in more detail below, provide a helpful analytic framework for describing the emphasis adopted in the various safety management models described in section 5.2 of this chapter and in developing a model of the working of the ISM Code in Chapter IX.

5.1.1 Imperative Safety Management

Imperative safety management refers to safety regulation at governmental level: negotiation of international treaties and conventions, and drafting of municipal laws relating to protection of the environment and to safety and health of employees in the workplace (ES&H legislation).

Drafted at governmental level, either by national governments or by international governmental bodies such as agencies of the United Nations, such regulation may be considered a reflection of the will of the people and therefore constitutes the basic or constitutional norm of safety management: the norm from which all subsequent safety management stems

5.1.2 Institutional Safety Management

Institutional safety management refers to safety at an industry level, how industry bodies interpret and organise implementation of the edicts of government, such as employment laws and safety and health (ES&H) legislation.

At this level the basic norm becomes a general norm and the fundamental idea of a duty of care starts to become concretised. At this level also, the fundamental ideas of the basic norm become influenced by practicalities such as cultural norms and the economic circumstances of the companies, individuals or social groups that comprise the industry bodies under consideration.

5.1.3 Organisational Safety Management

Organisational safety management is the way in which individual companies respond to regulations emanating from industry bodies implementing the edicts of government. This is safety management at the level of senior management.

At this level the general norm becomes a particular norm relating to a specific duty of care within the ambit of safety management and it is here that policies regarding safety management and risk management are developed and promulgated. Decisions are made regarding the type and style of SMS that a company intends to follow and the resources that will be made available for its development. Monitoring of the company's safety performance is carried out at this level utilising feedback received by senior management from operations personnel.

Safety management at this level of the safety hierarchy forms an embedded component (*Yin, 1994*) of the comparative case study carried out at the empirical research stage of this thesis.

5.1.4 Operational Safety

Operational safety is the practical organisation and implementation of safety. The particular norm becomes concretised. An SMS is developed, work procedures are formalised, and safety procedures are implemented ensuring that safe working practices are followed and suitable safety equipment is provided. Checks and balances are put in place to:

- Identify hazards;
- Minimise the possibility of undue risks being taken;
- Provide feedback to senior management.

At this level the duty of care becomes a particular concretised norm in the form of a Safety Management System. Procedures have been promulgated and supervisors ensure that the procedures are followed. As with organisational safety, safety management at this level of the safety hierarchy also forms an embedded component of the empirical research.

5.1.5 Behavioural Safety

Behavioural safety is safety at the level of the individual, the psychology of human behaviour in relation to the problems of safety in the workplace. This is the shipboard or factory floor level, the level at which work procedures are performed and at which safety procedures are aimed. At this level of the safety hierarchy the particular concretised norm has become a particular fully concretised norm.

By observing company policies, procedures and work instructions formalised in the company's SMS, the individual will be exercising on behalf of the company the duty of care that the company legally or morally owes to people, property and the environment.

It is individuals who are responsible for ensuring that the duty of care is in fact exercised, but even though individuals are aware of their employers' policies and procedures they may sometimes choose to ignore some of those policies or procedures, just as some people choose to ignore particular laws. Why this should be so is a matter of much debate, but it may be that:

- The work instructions or safety procedures are ill-defined; or
- The individuals are not sufficiently experienced, well enough educated or adequately trained to carry out safely the tasks assigned to them;
- There are over-riding economic considerations.

The first reason would be attributable to an organisational deficiency in the SMS caused at the organisational or operational level of safety management. The second reason would be an argument for more effective education and training. The third reason is looked at in some detail in Chapter VII, section 7.3

Behavioural safety is particularly relevant in the area of education and training and is a key determinant in deciding whether stricter enforcement of existing regulations or greater emphasis on education and training is the better path to follow to ensure that the objectives of the ISM Code are achieved throughout the shipping industry.

5.2 SAFETY MANAGEMENT MODELS

Central to the ISM Code is the development and implementation of a Safety Management System (SMS). It is expedient therefore, to review the nature of safety and the differing approaches to safety management that have evolved.

5.2.1 Traditional Approach

Attempts were made over 70 years ago by The Safety First Movement to promote the concept of safety management by the introduction of safety committees with joint representation of management and workforce, and the appointment of safety officers to monitor adherence to the standards in the workplace (*Williams, 1960*).

This approach, which operated at safety hierarchy levels 3, 4 and 5, was partially successful but did not promote proactive decision making because, according to the ACSNI Human Factors Study Group (*ACNSI, 1993*), the main purpose of the safety committees was to investigate accidents, the process and outcome of the investigation being steered by the preconceptions of the investigators about accident causation. The investigation would attribute the cause of an accident to either:

- Unsafe behaviour (unsafe act), in which case in order to prevent a recurrence of the unsafe act the committee would devise a rule forbidding such behaviour; or
- Shortcomings in the working environment (unsafe conditions), in which case the committee would devise a technical solution to make the conditions safe or to protect people against the hazard.

The approach fitted well with the then prevalent theory of subjective and objective risk. The former related to the psychological dimension associated with a perceived danger whilst the latter related to the mathematical probability of the occurrence of an accident. *Watson (Watson, 1981)* and others opposed the idea of there being a distinctive difference between subjective and objective risk, arguing that the theory was over simplistic and valued abstract mathematical risk models above public opinion.

Pidgeon (*Pidgeon et al, 1992*) also attacked the theory on the grounds that objective risk assessment cannot be free from an element of subjectivity, and a Royal Society Report (*Royal Society Report, 1992*) concluded that subjective and objective risk assessment is no longer a mainstream theory. However, risk *per se* remains an important factor in safety management and is further investigated later in this chapter and in greater detail in Chapter VI.

5.2.2 Safety Culture

Sagen (*Sagen, 1999*) terms the introduction of the ISM Code a paradigm shift in international ship operation and holds that the key factor in fulfilling the intentions and objectives of the ISM Code is the establishment of a Safety Culture in Ship Operation.

Shaw (*2001*) defined Safety Culture as the attitude of employees within an organisation towards managing personal, corporate or environmental safety within their sphere of work. The ACSNI (*1993*) is of the opinion that safety culture is a sub-set of, or at least profoundly influenced by, the overall culture of an organisation. Cooper (*2000*) and Young (*1989*) hold that far from reflecting shared values and beliefs, corporate culture is the result of conflict and alignment of many sub-cultures within an organisation, that it is an heterogeneous, not homogeneous phenomenon, leading Cooper to question whether industry-wide homogenous safety cultures will ever arise, let alone a global one.

The difference between the views of Sagen and Shaw may be due to the fact that the former appears to view Safety Culture as operating at level 2 of the safety hierarchy whilst Shaw sees it operating mainly at levels 3, 4 and 5 of the safety hierarchy, as with the traditional approach to safety management.

Undoubtedly a nexus exists between organisational culture and the way in which tasks are performed, including the development of safety consciousness within organisations (Carnall, 1995). But because national culture has an overwhelming influence upon both organisational culture and safety culture (Hofstede, 1991; ACSNI, 1993; Hale, 1984) it would be most unlikely for an industry-wide safety culture to be developed at level 2 of the safety management hierarchy and even less likely for a global safety culture to be developed at level 1 of the hierarchy.

5.2.3 Safety Cultures and Safety Management Systems

Current management practice encourages the development of safety cultures within organisations and identifies safety management systems, a concept examined in section 5.3 below, as an important element in developing safety cultures. The concept is illustrated in figure 2 which shows Cooper’s Reciprocal Safety Culture Model (Cooper, 2000).

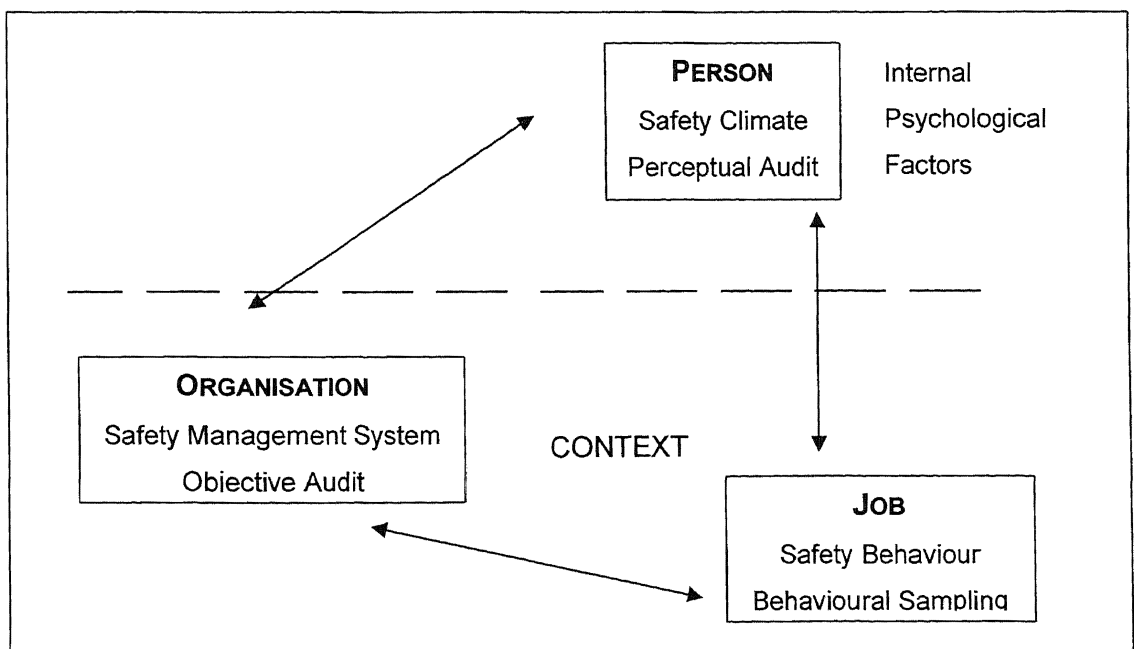


FIG.2: RECIPROCAL SAFETY CULTURE MODEL (COOPER, 2000)

Cooper's model, which adapts Bandura's model of reciprocal determinism (Bandura, 1986), comprises three interactive elements each of which impacts specifically upon one of the three component parts of a safety culture. The model also offers a means by which each element can be measured and the various facets of the model can be elaborated upon and summed up as follows:

1. Element – Person

Personnel Selection - Person / Job Fit - Safety Training – Competencies - Health Assessments - Job Satisfaction - Organisational commitment.

Impacts upon – Safety Climate

2. Element – Organisation

Management Commitment – Management Actions – Communications – Allocation of Resources – Emergency preparedness – Status of Safety Personnel – Policy & Strategy Development.

Impacts upon – SMS

3. Element - Job

Risk Assessments - Required Workplace - Standard Operating Procedures – Teamwork - Involvement in Decision-making - Person / Machine Interface - Work Environment - Work Patterns

Impacts upon – Safety Behaviour

Means of Measurement

- Safety Climate – Perceptual Audit
- Safety Management System – Objective Audit
- Safety Behaviour – Behavioural Sampling

5.3 INTEGRATED SAFETY MANAGEMENT SYSTEMS

Traditional safety law was prescriptive in process, specifying hazards and the preventive measures to be taken. A report by the Robens Committee (1974) – a safety hierarchy level 1 intervention that advocated self-regulation at safety levels 2 and 3 rather than resorting to legislation - recognised the shortcomings of the traditional approach to safety and recommended instead explicit policy objectives and effective organisation with clearly defined individual responsibilities. The ACSNI Human Factors Study Group Third Report (1993) expressed the opinion that what Robens called self-regulation would now be termed safety culture.

Interestingly, Robens' recommendation actually outlines the fundamental principles of a typical Safety Management System (SMS) that incorporates:

1. A policy that recognises management responsibility for safety, and
2. A safety organisation that:
 - Identifies potential hazards and
 - Apportions responsibility for dealing with those hazards.

5.3.1 Closed Cycle Safety Management Systems

Genn (1987) has suggested that Robens' proposed self-regulation is successful in only a very limited number of companies, principally within firms that have clear, self-interested reasons for compliance, and that most employers will implement safety improvements only when detailed safety provisions are imposed upon them and the rules are enforced by an inspection system. Such an organisation may develop and implement an SMS such as that depicted in figure 3 below and which may be termed a closed cycle model.

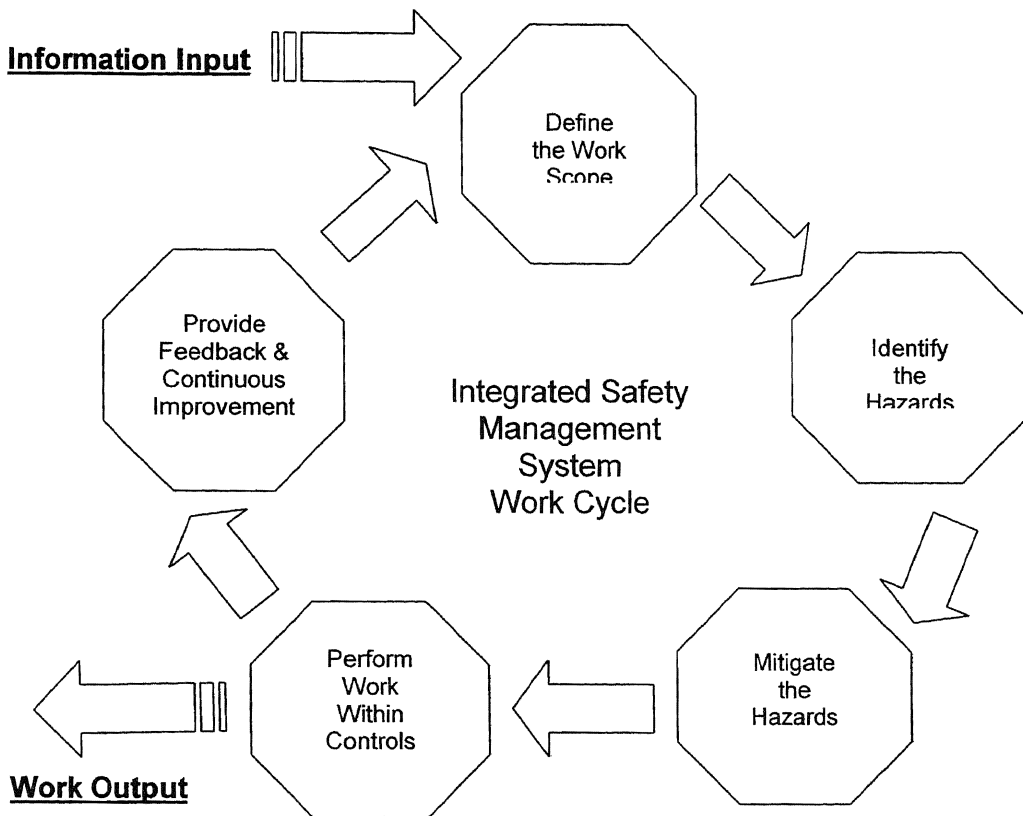


FIGURE 3: MODEL OF A CLOSED CYCLE SAFETY MANAGEMENT SYSTEM

A closed cycle SMS is basic in design in so far as it is not incremental. Although the SMS may be fully integrated into the organisation's work system it is not open to outside influences and has only one point of feedback, suggesting that it has been introduced in order to achieve specific, limited goals.

Such a system can grow and mature in only two ways:

- By increasing the speed of the cycle; or
- By adding additional layers to the cycle, similar to the skins of an onion.

The first option is not realistic since the speed of the cycle will be constrained by the speed at which the work is performed. The second option is feasible but the system may become administratively cumbersome if too many layers are added.

An example of a closed cycle SMS may be found in Florida where State law (339.177 F.S.) requires the Department of Transportation to have an SMS in order to provide information needed to make informed decisions regarding the proper allocation of transportation resources. An SMS is broadly defined by the Florida State Safety Engineer's Office (*Florida State Safety Engineer's Office, 2001*) as the integration of the vehicle, the driver and the roadway elements into a comprehensive approach to solving highway safety problems.

The example given demonstrates the use of an integrated SMS to achieve a specific goal: to reduce the number and severity of traffic crashes by analysing feedback to ensure that all opportunities to improve road safety are:

- Identified,
- Considered, implemented when and where appropriate, and
- Evaluated.

In terms of design, the system used by the Florida Department of Transport is a closed cycle SMS with single feedback. Although integrated into the organisation's work systems, the SMS operates on a closed cycle and is not intended to be further developed.

Design of such systems is carried out by senior managers working at level 3 of the safety hierarchy, development and implementation of the systems is effected by middle management at level 4 of the hierarchy, and functional use of the systems is carried out by staff working at level 5 of the hierarchy. Feedback is between levels 5 and 4 of the safety hierarchy with no feedback other than work output, in this particular case information, at level 3.

5.3.2 Incremental Safety Management Systems

The phased repeal of outdated safety law – which was *prescriptive in process* - and the introduction by the U.K. Health and Safety Executive (1992) of the Management of Health and Safety Regulations - which are *prescriptive in outcome*, specifying the steps which an employer should take to identify hazards, assess risks, and select, implement and monitor preventive measures rather than specifying specific hazards and the preventive measures to be taken - have resulted in a more proactive approach to safety management, with safety management systems of an incremental nature integrated into an organisation's general operating framework.

The concept of an incremental integrated SMS with multiple lines of feedback is commensurate with a growing body of literature that recognises not only the personality factors and situational variables that affect both risk taking and risk taking behaviour, but also the influence of the organisational structure itself (ACSNJ, 1993; Le Guen, 1999; Harvey et al, 2001).

A model of an incremental SMS is illustrated in figure 4 below. It is an open system with a comprehensive review mechanism at each level of operation, illustrated by the feedback loops in the figure, suggesting that the SMS is not only integrated into the organisation's work system but is also open to the influence of exogenous concerns such as public safety and environmental protection, and can be adapted accordingly.

In an incremental SMS, both management and operational tasks progress sequentially through five steps, each with its own feedback loop and each open to outside influences, thus allowing the system to mature organically.

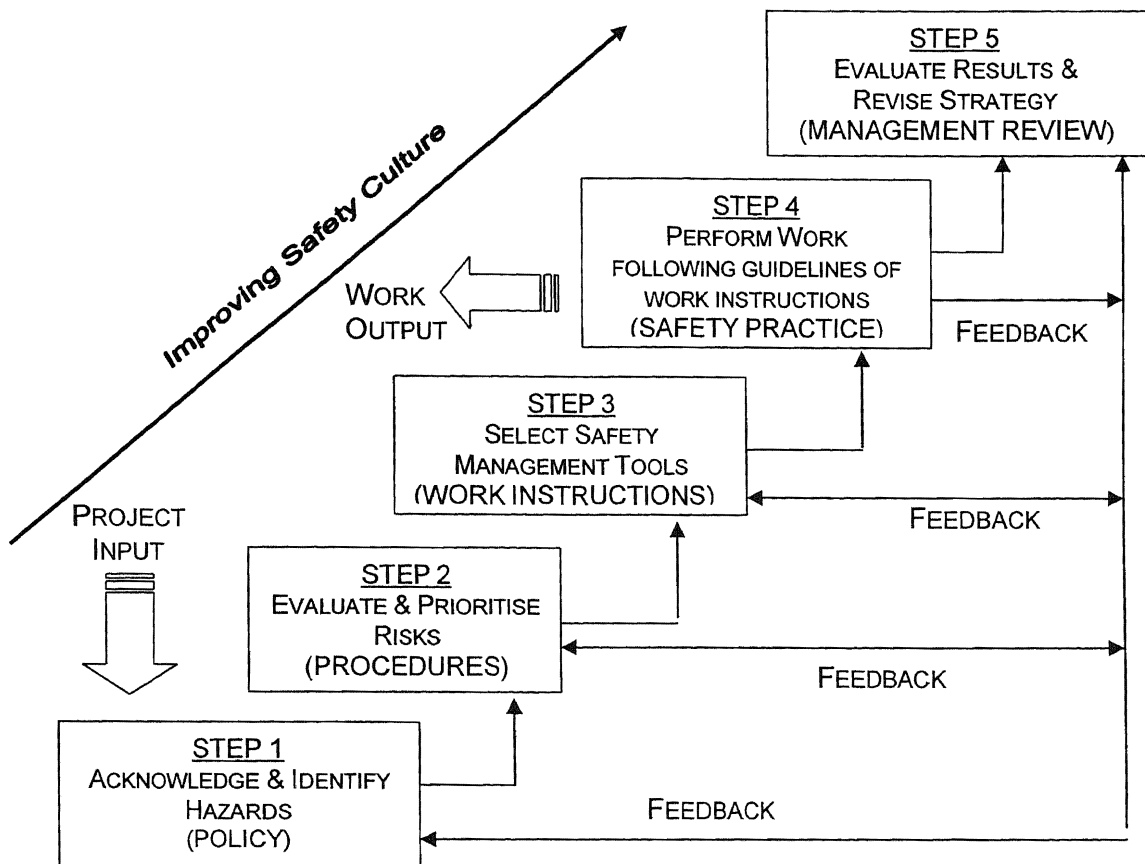


FIGURE 4: MODEL OF AN INCREMENTAL SAFETY MANAGEMENT SYSTEM

Employees and middle management working at levels 4 and 5 of the safety hierarchy carry out steps 1, 2, 3 and 4 of an integrated SMS whilst senior managers working at level 3 of the safety hierarchy not only influence the design of such systems but also actively engage in ensuring that the systems are effectively implemented and altered to accommodate changed circumstances as and when necessary, taking into consideration feedback received as indicated at step 5 in the diagram.

5.3.3 Comparison of SMS Models

An important difference between the closed cycle and incremental SMS models is that the former involves single-loop learning whilst the latter embodies double-loop learning, a distinction first promulgated by Argyris (1977) and later developed by Argyris with Schön (1978). According to this distinction, single-loop learning comprises detection and elimination of errors in accordance with given variables, whilst double-loop learning comprises changing the variables themselves.

Jankowicz (2000) notes the distinction propounded by Argyris and Schön but highlights in addition that there are two different levels of language involved in the theory. The first apprehends control activities of an organisation at the operational level whilst the second is concerned with policy-making activities at the strategic level. These Jankowicz terms the subordinate and superordinate levels respectively, the former being associated with the learning organization and the latter with the adaptive organization.

Applying this concept to the two models of SMS illustrated in figures 3 and 4 above, it may be seen that the closed cycle SMS has no identifiable superordinate level of control. The model is based completely upon controlling the development and implementation of safe working practices in an operational setting. Such an SMS will be essentially procedurally specific, comprising mainly company procedures and reporting formats. It involves single-loop learning.

In the incremental model however, safety forms part of the organisation's risk management policy. Whilst controls are in place at operational level to monitor and develop safe working practices, feedback is also supplied from the subordinate level to the superordinate level at step 5, forming one of the inputs

used by management to formulate strategic policy. Such an SMS involves double-loop learning and may be more outcome specific than a closed cycle model, incorporating not only procedural requirements but also policy guidelines.

An incremental SMS is most likely to be found in an organisation where management both empowers and encourages employees to exercise delegated authority and the SMS is seen as a way of systematically increasing the level of safety throughout the organisation.

The U.S. Department of Energy's (DOE) Brookhaven National Laboratory (BNL) (*Brookhaven National Laboratory, 2001*), which conducts research in the physical, biomedical and environmental sciences, and energy technologies, provides an example of such an organisation.

All DOE contracts incorporate an incremental SMS that BNL describes as combining all the elements of environment, safety and health into one ES&H system focused on accomplishing work safely rather than ES&H requirements and programs for their own sake. BNL uses the acronym SIMPLE as an aid to remembering the five core functions of an incremental SMS:

- Define the **S**cope of work.
- Identify the hazards.
- **M**itigate the hazards.
- **P**erform work within their controls.
- **L**essons learned, feedback and continuous improvement.

According to BNL, the five core functions go hand in hand with the 'Eight Guiding Principles of Safety Management':

- Line management responsibility for safety
- Clear roles and responsibilities
- Competence commensurate with responsibilities
- Balanced priorities
- Identification of safety standards and requirements
- Hazard controls tailored to the work being performed
- Operations authorization
- Worker involvement

There is a significant correlation between the BNL safety philosophy and that of DuPont Safety Resources (1999) which is embodied in eleven principles, the first two of which are:

- All injuries are preventable.
- Management is responsible and accountable for preventing injuries.

The DuPont philosophy is currently fashionable in management circles and large multinational companies such as Mobil Oil Corporation (now a part of the ExxonMobil Corporation) have had their operations audited by DuPont safety consultants.

It is arguable however, whether the first of DuPont's eleven guiding principles is in practice attainable. Theoretically it may be possible to completely prevent all injuries, but it is surely unrealistic to believe that it is possible in practice to avoid all accidents and their consequences. Indeed, one of the fundamental concepts of risk management is the tolerability of risk and that where it is impractical to completely eliminate a risk then controls are put in place to reduce the severity of the potential consequences of the risk should it eventuate (*Le Guen, 1999*).

5.4 MEASURING THE EFFECTIVENESS OF AN SMS

Whatever safety system an organisation puts in place, whether it is prescriptive in process or prescriptive in outcome, closed cycle or incremental in nature, the objectives remain the same: ensuring the safety of personnel, property and the environment. Thus there is a need to be able to measure the effectiveness of safety systems.

The most common method of evaluating effectiveness is the recording of accidents, lost time incidents and hazardous occurrences (ACNSI, 1993). Fleming (Fleming, 2001) endeavoured to go beyond this and develop a Safety Culture Maturity Model (SCMM) to assist organisations in the offshore oil and gas industry to:

- Establish their current level of safety culture maturity; and
- Identify the actions required to improve their culture.

According to Fleming, safety culture maturity is a new concept initially developed by the Software Engineering Institute for use in improving the way software is built and maintained. The draft model developed by Fleming to illustrate the concept is shown in figure 5 below.

The draft model, which was not validated, is set out in five levels, which should not be confused with the five levels of safety management identified at section 5.1 of this chapter. In order to help avoid such confusion Fleming's levels of safety maturity will be referred to here as stages rather than levels and his diagram of the model has been relabelled accordingly.

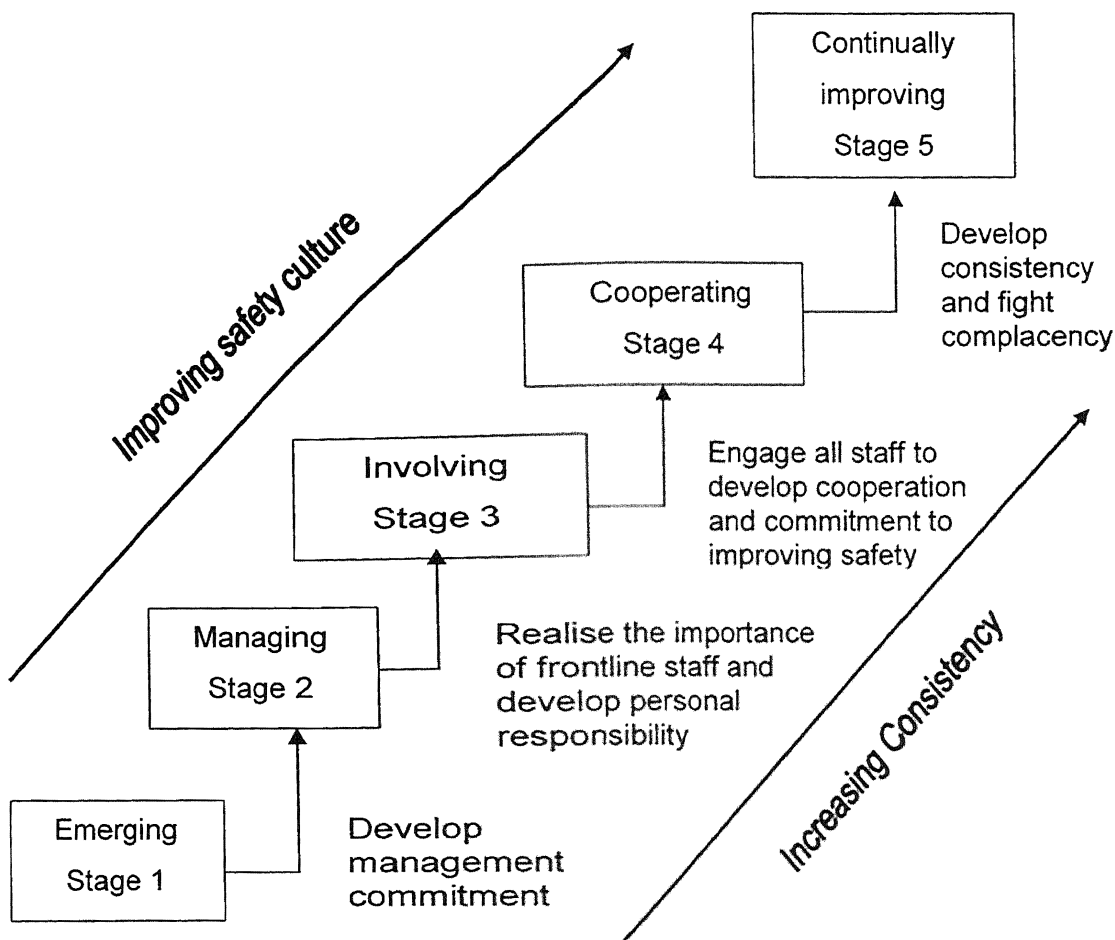


FIGURE 5: DRAFT SAFETY CULTURE MATURITY MODEL (FLEMING, 2001)

In Fleming's draft model organisations progress sequentially through the five stages, moving from one stage to the next only when the strengths and weakness of each stage have been built upon or removed respectively. Fleming refers to the five stages as iterative, although he fails to clarify in what way such definitive stages can be iterative.

Nor does he clarify how developments at each stage of the model are measured, although as the factors involved are qualitative then presumably measurement would be by perceptual audit.

If that is the case then the model is potentially very value laden and it is difficult to imagine the concept of safety maturity without asking who decides the criteria that determine maturity. Fleming endeavours to mitigate this aspect of the model by proposing that the SCMM is of relevance only to organisations that fulfil a number of criteria, including:

- An adequate SMS
- Technical failures are not causing the majority of accidents
- The company is compliant with health and safety law
- Safety is not driven by the avoidance of prosecution but by the desire to prevent accidents.

If however, adequacy is meant to imply that the SMS is effective then this proposal overlooks two points:

- An SMS would be adequate only if it addressed the other three criteria.
- An effective SMS is self-improving and not a static system. It ensures that every hazardous occurrence and accident, whether or not it involves a lost time incident, is analysed to see what can be learned from the incident, what precautions can be put in place to prevent it happening again or to mitigate its impact if it cannot be prevented (*Shaw, 2001*).

The term safety maturity implies that the system in place is more than just adequate: it implies that the system is highly effective and achieves stipulated safety objectives.

5.5 CHOICE OF SMS

When developing an SMS for use in a shipping company the primary source of information concerning the structure of the system and the eventualities that it should encompass is the ISM Code and its Guidelines. The functional requirements for an SMS as envisaged by the ISM Code are laid down in Clause 1.4 of the Code as follows:

1. A safety and environmental protection policy;
2. Instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State legislation;
3. Defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel;
4. Procedures for reporting accidents and non-conformities with the provisions of this Code;
5. Procedures to prepare for and respond to emergency situations; and
6. Procedures for internal audits and management reviews.

Other sources of information would include, but not be limited to:

- Rules and regulations promulgated by flag State Administrations
- Rules and regulations promulgated by port State Administrations
- Rules and regulations promulgated by industry bodies
- The company's own Quality Assurance system, comprising:
 - Company Policies;
 - Operating Procedures and work instructions;
 - Feedback from management reviews.

Since Clause 1.2.3 of the ISM Code provides that the safety management objectives of the company should continuously improve safety management skills of personnel ashore and aboard ships, it is evident that the type of SMS envisaged by IMO should provide a systematic approach to integrating safety into work planning and execution, encompassing protection of employees, the public and the environment.

A feature of an incremental SMS is that it strives to continually improve the overall safety performance of the organisation in which it is embedded. However, that does not necessarily mean that only an incremental SMS will meet the IMO requirements since on-going education and training within the parameters of either an incremental or a closed cycle SMS might also conceivably result in continuous improvement of the safety management skills of the trainees.

So, in deciding what type of SMS is best suited to a particular shipping company various other factors also need to be taken into consideration, such as the size and type of vessels being operated, the number of crew members on board and the cultural and educational norms of the vessels' crews and shore-based management.

These factors form an important part of the empirical research and are expanded upon in the methodology described in Chapter X.

5.6 IMPLEMENTATION OF AN INTEGRATED SMS

Implementation of an integrated safety management system in a shipping operation involves validation of the SMS by an external industry body or government agency representing the flag-State (*ISM Code, Revised Guidelines, Section 2, 'Verifying Compliance with the ISM Code'*) which constitutes a level 2 intervention at level 3 of the safety management hierarchy. Implementation also involves:

- Liaison between the shipping company and industry bodies such as flag State Administrations and Classification Societies. This represents Organisational Safety at levels 3 and 4 of the safety hierarchy.
- Liaison between shore management and shipboard management. In terms of the safety hierarchy this represents an interface at levels 4 and 5 of the safety hierarchy: an interface between Operational Safety Management and Behavioural Safety.
- A working relationship between the ship's senior officers and other members of the ship's complement. That is Behavioural Safety, a particular fully concretised norm at level 5 of the safety hierarchy.

These interfaces between different levels of safety management frequently involve a cultural interface. The shore management and shipboard staff are, more often than not, of different nationalities (*Donaldson, 2001*), and even where they are of the same nationality then different organisational cultures may well prevail as a result of the different lifestyles and operating priorities that exist between shore management and shipboard staff. On board ship there is often a broad mix of nationalities, recent personal experience identifying nationals of five different nation States amongst a ship's staff comprising 12 persons.

However, whilst the input of personnel at levels 4 and 5 of the safety management hierarchy is directly relevant to the implementation of an SMS, its impact upon the design of an SMS is indirect, mainly by way of feedback to Level 3. From a management perspective implementation of an SMS is an organisational development problem rather than a qualitative one. A company determined to introduce a particular style of safety management on board its vessels has every means at its disposal to ensure that such a system is in fact implemented. There may be some resistance from ship's staff but a determined ship owner or operator can overcome that by using well established techniques for dealing with resistance to change, although the practice may be more difficult than theory might suggest.

Safety Management Systems are designed and embedded in the policies and procedures of ship operating companies at levels 3 and 4 of the safety hierarchy and it is at levels 4 and 5 that those policies and procedures are implemented.

5.7 CULTURALLY INFLUENCED VARIABLES

Holden (2002, p.22) notes that culture can be used as an organising principle at different levels of human endeavour, citing as examples the international, the national, the regional, the organisational, the professional, the personal, each of which may be seen as a sphere of social-cultural interaction wherein culture is not merely determined by social norms but is influential in moulding social norms.

This concept maps conveniently onto the five-level safety hierarchy developed above. By acknowledging culture as a determining factor in the development and implementation of safety practices and then identifying the cultural dimensions (as per Hofstede, 1991) prevailing at levels 3, 4 and 5 of the safety hierarchy, it is

possible to establish whether they will have a positive (beneficial) effect upon the development and implementation of safety practices at those levels or whether their influence will be negative (counterproductive). That is, it would be possible to determine whether or not the prevailing cultural dimensions present particular risk factors to the establishment of safe working practices within an organisation.

This concept will be examined in more detail in the next chapter, section 6.5 of which identifies the relevant organisational risk factors that need to be measured in the empirical stage of the study in order to assess the ways in which safety management of the observed companies may be affected by cultural factors.

5.8 SUMMARY

This chapter commenced by identifying a five-level safety management hierarchy and went on to review two different approaches to safety management: the traditional concept which was prescriptive in process and the present day notion of a safety culture which tends to be prescriptive in outcome.

The concept of Safety Management Systems was then explored, including factors influencing the effectiveness of an SMS and a comparison of closed cycle and incremental systems.

Quantitative and qualitative methods of measuring the effectiveness of an SMS were discussed and the possibility of measuring safety culture maturity was examined. Finally, the relationship between cultural dimensions and safety risk factors was touched upon. In the next chapter, the relationship between culture and risk management will be more deeply examined.

CHAPTER VI

CULTURE AND RISK MANAGEMENT

Safety, risk and the management of risk are closely associated (*Gadd & Collins, 2002*) and there are dimensions to both risk and the management of risk that are influenced by cultural and psychological factors (*Gadd & Collins, 2002; Schmidt et al, 2001; Krampen and Weiberg, 1981*). This chapter explores those dimensions to establish how they might need to be accommodated in the cross-cultural safety management strategy of international, trans-national or global companies.

6.1 CULTURE

As noted in Chapter I, section 1.7, Trompenaars (2000; 24) quoting Geertz (1973) defines culture as the means by which people communicate, perpetuate, and develop their knowledge about attitudes towards life. Culture is the fabric of meaning in terms of which human beings interpret their experience and guide their action.

That is an excellent definition of culture in its broadest sense. However, culture needs to be more particularly defined when discussing specific social groupings, of which the following three are relevant to this current study:

National Culture:

A set of deeply held, shared beliefs and values that underline the characteristics exhibited by groups of people within defined political boundaries (*Tayeb, 1996*).

Corporate (or Organisational) Culture:

Operational practices and attitudes of people within an organisation developed as a result of organisational edicts, custom, and past practice. This definition synthesises definitions of organisational culture given by Pheysey (1993) and Schein (1992).

Safety Culture:

The attitude of employees within an organisation towards managing personal, corporate or environmental safety within their sphere of work (Shaw, 2001). Other definitions of safety culture have been developed (Glendon and McKenna, 1995; Confederation of British Industry, 1990; Hale, 2000) but there is a general consensus that safety culture constitutes a proactive stance towards safety (Lee and Harrison, 2000).

6.2 CROSS-CULTURAL MANAGEMENT

There are links between corporate culture and the way tasks are performed, including the development of safety consciousness within organisations (Carnall, 1995; Pheysey, 1992), and national culture is undoubtedly a compelling influence upon both corporate culture and safety culture (Hale, 1984; Hofstede, 1991; ACSNI, 1993). This implies that in global, international or trans-national organisations effective safety management requires good cross-cultural management.

Holden (2002) contends that cross-cultural management practitioners should not approach cultural diversity as a challenge to be dealt with but as a contextual factor in the administration of trans-national corporations, whilst Carnall sees

national culture as a broader part of our affairs that requires an effective manager to display empathy, sensitivity to cultural differences and to be able to communicate in an intelligible fashion in a multi-cultural or cross-cultural organisation.

Effective cross-cultural management therefore, requires a manager to become familiar with the characteristics of the cultures of the people who may be regarded as stakeholders, both within and outside the organisation being managed.

6.3 MEASURING CULTURAL DIFFERENCES

Trompenaars (2000) argues that it is possible to distinguish cultures from each other by observing the differences in shared meanings they expect and attribute to their environment. This accords with the findings of Hofstede (1991) who identified five dimensions along which national cultures differ from one another.

These differences he termed:

- Power-distance: a measure of the inequality in society;
- Collectivism: a measure of the degree of individualism in society;
- Gender roles: a measure of the assertiveness of individuals in society;
- Uncertainty avoidance: a measure of a society's tolerance of ambiguity;
- Long-term orientation: a measure of the time frame against which a society measures its values.

Hofstede illustrated how differences in these five dimensions could impact upon national affiliates of international organisations and it is therefore instructive to expand somewhat upon each of the dimensions.

6.3.1 Power-Distance

Hofstede's Power-Distance Index (PDI) simply described is a measure of the deference shown by people in a society to other people of different status within the same or a different society. It may also be seen as a measure of the inequality between people in authority and their inferiors, and the extent to which that is accepted.

Trompenaars (2000) is of the opinion that it is also a measure of how we accord status: whether it is ascribed by virtue of age, class, gender, education, etc. or attained as a result of an individual's personal achievements.

6.3.2 Uncertainty Avoidance

Uncertainty avoidance is a measure of the degree to which an individual or society is comfortable with ambiguous situations, the extent to which they are willing to tolerate uncertainty.

Uncertainty avoidance should not be confused with risk aversion. The former refers to the avoidance of ambiguity in situations whilst the latter refers to an unwillingness to take a chance of achieving a possible outcome of an action with known outcome variables if there is a high degree of probability that the required outcome may not be achieved.

6.3.3 Gender Roles

This dimension does not refer to the supremacy of males or females within a society but to the extent to which a culture stresses achievement or nurture. Hofstede notes that different societies display to differing degrees characteristics that can be readily identified as male or female characteristics.

A culture that displays primarily masculine traits emphasises ambition, wealth acquisition and differentiated gender roles whilst a culture that displays primarily feminine traits emphasises caring behaviour, sexual equality, environmental awareness and quality of life.

This dimension is also referred to as the masculinity versus femininity dimension and sometimes as the achievement *versus* relationship orientation.

6.3.4 Collectivism / Individualism

Collectivism as opposed to individualism is a measure of the degree to which people in a particular society believe that their duty is to act primarily for the greater good of that society rather than to their own personal advantage. It focuses on the relationship between the individual and the group within a society or an organisation.

Highly collectivist cultures believe the group is the most important unit and encourage primary loyalty to the group, decision-making based upon what is best for the group, and dependence upon organisations and institutions in the expectation that they will take care of the individual.

Highly individualistic cultures on the other hand, see the individual as the most important unit and encourage people to be responsible for their own well-being and decision-making based on individual needs.

6.3.5 Long Term Orientation

To the four dimensions referred to above, originally defined by Inkeles and Levinson (1969), an additional dimension reflecting time orientation was

subsequently added following studies in the Far East by Hofstede and Bond (*Hofstede, 1988*). Originally termed Confucian dynamism by Bond, Hofstede uses the attitudes of different cultures to values such as perseverance, thrift and harmonious relationships, to compare and contrast long-term and short-term orientation in those cultures.

The significance of long term orientation is that prior to its identification as an important dimension in an Oriental culture, studies had evaluated cultural dimensions from a purely Occidental standpoint, thus missing some of the important factors in cultures other than Western cultures.

6.4 PSYCHOLOGICAL DIMENSIONS

The fifth level of the safety management hierarchy described in Chapter V section 5.1 is behavioural safety, which is safety exercised at the level of the individual. Three psychological factors that have a strong bearing on behavioural safety are Locus of Control, Risk Perception and Cognitive Biases, all of which may be affected by the educational, cultural and socio-economic background of an individual.

6.4.1 Locus of Control

According to Heider (*1958*) we observe the behaviour of others and then attribute causes to it. Heider's attribution theory holds that people see behaviour as being caused by either dispositional or situational factors, making a distinction between internally initiated actions and those resulting from reaction to external factors.

Other researchers (*Rotter, 1966; Kelly, 1967; Weiner, 1974; Calder, 1977*) developed Heider's work, with Rotter concentrating on the situational and dispositional factors. Rotter identified in this an important personality trait which led him to develop a theory of locus of control orientation, devising a personality test to measure an individual's locus of control orientation.

Locus of control orientation is a measure of a personal belief system about whether the outcome of one's actions is attributable to one's own actions and efforts (internal locus of control) or is contingent upon events outside one's personal control (external locus of control). Barnett (*1999*) has represented this process diagrammatically as shown in figure 6 below:

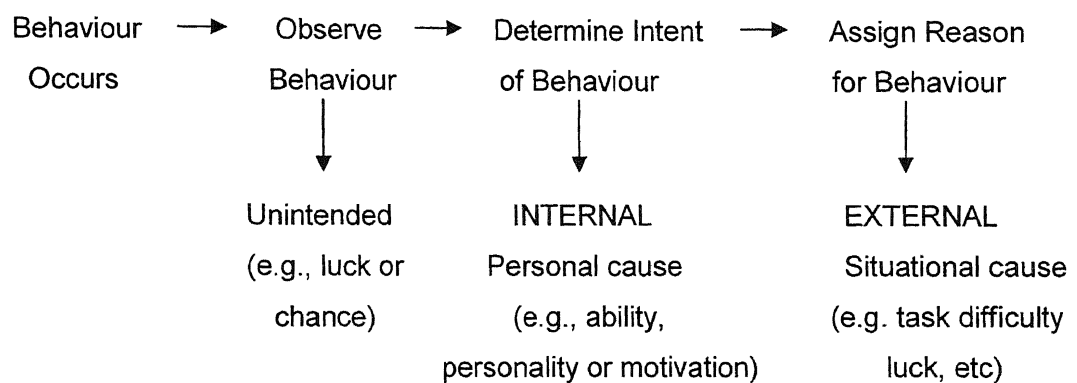


FIG. 6 DIAGRAMMATIC REPRESENTATION OF LOCUS OF CONTROL (*BARNETT, 1999*)

Subsequent studies using Rotter's inventory (*Simons et al, 1987; Trompenaars, 2000*) demonstrated that locus of control orientation is associated with an individual's socio-cultural background, family style and resources, and cultural stability.

Trompenaars (2000, ch.10) utilised Rotter's scale to measure the loci of control of 30,000 managers in 48 different countries and found significant differences between geographical areas. Trompenaars concluded that national cultures are a very potent influence on individual loci of control to the extent that certain cultures have an overriding tendency towards internal control and others towards external control. He further contends however, as does Mintzberg (1979), that for an organisation to succeed in business any significant corporate tendencies towards internal or external control need to be reconciled, a theme further developed by Mintzberg and Waters (1985) in their model of deliberate and emergent strategy.

Gaa (*Gaa and Shores, 1979*) and Krampen (*Krampen and Weiberg, 1981*) also found evidence to suggest links between culture and locus of control whilst Bayne (2002) established a significant positive correlation between individualism and internal locus of control although he found no evidence that collectivism was correlated to external control.

Some researchers, notably Furnham (*Furnham and Henry, 1980*), disputed the findings of those researchers who argued that there is positive evidence to link culture and locus of control, citing inaccuracies in their studies and methodologies. However, on balance it would appear from the literature that the general consensus of opinion is that three cultural dimensions, power-distance, uncertainty avoidance and individualism are indeed closely associated with locus of control such that the lower the PDI and UAI and the greater the degree of individualism of a person the stronger will be the tendency towards an internal locus of control orientation and *vice versa*.

A measure of an individual's locus of control therefore, may be a rich source of information when studying behavioural safety at level 5 of the safety hierarchy. By measuring the locus of control of individuals and comparing it with their educational attainments, cultural backgrounds and work roles it might be possible to discern whether or not locus of control has situational and chronological aspects, moving from external to internal as people gain knowledge and experience or gain promotion, i.e. as they gain greater control over their lives.

Such correlation would have a significant bearing upon deciding whether or not a greater emphasis on education and training would be successful in helping to establish common standards of safety throughout the shipping industry.

6.4.2 Risk Perception

Research by Haley and Stumpf (1989) provided some evidence that personality traits may predispose a manager to particular idiosyncratic biases, one of which is risk perception. Risk perception is a measure of the extent to which a person believes a particular course of action, or inaction, may result in harm occurring.

Faced with a situation involving risk an individual makes a subjective assessment of probability based on data of limited validity, which are processed in accordance with heuristic principles (Kahneman et al, 1982, p.3). Although the precise relationship between risk perception and risk behaviour is unclear (Rundmo, 2000), research by Simon (Simon et al, 1999) identified three cognitive biases as lowering risk perception:

1. Overconfidence in the extent of one's knowledge;
2. Overconfidence in one's skills;
3. Belief in the law of small numbers.

The nature of these cognitive biases tends to indicate that they are the consequence of one or more of the following factors:

1. Lack of suitable education to be able to properly assess the risk;
2. Lack of adequate training to be able to properly assess the risk;
3. Lack of sufficient experience to be able to properly assess the risk.

This suggests that improved education and training should result in raising levels of risk perception, although it is unclear whether that would result in either improved safety attitudes or a reduction in accidents.

6.4.3 Cognitive Biases

Cognitive biases are mental errors caused by the simplified mental processing of information as a result of fundamental limitations in human mental processes that not only cause us to perceive what we expect to perceive but also influence what information we remember and retrieve (*Heur, 1999*).

Unlike other forms of bias such as organisational bias or bias resulting from self-interest, cognitive biases do not result from an intellectual predisposition towards a particular decision or judgement but from subconscious mental procedures for processing information based upon generalisations, simplifications and rules of thumb, which may in turn be based upon false premises.

When making decisions managers use their experience and knowledge to review the information available to them. However, if they reach their decisions using inductive reasoning rather than normative judgements then cognitive biases may lead them to adopt inappropriate mental frameworks to evaluate the information,

thus affecting the accuracy of any decision, regardless of the extent to which risks have to be estimated (*Kahneman et al, 1982*).

From their research, Kahneman *et al* established the existence of the following categories of definitive cognitive biases:

Input Biases:

These occur when decision-makers are selective in the data upon which they rely, giving some classes of data more weight than others.

Output Biases:

These occur when decision-makers fail to evaluate data appropriately, make guesses in the absence of data or supplement insufficient data with questionable data.

Operational Biases:

These occur when decision-makers either draw conclusions from inappropriate samples or jump to conclusions in the absence of data.

6.5 RISK AND THE MANAGEMENT OF RISK

The concept of risk is frequently associated with safety management models and covers a wide range of issues including self-reported risk taking, perceptions of risk within the workplace and attitudes towards risk and safety (*Gadd and Collins, 2002*).

6.5.1 Defining Risk

In everyday speech the terms hazard and risk tend to be used interchangeably. However, Le Guen (1999) argues that pedantically speaking hazard refers to the intrinsic propensity of any thing to cause harm, whilst risk refers to:

- The degree of probability of adverse consequences occurring as a result of a particular action or inaction taken in response to a potential hazard.
- A measure of the harm that may be done if those adverse consequences do in fact occur.

When people say that they are prepared to 'take a risk' then they are intimating not only that they have weighed up the chances of the adverse consequences occurring and the degree of harm that will result if those consequences do occur, but also that they are prepared to incur a chance of those adverse consequences occurring in expectation of a probable benefit (*Le Guen, 1999*).

Studies on the perception of risk carried out by Douglas and Wildavsky (1982), Funtowicz and Ravetz (1992), and Pidgeon *et al* (1992), demonstrate that the concept of risk is strongly influenced by personal preferences and the values of the society in which we live. Whether or not a person, or an organisation, is prepared to take a risk depends upon a number of factors such as ethical and social considerations, economic and technical pressures, ignorance or knowledge of the potential adverse consequences and the degree of probability of those consequences occurring.

Based upon those considerations, preferences and values, individuals and organisations differentiate between risks they consider to be unacceptable, those that they perceive to be tolerable and those that are both negligible and broadly acceptable. Le Guen (1999) illustrates these factors as shown in figure 7 below.

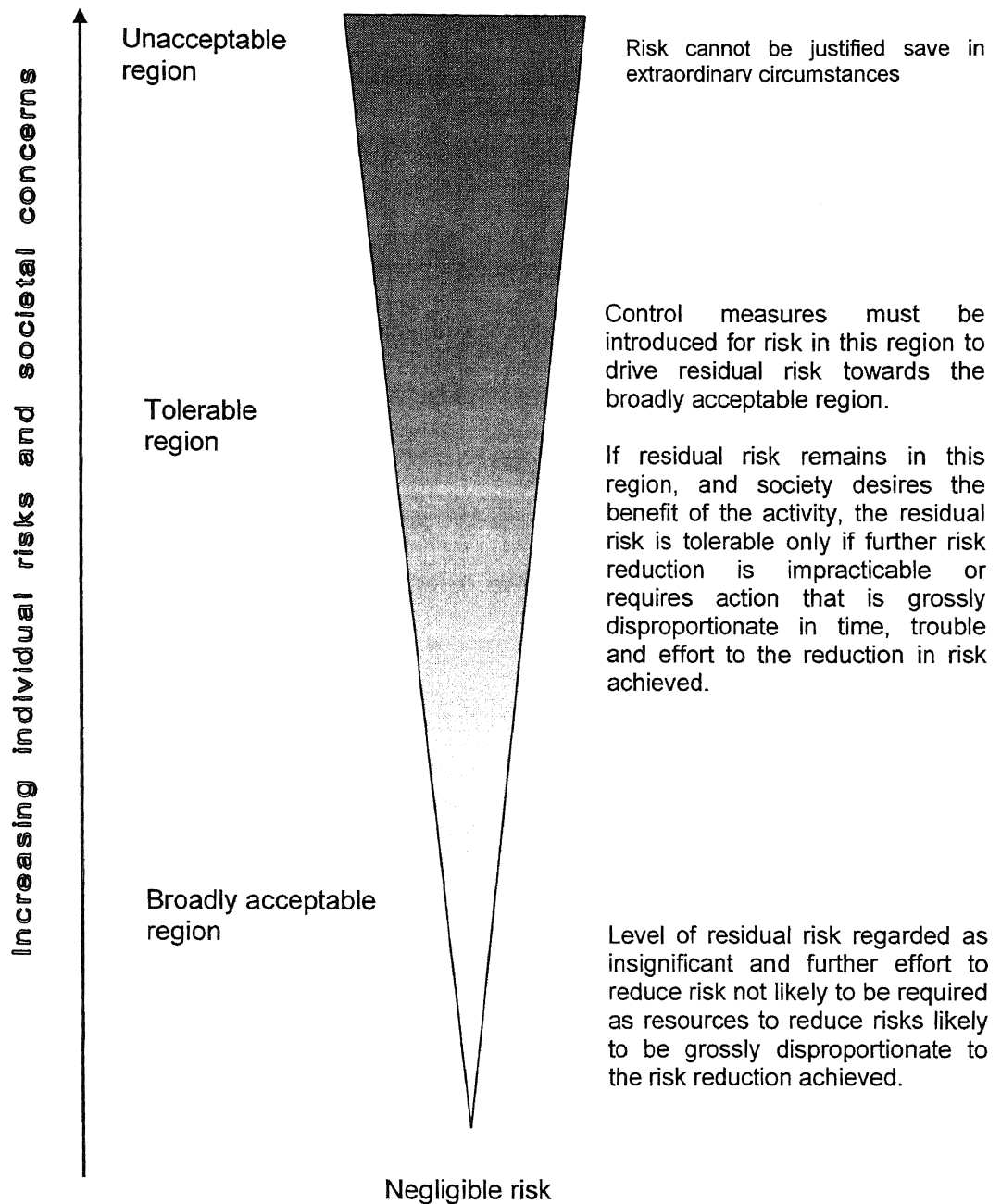


FIGURE 7: HSE CRITERIA FOR THE TOLERABILITY OF RISK (Le Guen 1999)

6.5.2 Managing Risk

Risk management is a system of identifying potential hazards and their possible consequences then putting in place policies and procedures to deal with them. An effective risk management system enables a company to deal with strategic

uncertainty by identifying threats and then either eliminating the associated risks or minimising the severity of the consequences should the risk eventuate.

Reflecting upon the diagram in figure 7 it is clear that in order to arrive at an optimal risk management strategy a business must strike a balance between a cavalier attitude to risk on the one hand and obsessive risk aversion on the other.

Hisrich *et al* (2005) reviewed the concepts of risk taking and risk management as part of a study into entrepreneurship. Whilst noting that risk taking is indeed one aspect of being an entrepreneur, Hisrich concluded that despite many studies no conclusive causal relationships between entrepreneurship and a general propensity to take risks had been determined. Hisrich continued by describing specific risk reduction strategies in a context where risk refers to the probability and magnitude of downside financial loss.

But the need to address hazards and reduce risk to an acceptable level by assessing the risks, evaluating the effectiveness of risk reduction measures and carrying out cost-benefit studies is applicable to all kinds of organisations not just entrepreneurial businesses, in which the ability to make measured risk estimates is well established. Indeed, in many companies, particularly large multi-national corporations, the hazards and risks that need to be assessed go far beyond simple financial loss and involve more complex areas such as public perception and cultural acceptability, as discussed later in Chapter VIII, section 8.4, which deals in some detail with culture, values, decision-making and managing cultural diversity in the context of a global industry.

6.5.3 Embedded Risk Management Systems

Shaw (2001) is of the opinion that safety should be viewed as an integral part of business, forming part of a company's overall risk management strategy. By extension of Shaw's reasoning, a company's corporate risk management system should form an embedded part of the company's SMS in order to increase its effectiveness.

This should be a relatively straightforward process since the four fundamental steps in risk management (*Nonprofit Risk Management Centre, 2001*), are in many respects similar to, and map well upon, the five steps of a safety management system (figures 3 and 4 above). The four fundamental steps in risk management are:

1. Acknowledge and identify risks.
2. Evaluate and prioritise risks.
3. Select risk management tools.
4. Evaluate results and revise strategies.

6.6 IDENTIFYING SALIENT ORGANISATIONAL RISK FACTORS

The risk factors with which this study is concerned are those associated with the development and implementation of an effective SMS rather than those associated with operational procedures *per se* since the latter are addressed by the Operational Procedures embedded within a company's SMS.

Schmidt, Lyytinen, Keil and Cule (2001) developed a framework of eleven common risk factors for identifying risk in Information Systems development

projects. The framework can be readily adapted and reliably applied to the development and implementation of an SMS in a shipping organisation because:

- There is a lot of common ground in any project development; and
- The framework developed by Schmidt *et al* arose from a study carried out from a cross-cultural perspective and is therefore particularly suited for adaptation to the study of a company operating in a global context.

As noted in Chapter II, section 2.2 and further discussed below, at hierarchal safety management levels 3, 4 and 5 there exist three specific elements that are important in the development and implementation of an SMS and are the main determinants of its effectiveness:

- Leadership Style;
- End user involvement; and
- Suitability of SMS.

Therefore, in adapting the framework of Schmidt *et al* so as to identify the risks inherent in the development and implementation of an SMS in a shipping company, the risk factors identified by Schmidt were reviewed in relation to those three salient elements, rejecting any items not relevant to the project and including under each head those items that were relevant.

Finally, any other factors that might affect the effectiveness of an SMS but which did not fit within one of the three main categories were also reviewed.

The individual elements are discussed below and subsequently summarised in Table 2.

6.6.1 Leadership Style

Leadership style gives form and direction to organisational culture (*Schein 1992*) and it is a *sine qua non* throughout safety management literature that without senior management commitment there will be only token commitment to safety within any organisation (*Pidgeon & O'Leary, 2000; Cox & Flin, 1998; Cheyne et al, 1998*).

The introduction of an SMS, whether initially or to replace another SMS, involves an organisational change and subsequent monitoring of the system. To ensure that the new system is implemented effectively it is essential for senior management to consistently disconfirm patterns of behaviour not in keeping with the new organisational philosophy and consistently support any evidence of movement in the direction of the new assumptions (*Schein, 1992: p.328*).

6.6.2 End User Involvement

Similarly, unless end users of a safety system are given a sense of ownership through participation and involvement in the development and operation of the system, then safety procedures may not be followed with any degree of enthusiasm, if at all (*Schein 1992, p.134*), and authoritarian measures may need to be employed in order to achieve corporate safety goals (*Etzioni 1975*).

6.6.3 Suitability of SMS

The type of SMS envisaged by IMO should provide a systematic approach to integrating safety into work planning and execution, encompassing protection of employees, the public and the environment.

The suitability of an organisation's SMS for achieving these objectives was discussed in some detail in Chapter V and from the discussion, particularly at section 5.5 entitled Choice of SMS, it is evident that if the style and type of SMS developed is incompatible with the type of vessels being operated, the number of crew members on board, the behavioural norms of the vessels' crews and the socio-cultural backgrounds of the shore management, then the suitability of the SMS will be questionable, leading to misunderstandings and possibly unsafe work practices.

6.6.4 Effectiveness of SMS

With the first three risk factors suitably addressed there is still the possibility that other factors such as insufficient or inappropriate staffing may militate against the effectiveness of an organisation's SMS. Therefore, the fourth risk item comprises any other discernable factor affecting the adequacy and competency of human resources for the SMS to be effective and leading to failure to achieve expectations.

Table 2 below summarises the four risk factors considered to be important in the development and implementation of an SMS: leadership style, end user involvement, suitability of the SMS and any other factor affecting the adequacy or competency of human resources. Whilst all four risk factors are generally applicable to both the development and the implementation of an SMS, the first two are particularly relevant to its development and the second two are particularly relevant to its implementation.

Risk Factor	Brief Description
<p>1. Leadership style results in:</p> <p>a. Lack of top management commitment to a project</p> <p>b. Conflict between user departments</p>	<p>a. Lack of executive oversight, visible support and public endorsement as well as active policy intervention.</p> <p>b. Serious differences in project goals, deliverables and design shared by different departments in an organization.</p>
<p>2. Lack of adequate user involvement/commitment</p>	<p>Active participation by end-users is missing due to failure of developers to involve them. There is no commitment to deliverables and responsibilities.</p>
<p>3. Poorly drafted SMS resulting in misunderstanding of the objectives:</p> <p>a. By shore based staff</p> <p>b. By sea going staff</p>	<p>a. Lack of executive and middle management understanding of ISM Code requirements and/or the cultural traits of the seagoing staff and operations/maintenance personnel.</p> <p>b. Consequent lack of understanding by sea going staff of what is required of them.</p>
<p>4. Insufficient / inappropriate staffing or lack of required knowledge/skills in either shore based or seagoing personnel</p>	<p>Risk that high expectations are mismatched with deliverable due to insufficient or inappropriate staffing, implying an inability to allocate a skilled workforce with suitable knowledge and/or experience in ship operations and maintenance, regardless of availability.</p>

Table 2: SMS Effectiveness Risk Factors

(Adapted from Schmidt, Lyytinen, Keil and Cule, 2001)

6.7 THE IMPACT OF CULTURE ON THE RISK FACTORS

This study recognises safety management systems as subsystems of organisations, and that the observations of Hofstede (1991) on cultural differences and how they relate within organisations may well be applicable to safety management systems. Hence, the integrated SMS, particularly the incremental model, is regarded as a highly value-laden system based upon subjective judgements that might well vary from one culture to another.

Therefore, having identified the risk factors associated with the development and implementation of an effective SMS, it is instructive to analyse how cultural dimensions might impact upon each risk factor, whether positively or negatively, i.e. whether the impact of a particular cultural dimension increases or decreases the likelihood of a particular risk eventuating.

For example, in situations where there is a high power-distance index, particularly where it is combined with a high degree of collectivism, then we may expect to see an organisation that is highly stratified and places great emphasis on the workforce being seen to obey the dictates of management.

Table 3 below (*McGill University, 2002*) presents a synopsis of the impact of Hofstede's cultural dimensions on management issues.

POWER DISTANCE	Small	Large
ORGANISATIONAL STRUCTURE	Relatively flat	Hierarchical Pyramid
ROLE OF MANAGER	Facilitator	Expert
PARTICIPATIVE MANAGEMENT	Possible	Not Possible
STATUS SYMBOLS	Relatively Unimportance	Very Important
IMPORTANCE OF SAVING "FACE"	Less Important	Important
UNCERTAINTY AVOIDANCE	Weak	Strong
CORPORATE PLANS	Seen as Guidelines	Seen as Important Rules
BUDGETING SYSTEMS	Flexible	Inflexible
CONTROL SYSTEMS	Loose	Tight
RISK	Take	Avoid
COMPETITION	Seen as Advantageous	Seen as Damaging
INDIVIDUALISM	Collectivist	Individualist
DECISION MAKING	Group Consensus	Individual look After Selves
ORGANISATIONAL CONCERN	Look After Employees	Employees
REWARD SYSTEMS	Group Based	Individual / Merit Based
ETHICS / VALUES	Particularism	Universalism
MASCULINITY / FEMININITY	Feminine	Masculine
VALUED REWARDS	Quality of Life	Money, Performance
NETWORKING	Important for Relationships	Important for Performance
INTERPERSONAL FOCUS	Maintaining Relationships	Getting the Task Done
BASIS FOR MOTIVATION	Service to Others	Ambition – Getting Ahead

TABLE 3 : IMPACT OF HOFSTEDÉ'S CULTURAL DIMENSIONS ON MANAGEMENT ISSUES

(McGill University, 2002)

The following examples expand upon the synopsis given in Table 3 and indicate how the impact of the cultural dimensions together with organisational weaknesses can increase or decrease the particular risk factors identified as being important in the development and implementation of an effective SMS.

The examples are not an exhaustive examination using all of the Hofstede / Trompenaars cultural dimensions in relation to all risk situations, but provide illustrations of how the application of specific cultural dimensions to the four specific risk factors can be used to identify potential risks to the effectiveness of a shipping company's SMS and hence assist in enabling steps to be taken to negate or decrease the potential impact of the risks.

6.7.1 Risk Factor 1

Leadership style results in:

- a. Lack of top management commitment to the project; and*
- b. Conflict between user departments*

Two cultural dimensions identified by Hofstede considered to be very influential upon leadership style are power distance and collectivism. In a society with a high power distance culture there tends to be a rigid hierarchy and societies with strong collectivism tend to be group orientated with members of one class tending to segregate themselves from those of another class. The end result of a combination of both dimensions is that subordinates do not question their superiors, and managers do not get involved in matters they have delegated to their staff.

Whilst this satisfies societal goals of avoiding confrontation and maintaining an ostensible harmony in the workplace, it also results in top managers distancing themselves from middle and junior managers and therefore not being fully aware of the needs or progress of the project, both of which are essential for commitment.

Collectivism on its own can have either a positive or a negative effect on leadership style. In the context of a low power-distance culture it might have a positive influence because collectivism engenders, or at least emphasises, harmonious relationships and deters confrontation. But, in a high power-distance context it might have a negative influence because groups of people within an organisation in such a culture will tend to favour their own group over another and if this leads to conflict then neither group will defer to their senior manager as he will already have distanced himself from the conflict.

6.7.2 Risk Factor 2

Lack of adequate user involvement / commitment.

In a high power distance culture there is a high degree of stratification and each layer of management distances itself from the layer below. This leads to a system of management by command rather than management by consultation. This does not lend itself to feedback analysis nor to a climate of user involvement or empowerment.

A high power distance index therefore tends to increase the risk of lack of user involvement or commitment whilst a lower power distance index tends to have a positive effect and decrease the risk.

6.7.3 Risk Factor 3

Poorly drafted SMS resulting in misunderstanding of the objectives:

- a. By shore based staff;*
- b. By sea-going staff*

In a society where a prevailing cultural trait is high power-distance, a senior manager will give an instruction and expect his orders to be followed without question. When the order is to develop and implement an SMS, middle managers and supervisors charged with developing the system may similarly remain aloof from their subordinates, in this case the end users of the system, and pretend to a higher level of expertise than they actually have simply in order to 'keep face' and demonstrate their authority. But without end user involvement and participation, the outcome may be an incomprehensible or poorly drafted SMS.

Power distance therefore plays a significant role in the development of a well drafted and effective SMS. A high power distance index tends to increase the risk of lack of user involvement and hence poor drafting of the SMS whilst a lower power distance index tends to have a positive effect and decrease the risk.

6.7.4 Risk Factor 4.

Failure to achieve expectations due to

- a. insufficient / inappropriate staffing; and*
- b. lack of required knowledge / skills in either shore based or seagoing personnel.*

Risk factor 4(a) relates to how well senior management understand the concept of a Safety Management System as required under the ISM Code and how committed they are to safety management. A truly committed senior management

will ensure that adequate and properly trained staff are appointed to develop, implement and operationally monitor the company SMS. A senior management that only pays lip-service to safety management and does not truly understand what is required to develop, implement and sustain an effective SMS may result in insufficient and/or inappropriate staffing to the project.

Risk factor 4(b) is inherently connected with safety training, vocational and professional training and human resources management. It reflects the ability of a company to employ and develop a skilled workforce having suitable knowledge and experience in ship operations and maintenance, regardless of overall availability.

6.8 THE ROLE OF EDUCATION AND TRAINING

Companies that do not have an optimal risk management strategy are not operating as effectively as they could be (*Shaw, 2001*), and whilst most risk management strategies have to be cost effective values are also important, because whilst risk management is frequently about containing or reducing the probability and magnitude of downside financial loss (*Hisrich, 2005*) it also concerns human well-being, and it is here that education and training have a role.

Whilst newcomers to an organisation tend to learn patterns of behaviour from the people with whom they work (*Lave and Wenger, 1991*), not only at the level of skilled, semi-skilled and unskilled workers but also at professional and managerial levels (*Easterby-Smith and Araujo, 1999*), there is a need for more formal training to ensure that existing personnel as well as new entrants to the shipping industry are both professionally competent and safety conscious (*OECD, 1996; Squire, 2005*).

As noted in section 6.4.2 above, in order to arrive at an optimal risk management strategy, businesses must strike a balance between a cavalier attitude to risk on the one hand and obsessive risk aversion on the other. But a suitable balance cannot be achieved by safety training alone, for despite the notion that safety training will cure most ills in regard to accidents, evidence exists showing that it is not always effective (*Hale, 1984*).

This may be related to the variability of the quality of training given or, alternatively, to the cultural attitudes of the trainees. It may also be due to a fundamental lack of competence by the trainee since a person involved in deciding upon a specific course of action must have a certain level of knowledge in order to perceive the existence of a hazard and the associated degree of risk (*Hale, 1984*).

Common standards of safety require common standards of competency, which in turn requires common standards of education and training. This does not mean safety training *per se* but ensuring that individuals have the technical knowledge to safely operate equipment under their control, such as ships and their machinery (*Taylor, 1911*).

Squire (*2005*) puts the point very succinctly when he says that the competence of a mariner will depend not only on good and effective education and training but also on his aptitude, knowledge and understanding of the subject, on the availability of opportunities to develop his skills and, ultimately, his experience. Squire adds that competent people make the difference – they make the ship safe.

Concerns have been expressed about the adequacy of professional training of seafarers and its impact upon the levels of safety in shipping operations and

practice (*OECD, 1993; Donaldson, 2001*). Clause 6 of the ISM Code requires companies to ensure that Masters and seafarers on board their vessels are properly qualified and that training requirements are identified and provided. The Clause requires the company to:

- Ensure that the Master is properly qualified to command (Cl. 6.1.1);
- Ensure that each ship is manned with qualified and certificated seafarers (Cl. 6.2); and
- Establish training requirements and ensure that it is provided (Cl. 6.5).

Shipping companies that interpret the Clause simply as a requirement to ensure that any seafarers it employs are properly qualified and in possession of the requisite certificates may have fulfilled their legal obligations. It is debatable however, whether they have fulfilled their moral obligation to interpret the Clause within the spirit of the ISM Code as discussed in Chapter III, Section 3.4. Regulations and standards are by definition minimum requirements. The spirit of the ISM Code is to introduce a genuine safety culture within the shipping industry and this implies training of staff beyond minimum stipulated requirements.

It is the maritime administrations of flag States that have both the responsibility and the authority for setting the required minimum standards of education and training for the award of their national certificates of competency. Historically however, there has been wide divergence between flag States regarding their stipulated minimum standards of education and training. Recognition of this disparity prompted IMO to implement the 1995 revision of the 1978 STCW Convention, which entered fully into force in 2002 and contains provisions for an internationally agreed basic minimum standard of competency for the award of certificates of competency to seagoing personnel.

Lord Donaldson (2001) highlighted an important administrative difference between the ISM and STCW Conventions. Flag States signatory to the ISM Convention operate within a self-regulatory system under which the flag States certify to IMO that they are fully discharging their obligations under the Convention. The STCW Convention on the other hand, contains a provision under which the signatory States to the Convention delegate to IMO the authority to assess whether or not a signatory is complying with its obligations under the Convention. How rigorously and with what ardour IMO monitors and enforces the provisions of the revised STCW Convention may well decide the effectiveness of the Convention in practice.

6.9 SUMMARY

This chapter explored:

- Risk and risk management and the way in which both are influenced by cultural and psychological factors;
- The link between national, organisational and safety cultures that establish the context in which cross-cultural management takes place;
- A number of cultural and psychological dimensions and how they could interact with four specific risk factors considered to be important in the development of an effective SMS;
- The role of education and training in relation to safety management.

The next chapter comprises a review of the pressures and constraints, legal and moral, cultural and economic, acting upon and within organisations implementing the ISM Code and how those pressures and constraints might influence people employed in those organisations.

CHAPTER VII

PRESSURES & CONSTRAINTS INFLUENCING ISM CODE IMPLEMENTATION

7.1 OBLIGATION TO COMPLY WITH THE ISM CODE

A Convention agreed between sovereign nations gains the force of municipal law when the sovereign nations introduce legislation in their individual parliaments adopting the Convention. When sufficient nations have adopted the Convention it becomes recognised as part of international law. But unless laws are obeyed, then instead of ensuring a basic minimum standard of performance within their area of concern, they become merely goals to be attained.

The ISM Code was incorporated within to the international SOLAS Convention (1974) by the 1994 amendments to that Convention and as such is a part of international law. It is therefore, important to examine what mechanisms are in place to ensure that the provisions of the Code are followed and what constraints and pressures might militate against observance of those provisions.

Safety is not an absolute but a variable that is influenced by the following factors which are determinants in the manner in which organisations and individuals respond to their obligations to observe the provisions of the ISM Code.

- The socio-economic context in which safety is to be observed;
- The hierarchal level at which safety is to be exercised;
- A legal imperative to act safely;
- A moral obligation to act safely.

What differentiates a legal duty from a moral obligation is a matter of jurisprudential philosophy, a detailed study of which is outside the scope of this thesis. However, for the purposes of this thesis moral obligations may be understood to arise from the values and beliefs of a society, those factors which provide social cohesion, whilst legal duties are the result of rules of behaviour that are superimposed upon society and are supported by sanctions.

Harris (2004, p225) holds that most public men believe that there is also a moral duty to obey the law and continues by identifying the following arguments for such a moral duty:

1. Conceptually, if a regulation is recognised as 'law', it would be a contradiction to deny that it is binding or valid;
2. A duty exists because it is related to other moral concepts, specifically:
 - a. Gratitude;
 - b. Promise keeping;
 - c. Fairness;
 - d. Promoting the collective good.

Safety also may be regarded as a moral concept insofar as it concerns the relationship between a society's individuals, their property and their environment. Whilst individual views regarding safety will be influenced by a person's own cultural and socio-economic background, there is a common thread running between all the different aspects of safety, and that is respect. Safety of the environment entails respect for the environment, safety of personnel entails respect for personnel, safety of property is a measure of respect for property and personal safety involves respect for oneself (Trafford, May 2005).

This implies the existence of a moral as well as a legal obligation to exercise a duty of care. Accidents happen because someone is careless, either in their acts or omissions, or in their evaluation of the risks posed by a particular hazard: they have not treated their environment, property under their control, other people or themselves with the respect that they should have done.

Respect is the basic societal norm of morality upon which the concept of safety is based just as a duty of care is the basic norm upon which the legal enforcement of safety is based. Together they form the basic norm of the hierarchy of safety developed in Chapter V.

Therefore, as was touched upon in Chapter III, Section 3.4, companies and flag-States should observe the provisions of the ISM Code not only to the letter but also within the spirit of the Code, the former in recognition of a legal duty and the latter in recognition of a moral duty.

7.1.1 Obligations at Safety Hierarchy Level 1

MacLean (1994) suggests that international law is relevant at three separate levels in international relations: the levels of co-operation, co-existence and conflict. With respect to the adoption and ratification of IMO Conventions the most appropriate level is that of co-operation and the obligations assumed by States that adopt the Conventions can be considered in the same light as obligations assumed under the law of contract.

At the very least, treaties and conventions agreed between nation States may be likened to relational contracts, the parties to which realise that it is not possible to

provide for every possible contingency when the agreement is initially drafted and that later amendments or even complete redrafting may be necessary.

Unlike private contracts, agreements between nation States are not readily changed and thus full compliance by all parties may not be possible. Parties to an international agreement may accept therefore, tacitly or otherwise, that substantial compliance may be enough to satisfy the terms of the agreement.

Furmston (2001) noted that obligations created by a contract are not all of equal importance and it is primarily for the parties to set their own value on the terms that they impose upon each other. He continued by pointing out that it is rare for contracting parties to express with any degree of precision what they have in their minds. Although Furmston was referring principally to the degree of emphasis each party might put upon particular contractual terms, the same argument can be applied to how contractual obligations are interpreted by parties having divergent cultures. Any differences of perception may be magnified when a degree of latitude is apparent in the need to fully comply with the terms of the contract.

Trompenaars (2000) noted that in collectivist societies the relationship between contracting parties is more important than the detailed clauses of the contract itself and Ehrlich (1936) acknowledged the dynamic nature of relational contracts when he distinguished formal sources of law from what he termed 'living law', by which he meant norms that prevail when the parties do not resort to litigation.

Wacks (1993) proposed that the law of contract is best understood through empirical studies rather than by studying formal sources of law, citing in support of his proposal a study by Macauley (1963) which showed that the actual operation

of commercial practice took precedence over the law of contract. A study by Beale and Dugdale (1975) provided similar results, leading Wacks to conclude that the social context strongly influences the way in which contract law is practiced.

Therefore, whilst the culture of the society in which a contract is developed will impact upon the nature and content of the contract, the culture of the society in which it is administered will influence the manner in which it is performed, particularly where the contract incorporates standards that can be determined by reference to community and commercial ethics such as good faith, due care or fairness.

A society's law constitutes the chief bond between its culture and its organisation; it is the external manifestation of the embeddedness of the former in the latter (Unger, 1977). Individuals follow the norms of the societies with which they are associated. They obey laws to the extent that their observance is in conformity with, and sanctioned by, the norms of the social group of which they are members.

There is also a political element to imposing regulations upon international commercial enterprises such as imposing the ISM Code upon the shipping industry. In the ordered societies of the developed world it may seem quite proper for nation States to agree among themselves a set of rules for the regulation of international shipping, but it gives rise to a deeply political question regarding the extent to which it is appropriate to impose minimum standards on people engaged in a commercial activity.

Whilst nation States may have a moral obligation to encourage maritime safety and protection of the environment, commercial business is an economic affair the

principal objective of which is to make profits and thereby to increase the net present value of shareholders' wealth. Wealth creation is seen, particularly in developed, capitalist societies, as not only an acceptable objective but also the preferred way of doing business and this raises the question of the right of governments to interfere with people's freedom to contract.

But whether or not governments do have any such right, the concept of *caveat emptor* has for many years had a limited application in business transactions in the developed world. In the United Kingdom for example, the freedom to contract has been restricted by numerous statutes regulating various aspects of commerce such as contract exemption clauses (*Unfair Contract Terms Act, 1977*) employment (*Employment Protection [Consolidation] Act 1978*) and the health and safety of employees in the workplace (*Health and Safety at Work etc Act 1974*).

The phenomenon of the law intervening to restrict and regulate the freedom to contract and provide an equitable balance between the contracting parties is not solely a product of post-industrial philosophy: it was clearly evident in Britain in the Middle Ages when market courts were established to administer the law merchant and deter unethical trading (*Walker 1980, Furmston 2001*).

Today, most societies in developed countries that support the concept of commercial profitability have laws governing socially unacceptable ways of maximising profit, such as for example by employing child labour, paying low salaries and condoning unsafe working practices. But that is not the case in many developing countries where business ethics do tolerate child labour, low salaries and unsafe working conditions.

Yet another approach to commerce and the role of the State was taken by the command societies of the Soviet Union, China and Eastern Europe, which looked upon personal wealth creation as morally repugnant and promoted instead the concept of collective wealth creation (*Kryszakowska-Budny, 1991*). It is debatable whether the State as employer in centrally controlled economies was less concerned about the health and safety, employment rights and working conditions of the individual than was the State as legislator in capitalist economies.

But whether profit maximisation is seen as an individual or a collective notion, one factor militates in favour of imposing the rules contained in the ISM Code: the introduction of minimum standards throughout the entire shipping industry would be an equitable measure that would establish a basic norm, a 'level playing field', for companies involved in international shipping operations.

People generally will agree, or at least concede that commercial dealings should be conducted fairly, either because they agree with the proposition or because they are not willing to express opposition. But Cooke (1989), in discussing the concept of fairness as a criterion for judicial decision making, contends that, 'For fairness to work as an effective criterion it is necessary that the society [has] a more-or-less common set of values and that this value is high amongst them'. This presents an argument in favour of stronger policing of existing regulations by Port State Control inspectorates since the global diversity of cultures must infer a diversity of values.

From the discussion, the pressures and constraints to be found at level 1 of the safety hierarchy may be briefly summarised as:

- The way in which the political and legal institutions have been shaped by the culture and history of individual nations;
- The manner in which a society views law, whether as a body of regulations to be obeyed or as identifiable targets to be achieved;
- The degree to which nation States are industrially developed and are prepared to accept what developed nations consider to be fair and just standards.

7.1.2 Obligations at Safety Hierarchy Level 2

When considering the ISM Code, the primary organisations at Level 2 in the safety hierarchy are the flag State Administrations. They have both the obligation and the authority to administer national and international maritime rules and regulations that have been sanctioned by their respective governments.

However, they are also under pressure to increase the amount of shipping flying their national flags thereby increasing national revenue and as discussed in Chapter IV, Section 4.1.1 this has given rise to a number of ship registries paying only lip service to the implementation of maritime rules and regulations, allowing unscrupulous ship owners to operate what has become known colloquially in the marine industry as sub-standard tonnage, i.e. vessels which neither comply with the requirements of international conventions nor meet the requirements of the Classification Societies.

Introduction of the ISM Code and policing of ship standards by Port State Control bodies have gone some way towards counterbalancing this tendency. As noted in Chapter III, section 3.4, under the provisions of international law, flag State Administrations are obliged to ensure that ships on their registers are operated in

conformity with the ISM Code, and the practice of policing of ship standards by Port State Control bodies is one means of ensuring that the flag States do in fact meet their obligations.

The pressures and constraints to be found at level 2 of the safety hierarchy are occasioned principally by the same agencies as those at level 1 and may be briefly summarised as:

- A legal and moral obligation by maritime administrations to ensure that the provisions of the ISM Code are implemented and enforced;
- Economic obligation by maritime administrations to ensure that ship owners will continue to provide revenue by registering ships with them;
- Public pressure, particularly in countries where a large number of people are engaged in the shipping industry, to remain competitive and ensure that employment within the industry is not jeopardised by inflationary costs;
- Public pressure on maritime administrations to ensure that vessels entering their waters do not cause damage or pollution of the environment.

7.1.3 Obligations at Safety Hierarchy Level 3

When a company registers a vessel in a particular State the act of registration signifies the company's agreement to observe the State's domestic laws including obligations arising from international Conventions which the State has adopted. This imposes a legal obligation on the company to run their operations in accordance with the provisions of such Conventions, for example the provisions of the ISM Code.

The judgement in the case of *M/V Eurasian Dream (Papera Traders Co Ltd v Hyundai Merchant Marine Co Ltd, 2002)* highlights the fact that shipping companies also have obligations to corporate stakeholders, i.e. those who are directly or indirectly affected by corporate decision-making such as charterers, shareholders, cargo interests and insurance companies, to run the company and the vessels it operates in accordance with the latest industry standards.

M/V Eurasian Dream was a car carrier discharging its cargo in Sharjah when one of the vehicles caught fire. That led to the vessel being abandoned and destroyed by the fire. The judge held that the claimants, who were the cargo interests, had proved that the carrier had breached Article III of The Hague / Hague-Visby Rules because the vessel was unseaworthy due to 'numerous failures and errors of judgement that amounted to professional negligence in respect of the provision of equipment, competent master and crew and adequate documentation'.

Although at the time of the fire the vessel was not ISM certified nor was it required to be, the ship had been provided with copies of the managing company's ISM procedural documentation and was subject to the same company procedures as all other vessels in the fleet. However, the judge was highly critical of the SMS documentation on board because it was not ship-specific and hence largely inappropriate and irrelevant. He was also very critical of the company's training policies, describing the Master as a 'car carrier novice'.

The judge found that the ship management company had failed to exercise due diligence based upon reasonable standards and practices of the industry at the time and the fact that although the vessel had onboard much of the ship managers ISM documentation their SMS was utterly deficient.

From the foregoing and the discussions in Chapter III Section 3.4 and Chapter VII Section 7.1 above it is apparent that the following constraints and pressures bear upon senior decision-makers in shipping organisations:

- There is both a moral and a legal obligation to run their operations in accordance with the provisions of the ISM Code;
- There are economic factors to take into consideration which may be reflected in budgetary constraints with regard to safety, training and the quality of ship maintenance
- The type and style of safety management system developed and implemented will reflect:
 - a. The prevailing cultural norms of the decision makers;
 - b. The organisation's corporate culture;
 - c. Management style;
 - d. Managerial competence

7.1.4 Obligations at Safety Hierarchy Level 4

The ISM Code is aimed principally at the shore-based management of shipping companies rather than the seagoing staff. It does however address the ship/shore interface at level 4 / level 5 of the safety hierarchy, in so far as the functional requirements for an SMS defined in Clause 1.4 of the Code require:

- Safety and environmental policies developed by shore based management to be conveyed to seagoing staff by way of instructions and procedures;
- Defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel.

The requirement for defined levels of authority and lines of communication is expanded upon in Clauses 4 and 5 of the Code, which:

- Require the appointment of a designated person ashore (DPA) to provide a link between the company and those on board, and
- Outline the Master's responsibility and authority for implementing, reviewing and reporting upon the shipboard provisions of the company's SMS.

Once a decision has been made by senior management to comply with the provisions of the ISM Code, it is the responsibility of middle management and supervisory staff to give effect to that decision, utilising the resources available to them, following the guidelines of the ISM Code and taking into consideration the prevailing organisational and cultural norms, both ashore and on board ship.

The constraints and pressure operating at safety hierarchy level 4 therefore, bear principally upon middle management and supervisory staff who, in developing and implementing an SMS, will be influenced not only by the ISM Code guidelines but also:

- The extent of available resources;
- Prevailing organisational and cultural norms;
- Their own competencies and understanding and that of the seagoing staff.

7.1.5 Obligations at Safety Hierarchy Level 5

The most important aspect of safety at level 5 of the safety hierarchy is behavioural safety, safety at the level of the individual, the psychology of human behaviour in relation to the problems of safety in the workplace. It is particularly relevant in the exercise of a duty of care, because although the law may recognise

that companies and organisations owe a duty of care to others, it is individuals who have both a legal and a moral responsibility for ensuring that the duty is in fact exercised.

The Master of a merchant ship is both the legal representative and agent of the ship owner. He is therefore, in a position of trust and under an obligation to act in the interests of the ship owner, but always within the parameters of the law. The Master of a merchant ship is also responsible for the safety of the ship, its cargo and its crew.

Occasions may arise when the interests of the owner conflict with the requirements of safety and in such circumstances the Master should act in the interests of safety and would be under pressure to do so, the obligation being both a moral one and a legal one.

In a well-found company, policies and safety procedures contained within the SMS would be sufficiently detailed to provide guidance in the event of a conflict arising between the ship owner's interests and the Master's obligations. In less conscientious companies however, if such a situation were to arise the Master of the vessel might well find himself under considerable pressure to put the interests of the owner before matters of safety.

In the former type of company there would be pressure on the vessel's Master and senior officers to ensure that the company's policies, procedures and SMS were fully implemented. In the latter type of company the policy and procedure manuals and the SMS documentation would all be found on board the vessel but there would be no pressure from the company for the Master to ensure the

implementation of their contents. Rather he would be given little guidance and expected to use his initiative and act in the company's best interests, particularly its economic interests. This appeared to be the situation in the case of the Eurasian Dream outlined above. The Master was new not only to the vessel but also to the ship management company. He was not familiar with the vessel's fire fighting systems, had apparently received no training relevant to car carriers and had been instructed simply to read the hundred or so manuals on board.

But even in a well-found and conscientious company there may be gaps in the company's operational procedures as was noted in the case of *Davis v Stena Line (2005)*. The case concerned the circumstances surrounding the death by drowning of a passenger who went overboard from the ferry M/V Koningin Beatrix on the morning of the 29th October 2000. The judge noted that 'In October 2000, Stena's current Standing Orders and Operational Procedures Manual contained no guidance and no specific operational procedure for rescuing a man overboard in the event that it was not possible to launch the vessel's own rescue boat'.

However, gaps in company procedures are not the only reason why correct procedures are sometimes not followed. Safety, like law, comprises a system of rules and regulations and although individuals may be aware of their employers' policies and procedures they may sometimes choose to ignore some of those policies or procedures, just as some people choose to ignore particular laws. Why this should be so is a matter of debate, not only amongst psychologists and legal philosophers but also amongst people charged with ensuring safety directives are not only promulgated but also acted upon. It may be due to personality traits, psychological dimensions or pressure from the company to ignore its safety rules in return for a perceived corporate benefit.

However, non-observance of safety rules and regulations at this operational level may be due simply to the person involved not being aware of the prevailing rules and regulations, which in turn might well be due to the type and style of SMS that has been developed, lack of training or sheer incompetence on the part of the individual.

The most salient constraints and pressures acting at this level of the safety hierarchy are:

- Obligation to follow Company policies and procedures;
- Educational and training norms as reflected in the competency of individual seafarers;
- Psychological dimensions of the individual such as locus of control.

7.2 PENALTIES FOR NON-COMPLIANCE

Why people obey the law is a matter of much debate amongst writers of books about jurisprudence but is also relevant when considering how best to enforce the provisions of international conventions such as the ISM Code.

In the field of jurisprudence Rawls' (1972) social contract theory of justice argues that there is a moral obligation to obey the law *per se* whilst advocates of the utilitarian theory argue that people obey laws to the extent that the law is in conformity with, and sanctioned by, the norms of the social groups of which they are members. Legal positivists such as Kelsen (1957) contend that duty and sanction exist separately but if a valid law exists then it is binding and people obey the law because of the fear of sanctions that will be incurred if they do not obey the law. These jurisprudential arguments revolve around three possibilities:

- People obey the law because they have a moral duty to do so;
- People obey the law for fear of sanctions;
- People obey the law because of perceived benefits;

What is also of interest in the present study is how people conceive the strictures of the law: whether as strict rules to be obeyed or as goals to be achieved. This may well vary between people with different cultural backgrounds and is pertinent to the introduction by a shipping company of an integrated SMS in compliance with the ISM Code since the way in which the provisions of the SMS are interpreted and to what extent they are followed may well determine whether or not a vessel passes or fails a safety audit by either a flag State or a port State inspectorate.

There are no stipulated penalties for non-observance of the provisions of the ISM Code, only the possibility that failure to observe its provisions may result in detention of a vessel, withdrawal of its Safety Management Certificate (SMC) or, in the case of a serious breach, withdrawal of the operating company's Document of Compliance (DOC) thus rendering the company unfit to manage vessels. Clause 3.12.1 of the ISM Code states 'The Company is responsible for determining and initiating the corrective action needed to correct a non-conformity or to correct the cause of the non-conformity. Failure to correct non-conformities with specific requirements of the ISM Code may affect the validity of the Document of Compliance and the related Safety Management Certificate'.

Only the flag State that issued them can withdraw a vessel's SMC or an operating company's DOC. However, as discussed in Chapter IV, section 4.2, a port State may detain a vessel if it considers the condition of the vessel to be such that it poses a threat to the safety of the nation's environment or nationals, although

according to Lord Donaldson (2001) detention of a vessel may not be overly burdensome for its owners, presenting more of an inconvenience than deterrence. Donaldson argues that in order to provide an incentive for owners to comply with the provisions of the ISM Code and a deterrent against flouting its provisions, detention should be both costly for the errant ship owner and highly profitable for the port authority compelled to provide harbour space for the vessel until the noted deficiencies have been made good.

This argument however, is somewhat contentious for two reasons. Firstly, detention of a vessel becomes more than an inconvenience to owners if as a result of the detention the revenue-earning potential of the vessel is affected, as for example when a vessel loses a charter. Secondly, allowing a port authority to impose high charges on a detained vessel pre-supposes that the ship owner is the guilty party and the port State control inspector is the virtuous party. Such a situation could lead to corrupt officials detaining vessels of innocent parties.

7.3 ECONOMIC CONSIDERATIONS OF NON-COMPLIANCE

The OECD report (1996) sets out to demonstrate that ship owners can obtain competitive advantages by deliberately failing to observe applicable international rules and standards pertinent to the safe operation of ships.

Although brief, the OECD report endeavours to cover an extremely wide field, inevitably leading to advocacy and generalisations without factual substantiation. An example is the assertion that approximately 80 per cent of all shipping accidents are attributable to human error. This very point was dealt with by Lord Donaldson (2001) who countered by stating 'Virtually all accidents, marine or

otherwise, are indeed caused by human error, but the real issue is what was the precise nature of the error and when did it occur?'. Lord Donaldson continued by pointing out, 'It may have been historic or it may be current. In a marine context it may have occurred at the stage of design, construction, operation, supervision or whatever. Unless you answer these questions and a good few more, you are unlikely to know what to do to improve safety'.

The OECD report is of the opinion that considerable scope exists for ship owners to deliberately avoid compliance with international rules and standards which govern safety and pollution prevention. However, this is difficult to reconcile with the ever-increasing number of surveys that ships are forced to undergo, such as:

- Flag State inspections
- Port State inspections
- Classification Society surveys
- Charterers' inspections
- P&I Club surveys
- Financiers' inspections

But it would also be naive to believe that any ship owner would maintain his vessel to a very high standard unless he saw an economic advantage in doing so. An owner operates and maintains his vessels in compliance with regulatory requirements with regard to four overriding criteria:

- The earning potential of the vessel
- Charterers' requirements
- The resale value of the vessel
- Market trends

These four criteria dictate the economic viability of the vessel. It would not make economic sense for an owner to spend more than necessary to operate or maintain his vessel to meet charterers' requirements if it meant that his expenditure exceeded the earning potential of the vessel. By the same token, it would not make economic sense for an owner to spend less than needed to operate and maintain his vessel to charterers' requirements if the under-expenditure compromised the earning potential of the vessel. As Shaw (2001) points out, in order for organisations to operate efficiently, financially and otherwise, it is necessary for them to strike a balance between having on the one hand no safety standards at all and having on the other hand excessive and obsessive safety standards.

This is not to deny that some ship owners spend more on maintenance and operations than others but the reasons are far more complex than those identified in the OECD report. The major oil companies tend to maintain their vessels within the level identified by the OECD report as that of good practice, i.e. a high level of expenditure adopted by a minority of ship owners. There is one over-riding reason for that. Reputable ship owners, particularly major oil companies, know that accidents cost money and may create bad publicity, as was the case when the oil tanker M/T Exxon Valdez went aground on Bligh Reef, Alaska, on 24th March 1989, spilling 38,800 metric tonnes of crude oil into Prince William Sound. They are therefore, concerned to ensure that their vessels are maintained and operated to a high standard, thus reducing the risk of an accident occurring, subsequent actions for damages, and the negative impact of any ensuing publicity.

Some owners operate in less demanding markets than those controlled by the major oil companies. In such markets older tonnage, often purchased second-

hand, is frequently employed. In relational discussions with Loucas Haji-loannou (1994), head of the family with the largest privately owned fleet of oil tankers in the world, he noted an additional criterion that may be added to the four criteria mentioned above regarding standards of operation and maintenance. Haji-loannou argued that no ship owner successfully operating second hand tonnage would sell a vessel as a going concern because it would be used in competition against him. Instead, when a vessel reached the end of its useful working life a ship owner would sell it for scrap. And because it would be economically illogical to send a ship to the breakers yard in pristine condition, it does not make economic sense in the final years of a vessel's working life to maintain it to anything other than the basic minimum standard acceptable to flag State, Classification Society, Insurers and Charterers.

A major difference between an independent tanker owner and the shipping division of an oil company is that the former relies solely on the vessels to provide an income, whereas the latter has an assured income from the provision of marine transportation to the company's production, refining and sales divisions. Whereas oil companies work out their budgets on a five year rolling plan and tend to be long-term orientated with regards to their shipping operations, an independent tanker owner may be either long-term orientated or short-term orientated depending on forward contracts.

In exercising due diligence, charterers, particularly major oil companies, increasingly demand not only a high standard of ship operation, especially with regard to safety and environmental protection, they also require chartered-in tonnage to be well maintained, structurally, mechanically and also cosmetically.

For this very reason the Oil Companies International Marine Forum (OCIMF) set up in the 1990's the ship vetting programme known as SIRE.

There are ever-increasing pressures on ship owners to raise standards and at the same time to reduce costs, and such pressures are unlikely to change in the foreseeable future. Whilst the two goals are at odds with each other, they are the usual pressures found in most organisations, and the pressure to reduce costs does not necessarily result in a lowering of standards.

In support of its contention that economic pressures have forced an increasing number of ship owners on to a survival footing, characterised by cost saving initiatives and expenditure cutbacks on safety-related maintenance with the risk of violating international rules and standards, the OECD cites a study by Intertanko showing a decrease in the amount of time spent in dry-dock by very large crude carriers (VLCCs). The report notes a reduction of 27.5% in dry-dockings between 1991 and 1994 with the average number of days spent in dry-dock falling from 24 to 22. The report however, fails to consider pertinent factors such as prevailing market conditions during that period, the five year docking cycle of VLCCs, increases of efficiency in shipyards due to technological advances, the improved performance of underwater hull coatings enabling intermediate surveys to be carried out whilst vessels are afloat, and the possibility of using afloat repair squads to carry out essential repairs and maintenance during ballast passages.

7.4 SUMMARY

This chapter commenced with an examination of the legal and moral obligations of organisations and individuals at various operational levels in the shipping industry to comply with the ISM Code and the constraints and pressure that influenced the way in which those obligations are addressed.

The legal and operational consequences of non-compliance with the provisions of the Code were also reviewed.

The possibility that non-compliance may be because of economic advantages to be gained by ship owners who avoid implementing the rules as suggested in an OECD report was examined. However, it was determined that in general the arguments in the OECD report served only to demonstrate that ship owners are under pressure to cut costs, which is usually the case in any industry supplying a product or a service. Economic considerations are only one of a number of constraints and pressures operating at level 3 of the safety hierarchy.

To complete the literature search and build upon those components of the study reviewed so far, the next chapter explores how personal and societal values relate to safety and risk perception, and the effects of globalisation upon those values.

Subsequently, in Chapter IX, having completed the literature search and reviewed all those culturally influenced factors that impact upon the development and implementation of an SMS, a model of the ISM Code is developed.

CHAPTER VIII

GLOBALISATION

8.1 WHY GLOBALISATION IS IMPORTANT

Globalisation is increasingly discussed in cross-cultural management literature for a number of reasons, three of which are germane to the present investigation.

Firstly, this study is investigating the impact of the diversity of cultures upon the implementation of an international convention within a global industry, and it is important therefore to understand how globalisation is increasingly instrumental in fostering the interplay of cultures by the exchange of values between them.

Secondly, globalisation means different things to different people and since the international convention in question affects the shipping industry, which operates in a global environment, it is important to understand the nature of globalisation within the context of this study.

Thirdly, the international convention with which this study is concerned relates to safety management. Therefore, in addition to the values and contextual aspects of globalisation, it is necessary to understand how knowledge travels, how safety techniques are disseminated, how objectified ideas (*Czarniawska, 1996*) such as safety rules, regulations and guidelines may be dis-embedded from one culture and re-embedded in another.

8.2 SPREADING OF IDEAS BETWEEN CULTURES

Traditionally, the spreading of ideas was seen as a process of diffusion (*Rogers, 1962; Levitt, 1988*). The diffusion metaphor is however, limited in its application since it implies that ideas travel in only one direction, cascading from levels of high saturation to levels of low saturation, ignoring situations such as the so-called 'brain drain' where the reverse occurs.

For this reason Czarniawska (*1996*) prefers Latour's (*1986*) translation model, which comprehends the dual association of the word translation: firstly its association with movement in its meaning of transference, and secondly its association with language in its meaning of interpretation. The model sees ideas as images which become known in the form of pictures or sounds. The ideas are materialized in the form of objects, which give rise to actions, which may eventually result in the institutionalisation of the ideas.

Czarniawska theorises that an idea can travel only when it has been objectified. A person receiving the objectified idea translates it into a new idea coloured by his or her own values and beliefs (i.e. their culture) and then either discards the idea or objectifies it. And so the process continues, ideas travelling globally and being particularised locally.

Czarniawska's theory applied to two different cultures is depicted graphically in figure 8 below. In the diagram each idea is translated within a particular culture in localized time and space whilst the ideas travel from one culture to another through globalised time and space

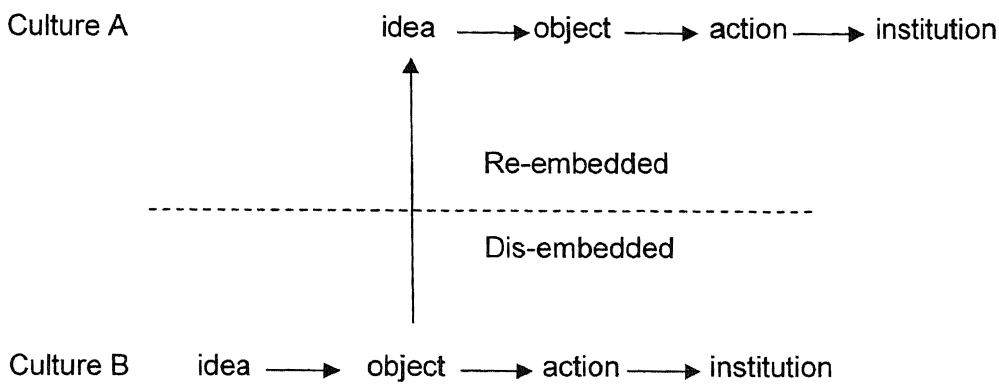


FIGURE 8: HOW IDEAS TRAVEL.

But ideas do not travel without being affected by various influences. Objects from one train of translation impact upon ideas in other trains of translation and the result will be entirely determined by the interpretation of the receiver.

Within each culture and at each level of the safety hierarchy, each idea is subjected to constraints and pressures at each stage of its translation to objectivity, action and institutionalisation. Hence, close examination of a detailed chain of translation will provide great insight into the prevailing constraints and pressures affecting the chain of translation and the resultant outcome of those constraints and pressures.

But the translation model is not just two dimensional: it is three-dimensional with layers of translations occurring in both the horizontal and vertical directions as illustrated in figure 9 below. Czarniawska's three-dimensional translation model is fractal in two senses. Firstly, as each layer is peeled off then another train of translation is revealed underneath. Secondly, the greater the magnification of the detail of the influences upon each stage of a train of translation the greater the richness of information discerned.

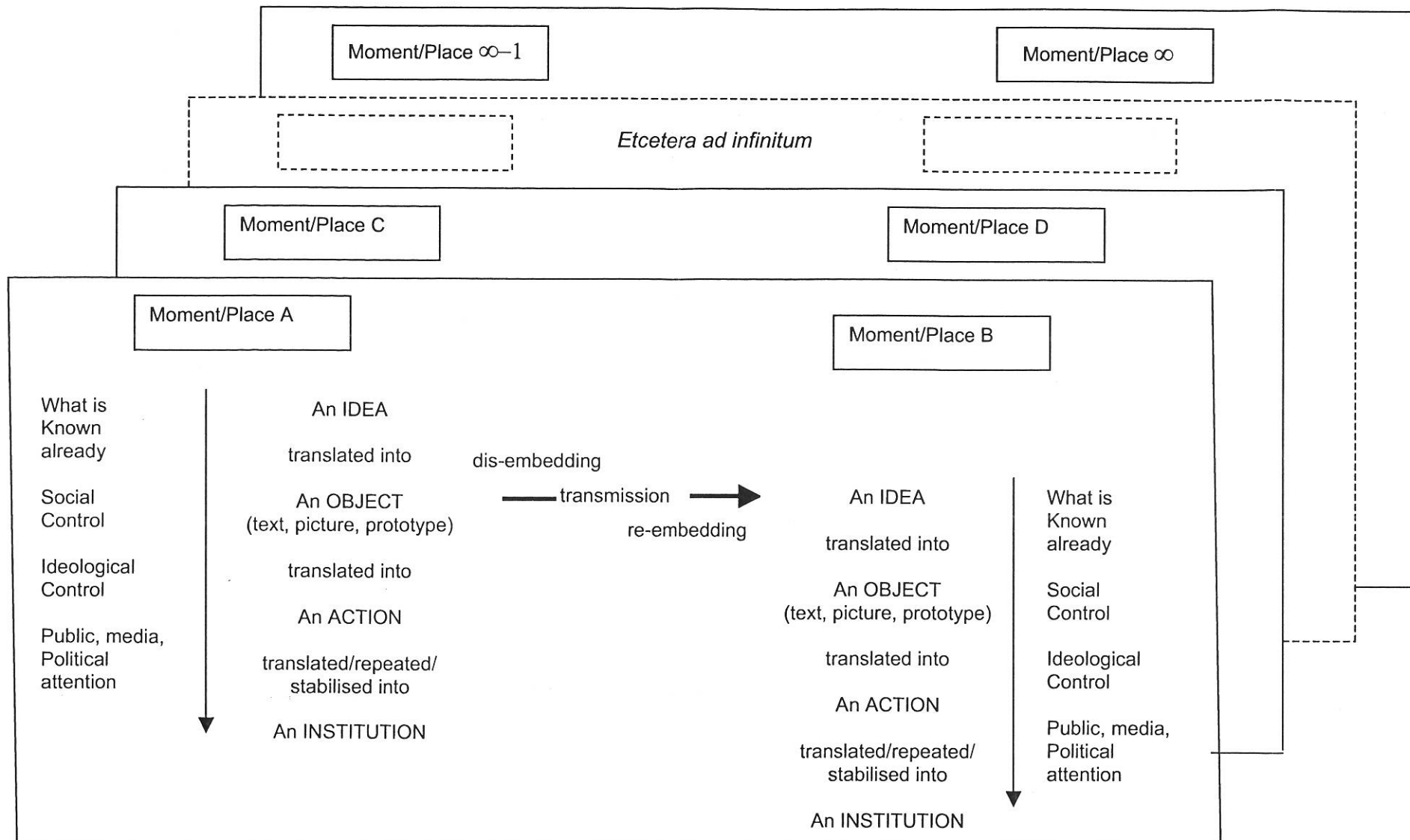


FIGURE 9: 3-DIMENSIONAL TRANSLATION MODEL OF CZARNIAWSKA'S & JOERGES' TRAVELS OF IDEAS

8.3 RELATIONAL ASPECTS OF GLOBALISATION

8.3.1 Defining Globalisation

Amin (1997) is of the opinion that the more we read about globalisation from the mounting volume of literature on the topic, the less clear we seem to be about what it means and what it implies: we are assailed by opposing interpretations.

Some writers see globalisation as a new economic world order, organised and run by trans-national financial institutions and international conglomerates. Costea (1999) leans towards this concept as does Mann (1928) who referred to globalisation as a hierarchical cosmopolis, i.e. the subjugation of nation States to supra-national, quasi-governmental, organisations that promulgate international rules, particularly for the harmonization of trade and ordering of world peace.

Spybey (1996) also leans towards this view, but recognises a cultural aspect to globalisation, stressing the need to retain the view of the individual as a human agent routinely engaged in the reproduction of social institutions, but with the capacity to translate them in the course of day-to-day activities. This is a view very much in line with that of Czarniawska (1996).

Amin (1997) too recognises a cultural aspect to globalisation, but rejects the idea that globalisation is either an economic world order or a hierarchical cosmopolis, arguing that even a cursory awareness of the globalisation literature cannot fail to cast doubt over the idea of globalisation as a neo-liberal conspiracy or simply a system of trade and investment exchange between nations.

According to Amin, even the term neo-liberal has different meanings for different people, depending upon which aspects of globalisation most concern them; whether it is the economic and political aspects, the socio-cultural and identity aspects or perhaps the very radical concept of global revolution.

As far as socio-cultural aspects are concerned, the neo-liberal conspiracy theory holds that not only is business done internationally in a new way but there is also a challenge to cultural diversity. For example, the domination of the global media by U.S. companies projects an American view of world affairs, deregulation of international finance leads to a greater division between the rich and the poor in developing nations, and globalisation of large corporations leads to token multiculturalism at the expense of indigenous non-Western cultures.

If this theory is correct then logically the differences between cultures will become less defined as globalisation increases and eventually the entire human race will subscribe to a common set of values and beliefs. This view however, ignores:

- The difference in styles that exists between systems of corporate governance such as that in Japan, Germany and the United States, which contradicts the neo-liberal idea that globalisation has resulted in there being only one way of doing business in the capitalist world;
- The effects of language. Language is a means of encoding experiences (*Jankowicz, 1998*) and the existence of a diversity of languages will tend to support the continuing existence of a diversity of cultures;
- Localised particularisation of globalised ideas whereby ideas interpreted and objectified in one culture are not necessarily coincident with the way in which other people in other cultures interpret and objectify those same ideas (*Czarniawska, 1996*).

The extent to which globalisation has blurred the distinctions between cultures has implications for the international agreement and enforcement of maritime safety conventions such as the ISM Code. Blurring of distinctions between cultures results in more homogeneity in the interpretation of ideas and therefore, a greater tendency towards a common interpretation of the meaning of safety and how safety regulations should be applied. Sharpening of distinctions between cultures on the other hand results in greater heterogeneity in the interpretation of ideas and consequently a greater tendency towards differing interpretations of the meaning of safety and how safety regulations should be applied.

This distinction is important when considering whether greater emphasis on education and training (an attempt at homogeneity) or stricter enforcement of existing regulations (a practice that recognises heterogeneity) is the better path to follow to ensure that the objectives of the ISM Code are fulfilled.

8.3.2 Global versus International

The adjectives global and international are often used interchangeably, implying that an increase in globalisation indicates an increase in international trade. But whilst there may be an increase in globalisation, there is not, in fact, an increase in the volume of international trade. As Amin (1997) points out, quoting Hirst and Thompson (1996), at the height of the imperial age between 1878 and 1914 international flows of investment, exports and people exceeded current levels.

Nor is international trade something new. As Hirst and Thompson also pointed out, world capitalism as a system of international exchange is several centuries old. Indeed, international trade and transport have been features of the business

world for a very long time: from the era of the Phoenician Traders in the Classical Age, to the large international conglomerates of modern times.

Domestic producers have always sought ever-wider markets for their goods and are positively encouraged by national governments to export their commodities in order to generate foreign income and thereby increase the wealth of their home nations.

Importers have always sought out cheaper or more exotic produce from distant markets to sell in domestic markets. Such imports may deplete foreign reserves built up by exporters but they improve the overall material well being of the home nation. Such trade is fundamental to the shipping industry.

But, importing and exporting are only a part of international business. Spybey (1996) reminds us that the rise of Western States to their position of global economic dominance is inextricably connected with the development of capitalism and the global economy and the extension of Western influence in global terms was coincidental with maritime expansion, the control of international commodity markets and the establishment of an international division of labour.

Whether there is in fact a rational difference between a global and an international organisation or just a conceptual difference is debateable. Perhaps a global company might be distinguished from an international company insofar as the former might imply that the company is not merely trading internationally but is also utilising the personnel, assets and expertise available to it world wide. Lloyd's Register of Shipping for example has traditionally been seen as an international company with headquarters in London and overseas offices staffed and managed

mainly by British expatriates. However, following recent changes to the way the organisation is structured with more locally recruited staff at all levels of operation, both in the UK and overseas, and more autonomy given to regional offices (*Williams, 2000*), the organisation may now be seen as a global company

8.3.3 Communications and Transportation

Globalisation may in fact simply be business jargon for a worldwide market place linked by rapid communications and rapid transportation. Certainly, it is now more fashionable to refer to global markets than to international markets and to talk of globalisation rather than internationalisation. But even if the distinction between international and global described above is valid, both phenomena owe their existence to the advent of rapid communications and rapid transportation.

Developments in communications and transportation have resulted in companies being able to deal in a much wider market place than ever before. The advent of air travel in the early twentieth century enabled key staff such as engineers, accountants, and marketing specialists to be sent to overseas offices and factories on an *ad hoc* basis to check up on local operations. The invention of computer-based communications in the late twentieth century enabled overseas offices to report back to head office with consummate ease and speed whilst the development of container ships introduced a whole new era of sea transportation.

The advent of rapid communications and transportation has also impacted upon international take-overs. According to a newspaper article (*Daily Mail, 2000*) quoting an OECD report, in 1999 British firms spent £164 billion on overseas acquisitions, accounting for nearly one third of the total amount of money spent worldwide on foreign takeovers.

So it is debatable whether globalisation really exists at all, or whether it is simply a contextual factor deriving from a manifestation of rapid communication and rapid transportation, which can be addressed by conventional approaches to knowledge management and transfer (*Holden, 2002*).

8.3.4 Globalisation and Culture

With regard to the present study however, the importance of globalisation is its cultural aspect. Whether it is the cause of, or a product of technological advances that have precipitated changes to the way that business is administered in the post-industrial age, globalisation may be considered a vehicle of change, a change agent playing an important role in the development of both national and corporate cultures.

Hofstede (*1991*) holds that we grow from the way in which we respond to our environment and the less an activity is determined by technical necessity the more it is ruled by values, and thus influenced by cultural differences. However, the way we think, the way we act, our most deeply held beliefs, our very culture, can be changed by the way we perceive and respond to exogenous influences (*Holden, 2002*). These changes take place through processes of translation by human agents and this occurs against a background of influences external to immediate social interaction many of which are, in a globalised society, global institutions (*Spybey, 1996*).

As noted by Amin (*1997*), it is essential to look beyond the idea of globalisation as simply a new world order, either economic or organisational, and look at the impact of globalisation upon regional cultures.

It is self-evident that the ever-increasing speed of communication and transportation exposes individuals in nation States and in trans-national corporations to international cultural influences to an ever-increasing degree. It is the effects of such exposure that are not always clear, for the international traffic of ideas is always a selective process (*Hofstede, 1991*).

8.4 GLOBALISATION, SAFETY AND RISK PERCEPTION

8.4.1 Culture, Values and Decision-making

The cross-fertilisation of cultures must inevitably impinge upon corporate management decision-making worldwide. Regional differences will no doubt remain, but the question arises as to whether greater emphasis will be put upon safety and the avoidance of pollution in some countries than in others or whether a general consensus of opinion will arise regarding what is safe and what is unsafe, what is acceptable and what is unacceptable. Even if a general consensus does arise, it remains to be determined whether or not people from some cultures are more likely to take a risk than people from other cultures.

The preferences, values and beliefs of society engender certain expectations. But such preferences, values and beliefs are not static and according to Le Guen (1999) current shifts are linked in part to:

- The rapid rise in information technology;
- The increased pace in exploiting advances in scientific and technological knowledge;
- Greater affluence in society.

Le Guen's synopsis of the causes of current shifts is closely related to the concept of globalisation as a manifestation of the ever-increasing speed of communication and transportation. He is of the opinion also that these shifts in preferences and values result in:

- A growing perception that risks imposed on people should be justified;
- An increasing reliance by the public on regulators that they trust;
- Calls for greater openness and involvement in the decision-making process.

With regard to the latter point, Drucker (1996) pointed out that management is a decision-making process and whatever a manager does he does through making decisions, whether as a matter of routine or after years of systematic analysis.

But what is important to this study are the first two points identified by Le Guen. These concern matters that influence managers since they relate to the factors taken into consideration when making decisions. Even strategic decisions are influenced by prevailing environmental and cultural preferences, and safety is, or most definitely should be, a part of the strategy of any well-run company.

8.4.2. Culture, Values and Globalisation

With the increasing impact of globalisation there is a move towards international standardisation of rules and regulations, bringing ever-increasing pressure to bear upon national companies, national governments and multinational corporations to adopt socially acceptable and environmentally responsible strategies and safe working practices.

There is evidence to suggest that exposure to the standards and ethics of industrialised nations has influenced newly industrialising nations to follow similar practices. For example, in 1997 the local authorities in Nanjing, China, introduced regulations to standardize the region's rapidly growing shipbuilding and ship repair industry. The regulations require companies wanting to open shipbuilding or ship repair businesses to ensure that design, construction and reparation of ships comply both with national rules and with international standards.

The environmental and social awareness of Western societies has put a great deal of pressure on governments and companies in Europe and North America to act in a socially responsible, environmentally aware and safe manner. Governments are pressed by their electorates to demonstrate their commitment to socially acceptable policies by the introduction of public safety regulations and environmentally aware legislation. Companies too, have become increasingly pressed to develop safe and socially responsible operating strategies.

When Shell Oil decided that the most economical way to dispose of a redundant North Sea oil rig was to tow it out into the Atlantic Ocean and sink it, the public outcry was so great that the corporation was forced to rethink its strategy. This has since been reflected in the attitude of other major oil companies. Mobil (1999), for example, acknowledged that decommissioning offshore production platforms is a controversial subject, presenting operators with both environmental and safety challenges, and recently as part of a huge project to decommission the North West Hutton platform 130km north-east of the Shetland Islands, British Petroleum has undertaken extensive consultation with all concerned parties (*ExxonMobil, February 2005*).

However, not all countries have such socially responsible and environmentally aware societies, as can be seen by the lack of social welfare and high levels of pollution in many newly industrialised countries. Safety is also lower on the list of priorities in developing countries as may be discerned from incidents such as the Union Carbide debacle in Bhopal, India, where thousands of people were killed and injured due to poor maintenance and / or sub-standard operating procedures.

8.4.3 Managing Cultural Diversity

Given that there is a global diversity of cultures that impacts in varying ways upon decision-making in the field of safety management, organisational safety and behavioural safety, then as first highlighted in Chapter I section 1.1, it remains to be resolved whether the best way to deal with the results of that impact in the shipping industry is by stricter enforcement of existing regulations, such as that undertaken by Port State Control inspectors (a practice which recognises heterogeneity) or greater emphasis on education and training such as that provided for in the 1995 Convention on Standards of Training, Certification and Watchkeeping for Seafarers (an attempt at homogeneity). This will form a part of the empirical study.

8.5 SUMMARY

Globalisation highlights three questions that are at the centre of this study:

- a. Are people in some cultures more safety conscious than people in other cultures or are their expectations simply different?
- b. Are managers in some cultures more inclined than managers in other cultures to put profits before safety, i.e. are they more prepared to 'take a risk'?

- c. Can people be educated to the same level of safety consciousness irrespective of their cultural background?

This chapter commenced by explaining that globalisation:

- Is increasingly instrumental in fostering the interplay of cultures by the exchange of values between cultures; and
- Is an important aspect of this study because it provides the context within which the shipping industry operates and within which IMO is endeavouring to introduce a common standard of safety.

The mechanism by which knowledge travels and safety techniques are disseminated was then explored, and the means by which cultural influences might impact upon ideas as they travel from one culture to another was examined.

An attempt was made to define globalisation. Various writers have expressed a number of different views, defining globalisation in terms such as:

- A hierarchal cosmopolis;
- A new economic world order;
- A neo-liberal conspiracy.

A proposal was then put forward that globalisation might be simply a manifestation of the ever-increasing speed of transportation and communication, providing the context in which trans-national companies operate. International organisations were distinguished from global organisations but it was noted that both benefited from increasingly rapid transportation and communication.

It was noted that greater exposure of cultures to each other could either:

- Blur the differences between cultures leading to a greater homogeneity of interpretation of safety regulations; or
- Sharpen the distinctions between cultures, leading to greater heterogeneity of interpretation of safety regulations.

This left open the question of whether the best way to ensure effective implementation of the ISM Code objectives was greater emphasis on education and training, an attempt at homogeneity, or stricter enforcement of existing regulations, an approach that recognises heterogeneity.

Finally, the impact of globalisation upon culture and consequently upon safety and risk perception was examined. It was debated whether that impact presented a challenge to managers or, as Holden (2002) contends, merely provided a context within which global companies operate, the problems being dealt with by conventional approaches to knowledge management and transfer.

In the next chapter a model of the working of the ISM Code is developed and it is demonstrated that the trains of translation involved in the development and implementation of practices compliant with the ISM Code follow Czarniawska's model of how ideas travel. As outlined in Chapter VII, section 7.1.1, the nature of the constraints and pressure impacting upon the trains of translation vary in accordance with the level of the safety hierarchy at which they impact and in accordance with the background culture within which the development and implementation of the safety practices take place. This is reflected in the ISM Code model.

CHAPTER IX

DEVELOPMENT OF A MODEL OF THE ISM CODE

9.1 A MULTI-STAGE MODEL OF THE ISM CODE

Figure 10 below is a diagrammatic representation of the working of the ISM Code. It is a multi-stage model upon which are superimposed the five levels of the safety hierarchy enabling the model to be used as an organising framework to determine where and how cultural pressures and constraints bear upon organisations developing and implementing an SMS in accordance with the ISM Code.

The model also identifies the various stages at which national cultures might influence industry organisations, flag State Administrations and hence companies operating vessels under the aegis of those administrations.

The entire operation depicted by the model is set within a globalised context.

From the figure it is evident that implementation of the provisions of the ISM Code involves a chain of translation, decision-making and action. At each hierarchal level of safety management an idea is objectified and travels to the next level of safety management where it is translated into an idea that is again objectified in a new format and then travels to the next level of safety management.

The process is a continuum from the initial adoption of the convention at an international level and ratification at municipal level by the governments of nation States at safety management level 1, through to its interpretation and

promulgation by government agencies and industry bodies at safety management level 2, its adoption as a management tool by senior managers of shipping companies at safety management level 3, its formulation into a system of instructions and procedures by middle management and supervisors at safety level 4, and finally its transformation into positive action by shipboard personnel at safety management level 5 where it is recognised as the shipboard implementation of an operational safety management system

In Figure 10 the various pressures and constraints that impact upon the development and implementation of an SMS and compliance with the provisions of the ISM Code at each level of safety management are shown in the text-boxes and the entire process is shown taking place in a global context, which presents additional pressures and constraints.

From further examination of the model it can also be seen that each hierarchical level of safety forms a superordinate level of management to the one below it and a subordinate level to the one above it. These are not simply different seniority layers but distinct subordinate and superordinate levels of control (*Jankowicz, 2000*). This is an important distinction from a practical point of view since it helps to clarify the effects of consultancy interventions and information feedback at the various hierarchical levels.

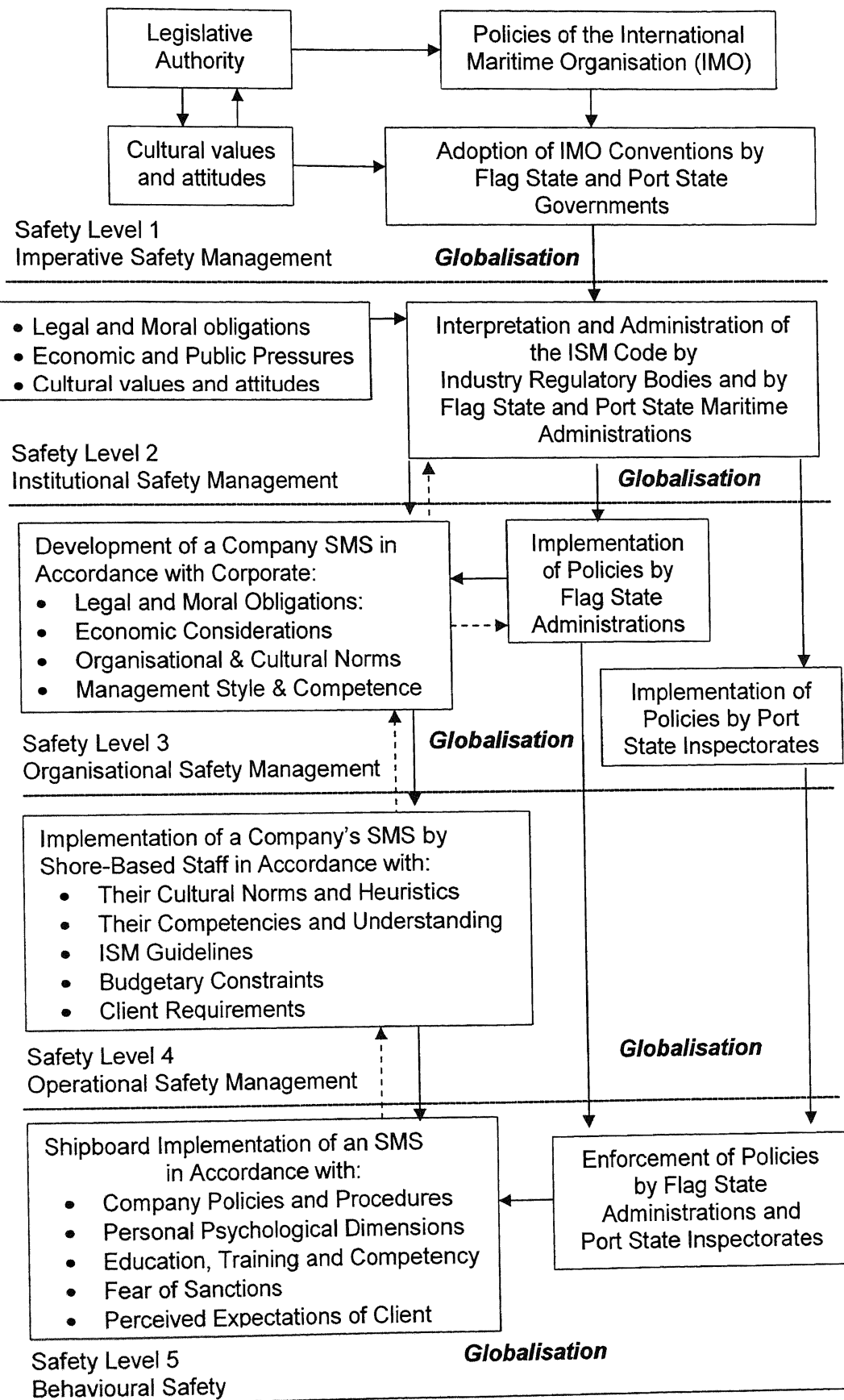


Figure 10: ISM Code MULTI-STAGE MODEL

9.2 SOCIO-CULTURAL INFLUENCES

9.2.1 Influences at Hierarchal Level 1

Safety level 1 of the ISM Code model (Figure 10) represents a nation's fundamental socio-cultural and political systems that produce the constraints and pressures which dictate a nation's approach to, and colour its interpretation of, international laws and conventions. The systems comprise political, social and economic institutions, trade unions, social stratification, educational systems and pressure groups. Level 1 of the safety hierarchy, the level at which these constraints and pressures operate, is the level at which nation States send delegations to international forums to discuss and negotiate treaties, conventions and similar concordats. It is the level at which IMO conferences operate.

The constraints and pressures operating at this level of the safety hierarchy were discussed Chapter VII, section 7.1.1, and may be briefly summarised here as follows:

- The way in which the political and legal institutions have been shaped by the culture and history of individual nations;
- The manner in which a society views law, whether as a body of regulations to be obeyed or as identifiable targets to be achieved;
- The degree to which nation states are industrially developed and are prepared to accept what developed nations consider to be fair and just standards.

9.2.2 Influences at Hierarchal Level 2

Safety level 2 of the ISM Code model represents government agencies, non-governmental organisations and industry bodies such as Flag State

Administrations, Port State Control Inspectorates, and Classification Societies, that are either directly responsible, or have assumed responsibility for overseeing the implementation and administration of the decisions made and agreements entered into by nation States.

This represents an intervention at nation State level by the bodies that control the shipping industry. How those bodies respond to and interpret national legislation resulting from national governmental adoption of international agreements will to a greater or lesser degree be influenced by national culture and attitudes towards the implementation of HSE legislation.

Here it should be noted that not only are shipping companies commercially orientated but so too are some of the controlling bodies, particularly the Shipping Registries of Flag State Administrations, as discussed in Chapter IV, section 4.1.1, and further evidenced by advertisements regularly placed in the marine press by Flag State Administrations in an attempt to persuade ship owners to register their ships with them, e.g. the Dominica Maritime Administration (*Lloyd's List*, 22 October 2001) and the Cambodia Ship Registry (*Lloyd's List*, 31 October 2001).

As noted in Chapter VII, section 7.1.2, and illustrated in the ISM Code model, the pressures and constraints found at safety hierarchy level 2 are occasioned principally by the same agencies as those at level 1 and may be briefly summarised as:

- A legal and moral obligation by maritime administrations to ensure that the provisions of the ISM Code are enforced;
- Economic obligation by maritime administrations to ensure that ship owners will continue to provide revenue by registering ships with them;

- Public pressure, particularly in countries where a large number of people are engaged in the shipping industry, to remain competitive and ensure that employment within the industry is not jeopardised by inflationary costs;
- Public pressure on maritime administrations to ensure that vessels entering their waters do not cause damage or pollution of the environment.

9.2.3 Influences at Hierarchal Level 3

Safety level 3 of the ISM Code model reflects the outcome of the interaction between the first two levels of safety management. It is how individual shipping companies respond to the legal and moral obligations brought to bear upon them by flag State Administrations, their responses being tailored to the economic circumstances of individual companies, the cultural norms of their management and the country in which their operational offices are established.

The purpose of the ISM Code is to provide an international standard for the safe management and operation of ships and for pollution prevention. In the context of Figure 10, this objective as viewed by both a shipping company and its flag State Administration would clearly lie between hierarchal safety levels 2 and 3 of the model and would therefore be subject to the impact of national socio-cultural and political systems on both the shipping company and the flag-State Administration.

It is at this level of the safety hierarchy that this study commences empirical research with entry into two shipping companies at senior management level in order to carry out a comparative case study.

Since the purpose of the Code as stated in its three objectives is safety at sea, prevention of human injury or loss of life, and avoidance of damage to the marine

environment, then by extension the objectives must themselves also be subject to the impact of national socio-cultural and political systems.

As noted in Chapter VII, section 7.1.3, and as illustrated in Figure 10, the principal constraints and pressures that bear upon senior decision-makers in shipping organisations may be summarised as follows:

- Both a moral and a legal obligation to run their operations in accordance with the provisions of the ISM Code;
- Consideration of economic factors which may be reflected in budgetary constraints with regard to safety, training and the quality of ship maintenance;
- The prevailing cultural norms of the decision makers; the organisation's corporate culture; management style; and managerial competence.

9.2.4 Influences at Hierarchal level 4

Safety level 4 of the model represents the level at which middle management and supervisory staff operate. It is here that the policies formulated by senior management are translated into concrete procedures and work instructions to form a corpus of rules that make up the company's Safety Management System.

As noted in Chapter VII, section 7.1.4, and shown in Figure 10, the constraints and pressures operating at safety hierarchy level 4 bear principally upon middle level managers and supervisory staff who, in developing and implementing an SMS, will be subject to constraints and pressures generated by:

- The provisions and guidelines of the ISM Code;
- The extent of available resources;

- Prevailing organisational and cultural norms, and the heuristics of individual managers and supervisory staff that mould the way in which they interpret the provisions and guidelines of the ISM Code;
- Their own professional competencies, proficiency and understanding with regard to the provisions of the ISM Code, safety matters, ship maintenance and ship operations in general.

9.2.5 Influences at Hierarchal Level 5

Safety at level 5 of the model is safety at the on-board-ship or shop floor level. It is behavioural safety, safety at the level of the individual, the psychology of human behaviour in relation to the problems of safety in the workplace.

This is the level at which individuals operate ships and have both a moral obligation and a legal duty to do so in accordance with company policies, procedures and work instructions formalised in the company's SMS. Failure to do so may be because:

- The work instructions or safety procedures are ill-defined;
- The individuals have a cognitive bias due to a psychological factor such as an external locus of control which prevents them from taking the initiative when required to do so; or
- The individuals are not sufficiently experienced, well enough educated or adequately trained to carry out safely the tasks assigned to them.

As summarised in section 7.1.5 of Chapter VII, the principal constraints and pressures acting at this level of the safety hierarchy are:

- A moral obligation and legal duty to follow Company policies and procedures;

- Educational and training norms as reflected in the competency of individual seafarers. This may also be related to Company employment philosophy insofar as that may influence Company training policies;
- Those personal psychological dimensions of individual seafarers that might impact upon their behavioural safety patterns;
- A possible fear of sanctions if they do not comply with the provisions of the ISM Code.

Empirical research at this level of the safety hierarchy can be expected to provide rich material for the study.

9.3 AREAS IN WHICH TO CARRY OUT EMPIRICAL RESEARCH

As outlined in Chapter 1 section 1.1, the model of the ISM Code illustrated above in Figure 10 was developed in part as a predictive model and in the main to provide an organising framework showing where, and in what manner, cultural influences might reasonably be expected to impact upon the interpretation and implementation of the provisions of the ISM Code and with this in mind to determine at which levels of the shipping industry empirical research could most beneficially be carried out.

If the subsequent empirical research were to indicate that the diversity of cultures is an influential factor in the uneven interpretation and implementation of the ISM Code, the study would endeavour to determine whether greater policing by Port State Control inspectors (a practice which recognises heterogeneity) or greater emphasis on education and training (an attempt at homogeneity) would be the better path to follow to ensure that the objectives of the ISM Code are fulfilled.

Taking into consideration the conflicting views discussed in Chapter I section 1.5 regarding whether or not the ISM Code is actually effective in achieving its specified objectives, the multi-stage model of the ISM Code was reviewed to determine the main areas in which the empirical research should be carried out.

From the model and as noted in Section 5.6 of Chapter V, it is at levels 3 and 4 of the safety hierarchy that safety management systems are designed and embedded in the policies and procedures of ship operating companies, and it is at levels 4 and 5 of the safety hierarchy that those policies and procedures are implemented and education and training are carried out.

Therefore, it was decided that the empirical research for this investigation would be carried out principally at safety levels 3, 4 and 5 of the model of the ISM Code (Figure 10), involving:

1. Shipping company senior management at safety hierarchy level 3;
2. Shipping company middle management, supervisory staff and organisation at safety hierarchy level 4; and
3. Seagoing staff at safety hierarchy level 5.

PART III

EMPIRICAL RESEARCH

CHAPTER X

METHODOLOGY

10.1 RESEARCH STRATEGY

As discussed in Chapter V section 5.1 and illustrated in the ISM Code model (Figure 10), the deliberations and edicts of governments as interpreted by government agencies and industry bodies become concretised in imperative instructions formulated at level 2 of the safety hierarchy. Those instructions are then passed on to shipping organisations at level 3 of the safety hierarchy where the initial stages of development and implementation of an SMS take place in accordance with the provisions of the ISM Code.

Constraints and pressures that can be influenced by cultural values and attitudes exist at all levels of the safety hierarchy as discussed in Chapter VII section 7.1. However, from the ISM Code model it is apparent that culturally influenced constraints and pressure start impacting upon the implementation of the various provisions of ISM Code, including development of an SMS, at Safety Level 3. It is at this level therefore, that the empirical research is commenced.

Clause 1.4 of the ISM Code requires companies to develop, implement and maintain an SMS that includes procedures for internal audits and management reviews. In addition, to ensure that ship-operating companies adhere to the IMO rules with regard to the ISM Code, each ship-operating company must undergo an initial flag State audit before it can be issued with a Document of Compliance (DOC) confirming that it has in place an acceptable SMS.

The emphasis on procedures, audits and management reviews infers a system of continuing dialogue between a ship's crew and its Master, the Master and the Designated Person Ashore (DPA) (i.e. the shore-based safety officer who has access to the highest levels of management in accordance with Clause 4 of the ISM Code), and between the DPA and senior management.

The emphasis on procedures, audits and management reviews also infers the development of an auditable paper trail, which produces a great deal of both qualitative information such as hazardous incident reports and quantitative data such as accident statistics. Therefore, of the four main research methods available, interpretive, experiment, survey and case study, it was decided to utilise the latter for the empirical research, a comparative case study strategy being capable of accommodating a mix of both qualitative and quantitative data in addition to being well suited to the small scale researcher (*Yin, 1994*).

The empirical research was carried out in two shipping companies, each of similar size and operating in similar sectors of the industry but in different geographical regions and having their operational headquarters located in two countries identified with respect to Hofstede's and Trompenaars's dimensions as being culturally distinct from each other, thus maximising the effects of cultural differences on the management and staff of the two companies.

In order to replicate a comparison (*Yin, 1994*) between the two companies that determined the manner in which each had interpreted and implemented the provisions of the ISM Code, the same methodological techniques were used to gather data in each company.

10.2 SELECTED ORGANISATIONS

The two shipping companies selected for the comparative case study were both engaged in the operation of Offshore Support Vessels such as Supply Boats, Anchor Handling Tugs and Safety Stand-by Vessels.

Due to the nature of the work involved, this sector of the shipping industry is generally recognised as being particularly hazardous and has traditionally had a poor safety record in comparison with other sectors, such as the operation of general cargo vessels or container ships. Consequently, any improvements in operational safety in the companies since the introduction of the ISM Code could be expected to be more readily identifiable than in companies operating in other sectors of the industry where safety records have traditionally been better.

The selected companies, referred to for purposes of anonymity as Company A and Company B throughout this thesis, were both divisions of multinational companies and therefore similar to each other in organisational structure but quite different from each other in many other aspects such as their financial underpinning, areas of operation and the nationality of the crews and shore staff employed.

The similarity in structure was considered advantageous to the study since it would tend to minimise any differences in safety strategies resulting from organisational differences or corporate structural pressures, whilst differences in other areas such as financial liquidity and the cultural diversity of employees would help to highlight those constraints and pressures resulting from financial strictures, cultural traits and social factors, identified as operating at Safety Level 3 in the ISM Code model (Figure 10).

The following points summarise the salient contrasts between the two companies:

- One company was cash rich whilst the other was heavily leveraged with a very high debt to equity ratio;
- One company employed entirely British shore-based staff whilst the other employed a multi-cultural shore-based staff;
- One company employed almost exclusively British seafarers whilst the other employed principally Filipino seafarers;
- One company operated vessels in the North Sea from an office in England. The other company operated vessels in the Middle East and South East Asia from an office in Dubai, United Arab Emirates

10.3 RESEARCH PROTOCOL

To effectively undertake the empirical research a protocol was adopted that incorporated three phases.

The first phase involved entry into each company at a senior level of management. This was necessary for two reasons. Firstly, because as a simple matter of courtesy and practicality it was necessary to gain the permission and cooperation of each organisation's senior managers before embarking upon a study of company documentation and interviewing supervisory personnel. Secondly, because as noted in the ACSNI report (1993), commitment by senior management is a *sine qua non* if an SMS is to be effective and therefore entry into each company at a senior level was necessary to facilitate research into the commitment of each organisation's senior management towards safety management and compliance with the provisions of the ISM Code.

The second phase involved research at Safety Levels 3 and 4 of the ISM Code model and collection of data using the techniques described below. Results from analysis of the data were compared and contrasted to highlight how the various constraints and cultural factors shown in the ISM Code model influenced the way in which each company approached compliance with the Code, the type of SMS developed and the degree of effectiveness achieved in satisfying the objectives of the ISM Code.

The third phase involved research at Safety Level 5 of the model, the level of behavioural safety. The research used two means of enquiry, the first of which involved distribution of a two-part questionnaire amongst representative samples of British and Filipino seafarers to measure the locus of control orientation, rank, experience, and professional and academic qualifications of each respondent. Comparison of their locus of control orientation with the other variables to identify any significant correlations would help to determine any constraints or pressures resulting from prevailing personality traits or psychological dimensions.

The second means of enquiry in the third phase involved visiting ships, observing their overall condition and holding relational conversations with crewmembers to gain an impression of how they viewed the introduction of the ISM Code.

The three phases of the empirical investigation entailed research at Levels 3, 4 and 5 of the safety hierarchy. Research at those particular levels was crucial to the empirical investigation since those are the levels at which organisational safety management, operational safety and behavioural safety are exercised, all of which impact upon the development and implementation of an effective SMS.

10.4 RESEARCH TECHNIQUES

The study utilised four distinct but complimentary research techniques to collect data and as anticipated there was some degree of overlap (*Blaxter, 2000*), elements of each technique being used in each of the three phases of the study.

The four techniques used were:

- Interviewing selected managers and supervisory personnel;
- Documentary review;
- Questionnaire survey of ship's personnel; and
- Relational conversations with individuals and observation of various things such as actions and reactions, management style, incidents arising, etc.

10.4.1 Interviews

Although the ISM Code is prescriptive in outcome rather than in process, certain functional requirements fundamental to its operation are specified, such as the requirements for the company to:

- Establish a safety and environmental protection policy (Cl. 1.4, and 2.1);
- Develop instructions and procedures to ensure implementation of the corporate safety and environmental protection policy in compliance with relevant international and flag State legislation (Cl. 1.4.2)
- Ensure that the policy is implemented and maintained at all levels of the organization, both ship-based and shore-based (Cl. 2.2).

These requirements are reflected at Safety Levels 3 and 4 of the ISM Code model (Figure 10) and from a practical standpoint senior management normally establishes company policy, middle management develops instructions and procedures to implement company policy, and junior management or supervisory staffs oversee the implementation of those instructions and procedures.

Based upon those criteria six people at varying levels of seniority, working in the operations head office of each company at Safety Levels 3 and 4 of the ISM Code model, were interviewed regarding their views of the company's safety philosophy and safety record, particularly with regards to the implementation and effectiveness of the ISM Code.

The objective of this purposive sampling was to end up with a set of key informant interviews in each company that would reflect the views of both senior and middle management and also supervisory personnel (*Tremblay, 1982*), thus providing an indication of the prevailing attitude to safety and implementation of the ISM Code within each company. Detailed profiles of each of the respondents are given in the appropriate section of the next chapter.

A semi-structured interview technique was employed. The selected shore-based staff were interviewed using pre-determined questions drawn up and used as an *aide-mémoire* by the researcher (see Annexes A and B) to ensure that each respondent was asked the same questions, the directional thrust of which was firstly, to determine the heuristics and biases of the interviewees resulting from their cultural origins, educational attainments and employment backgrounds, and secondly, to discern their commitment to safety and the successful implementation of an SMS in the company.

The list of questions covered:

1. The Respondent's Personal Profile;
2. The Company Profile;
3. Vessel Reporting Procedures;
4. Ship Manning Policies;

5. Safety, Education and Training Perceptions;
6. Interpretation of the Company's SMS;
7. Maturity Level of the Company Safety Climate;
8. Perception of the ISM Code;
9. Overall View of Safety

The list of questions was not however, a check-box document nor was it given to the respondents for their responses. The respondents were interviewed individually and the questions were asked in such a manner that there was sufficient latitude for the respondents to answer the questions in their own words. The responses therefore, related to the various pressures and constraints acting upon the individual as shown in the boxes at Safety Levels 3 and 4 in figure 10.

For purposes of analysis it would have been possible to group the respondents in a number of different ways, such as their level of managerial responsibility, their direct involvement with seafarers, or their own seagoing or shipping company experience, and then analyse their responses by groupings reflecting those individual aspects.

However, the objectives of the study were to determine whether:

1. Significant heuristics or biases emanating from different cultural backgrounds influenced the way in which the respondents viewed safety, particularly with reference to the ISM Code and its implementation;
2. Whether education and training or better policing and enforcement of existing regulations is the better path to follow in ensuring the objectives of the ISM Code are achieved.

Consequently, nominal values (*Blaxter, 2000*) were assigned to the ethnic and formative backgrounds of the respondents as shown in Table 4. This helped the development of a tabular format for presentation of the interview responses, which in turn facilitated comparison of individual responses relative to a combination of ethnic origins and cultural background on the one hand and formal education together with managerial background on the other hand in each of the question areas.

VARIABLE	CODE	VARIABLE	CODE
North European	1	Tertiary education and structured managerial development	A
Indian	2	Tertiary education and informal managerial development	B
Sri Lankan	3	Secondary education and structured training	C
Filipino	4	Secondary education and no structured training	D

TABLE 4: MATRIX OF RESPONDENT VARIABLES

Copies of the tabulated transcripts of the responses to the interviews carried out in each of the two companies are contained in Annexes A and B and detailed comparison of those transcripts is appended as Annexe C. Subsequent analysis is made in Chapter XII.

10.4.2 Documentary Review

Selected documentation in each company was reviewed to determine the extent to which the company had been successful in implementing an effective SMS within

the organisation. The principal documentation utilised for this purpose was the company's safety records, its accident statistics, and the documented SMS.

Comparison of the personnel accident records of each of the two companies with each other provided one variable against which to measure other variables such as the cultural dimensions of management and the seafarers employed as well as the type of SMS developed by each company.

Comparison of each company's accident statistics with the annual statistics produced by the International Support Vessel Owners' Association for the shipping industry offshore sector as a whole provided a measurement of each company's safety record against the average for the industry sector, thus providing an indication of the overall effectiveness of the company's safety strategy.

10.4.3 Survey of Ships' Personnel

The locus of control of individual seafarers was identified in Chapter VI, section 6.2, of the literature review, as the most relevant culturally influenced psychological dimension affecting behavioural safety. Therefore, as noted in section 10.3 above, the third phase of the research included the development and distribution of a questionnaire designed to measure the loci of control of the seafarers employed by the two shipping companies.

The questionnaire comprised two parts. The first part consisted of questions requiring factual responses regarding the respondent's cultural background, educational attainments and experience. The second part comprised a series of questions based on Rotter's I-E scale of locus of control orientation (*Rotter, 1966*).

Company A employed mainly Filipino seafarers supplied by crewing agencies in Manila. The use of such agencies is a common practice, particularly amongst companies employing seafarers from developing nations. Therefore, Anglo-Eastern Crew Management (Philippines) Ltd was approached to issue the questionnaires to sea staff they process.

Company B employed their seagoing staff through a crewing agency that is a wholly owned subsidiary of Company B's parent company, the seagoing staff being drawn from the general pool of British seafarers. In order to gain meaningful responses, Stena Line and the Warsash Maritime Centre (a division of Southampton University) were approached to issue the questionnaires to a representative cross-section of British seafarers employed in the short sea trade.

By this means two sets of data were obtained from two culturally distinct groups of people working within similar sections of the shipping industry. To obviate any linguistic heuristics or biases, the questionnaires distributed in the United Kingdom were written only in English whilst those distributed in the Philippines were written in both English and Tagalog, the two predominant languages spoken in the Philippines.

Chapter XIV contains a statistical analysis of the responses to the questionnaire. A copy of the questionnaire, the questionnaire scale and the responses spreadsheet are to be found in Annexes E and F.

10.4.4 Relational Discussion and Observation

This part of the empirical research involved having objective conversations with people employed at various levels of authority and in various disciplines and observing how they interacted with one another in day-to-day situations and how they acted or responded to events in the normal course of their work.

The technique involved not only talking to individuals and listening to their comments but also watching the actions, inter-actions and reactions of the individuals. In addition, non-participative observation of organisational actions and reactions to events was undertaken, noting for example how feedback concerning incidents was handled. Also, objective observation of the relative condition of vessels in each company was used to gauge the effectiveness of the company's SMS and the accuracy of statements made by respondents during interviews and research conversations.

Written notes were made of conversations and observations considered to be of significance to the study and have been used to provide examples, or vignettes, in support of the conclusions drawn from other techniques, thereby helping to counter any tendency to interpret results subjectively.

The conversations and observations ran in parallel with the other techniques used during the empirical phase of the study, the objective being to provide data to assist in contextualising the analysis (*Blaxter, 2000; p.191*) and to assist in determining from an objective standpoint the attitude of senior management, supervisory staff and ships' crews towards the following factors necessary for the development of an organisational safety culture (*Fleming, 2000; ACSNI, 1993*):

- Management Commitment and Visibility
- Line management Commitment and Visibility
- Commercial Management Involvement
- Intercommunication
- Operational Pressure *versus* Safety
- Provision of Safety Resources
- Employment Philosophy
- Training Programmes
- Mutual Trust Between Management and Workforce
- Shared Perceptions About Safety

Clearly, some of those factors are highly value laden and were therefore more likely to be culturally influenced than others. Identification of the degree to which various factors have been culturally influenced in organisations in culturally divergent countries was one of the aims of the research.

10.5 SUMMARY OF APPROACH TO THE EMPIRICAL STUDY

RESEARCH METHODOLOGY			
Research Method	Comparative Case Study		
Research Protocol	Phase I	Phase II	Phase III
Safety Component	Organisational Safety Management	Operational Safety Management	Behavioural Safety
Hierarchical Safety Level	Level 3	Level 4	Level 5
Staff Level	Senior Management	Middle Management and Supervisory Staff	Seafarers
Research Techniques Employed	Interview (Qualitative Analysis)	Interview (Qualitative Analysis)	Questionnaire (Statistical Analysis)
	Relational Discussion and Observation (Qualitative Analysis)	Relational Discussion and Observation (Qualitative Analysis)	Relational Discussion and Observation (Qualitative Analysis)
	Documentary Review (Statistical and Qualitative Analysis)	Documentary Review (Statistical and Qualitative Analysis)	Documentary Review (Qualitative Analysis)

TABLE 5: SUMMARY OF RESEARCH METHODOLOGY

Table 5 above summarises the research methodology employed for the empirical research whilst the ensuing four chapters provide a synopsis of that research.

Chapter XI provides an overview of the two case-study companies based upon information drawn from a review of each company's promotional literature, key informant interviews and relational discussions. The overview provides the situational context within which the empirical research was carried out.

Chapters XII, XIII and XIV detail the empirical research carried out into each company's Organisational Management, Operational Management and shipboard Behavioural Safety respectively, with a view to identifying those data that are commensurate with the aims and objectives of this study, i.e. to:

- Identify how the diversity of cultures impacts upon the implementation of safety regulations;
- Determine what obstacles that impact may present to the development of safe practices and attitudes within the shipping industry;
- Ascertain whether strict enforcement of existing regulations or more emphasis on education and training is the better way to overcome those obstacles.

Chapter XII reviews the Organisational Management of the two companies and develops a broad picture of how shipping companies respond to their legal and moral obligations, their responses being tailored to the economic circumstances of the individual companies and prevailing cultural norms.

A comparative analysis in Chapter XIII of each company's Operational Management presents a more detailed picture of how individuals respond to the dictates of management, and whether the prevailing cultural norms add additional constraints and pressures at level 4 of the safety hierarchy to those already identified at level 3 of the safety hierarchy.

In Chapter XIV the results are presented of statistical and qualitative enquiries into how seafarers respond to safety regulation. Analysis of the results provides insights into whether or not seafarers with different cultural backgrounds respond

differently to safety regulations and whether or not education, training and experience are factors that influence their responses.

Chapter XV summarises the results of the empirical study presented in the previous four chapters and utilises the information to establish a comparison of the safety culture maturity of the two case study companies. A means of establishing relative safety culture maturity between two companies working in differing cultural environments could be a useful tool in future research.

Finally, in Chapter XVI the main findings of the study are discussed, conclusions are drawn and areas for further research are identified.

CHAPTER XI

CASE STUDY: A REVIEW OF THE COMPANIES

In the second half of 2004 over a period of two months a study was carried out in Company A utilising the methodology described in Chapter X, and in the summer of 2005 a similar study was carried out in Company B utilising the same methodology. The information contained in this chapter was obtained from various sources, principally company prospectuses, press releases, key informant interviews and relational discussions.

11.1 OVERVIEW OF THE COMPANIES

11.1.1 Company A

Company A was a sub-division of an American owned company, Corporation A International Inc., with headquarters in the USA and comprising three divisions, one division operating oil tankers, one operating tugs, supply boats and barges in the United States, and another operating offshore support vessels. The Offshore Division was the largest of the corporation's three business divisions and operated the world's second largest fleet of specialised vessels for support of offshore oil and gas facilities used in exploration, development and production.

The Offshore Division had two operations offices, one in Europe responsible for vessels working principally in Africa, the other in Dubai, United Arab Emirates, responsible for vessels working principally in the Middle East and South East Asia. The latter organisation, Company A, formed one of the case study companies.

11.1.2 Company B

The second case study company was a sub-division of Corporation B Holdings Inc, an American operations and investment conglomerate the principal business activities of which were managed under six divisions: Offshore Marine, Inland River, Aviation, Environmental Services, Logistics and Other, the latter division encompassing strategic software and radio communications.

Company B operated from the United Kingdom as an autonomous unit within a subsidiary company that was a part of the Offshore Marine division of the parent company headquartered in the USA.

The Offshore Marine division operated a large fleet of diversified marine support vessels primarily dedicated to supporting offshore oil and gas installations in various locations world wide. Company B, which formed the second case study company, was involved in the support of offshore installations in the Southern North Sea and the operations office was located in England.

11.1.3 Corporate Structures

Whilst the organisational structures of the two companies were similar their financial structures were very different. Corporation A International Inc was financially a heavily leveraged organisation engaged principally in ship ownership and operations whilst Corporation B Holdings Inc was a cash-rich company with a diversified portfolio in which shipping was of increasing importance. The difference in their financial structures was due principally to the manner in which the two companies had developed.

Corporation A International Inc used cash to buy competitor companies, sometimes paying grossly exaggerated premiums in order to increase market share. As a result, the corporation built up a debt of some US\$800 million and was subsequently taken over by an international investment company. Corporation B Holdings Inc on the other hand issued shares to raise the capital required to acquire carefully targeted companies, enabling expansion into the offshore sector of the shipping industry whilst retaining sufficient financial reserves to engage in a steady new vessel building programme and subsequent asset play.

The OECD report (1996) discussed in Chapter I section 1.4, argued that there are economic advantages to be gained by ship owners who avoid implementing the safety provisions of the SOLAS Convention to the full. The fact that one of the case study companies belonged to an organisation with a large debt to equity ratio whilst the other belonged to an organisation that was cash rich, would tend to accentuate and help identify any attempts to save money at the expense of safety. Economic constraints and pressures to 'cut corners' at the expense of safety are shown at Safety Level 3 in the ISM Code model (fig.10).

Culturally the two case study companies were also quite different from each other and each operated in an area of the world culturally distinct from the other. Company A had a multinational shore staff comprising Arab, British, Filipino and Indian operations staff and Indian, Filipino and Pakistani support staff. The company employed primarily Filipino seafarers with a sprinkling of Hondurans and East Europeans. Company B on the other hand employed British shore staff and primarily British seafarers with a sprinkling of East Europeans. These cultural differences would tend to highlight any cultural influences that impacted upon the development, implementation and administration of each company's SMS.

11.2 CORPORATE SAFETY CULTURES

11.2.1 Company A

The development of the Offshore Division of Corporation A International Inc in the early 1990s involved the takeover of several offshore vessel-operating companies. At that time the ISM Code had not entered into force but it had received a lot of coverage in the marine press. Corporate management instructed Company A to develop and implement an SMS compliant with the requirements of the ISM Code. The rationale for that decision was not simply to satisfy corporate safety requirements but also to provide a marketing tool for the commercial department.

Company A duly developed an SMS and after a satisfactory audit a Document of Compliance (DOC) was issued on behalf of the relevant maritime administration. However, during the first annual audit a number of serious non-conformities were noted and the DOC was withdrawn. Because compliance with the ISM Code was at that time voluntary the withdrawal of the DOC was of no immediate practical consequence.

In the late 1990s, Corporation A International Inc was taken over by an investment company and a new corporate President, formerly a senior executive in a major international oil company was subsequently appointed. That resulted in financial and corporate restructuring and the recruitment of a new management team selected principally from amongst former oil company professionals.

Since it is widely accepted that the major oil companies set the standards of safety for oil tankers, refineries and offshore production facilities, it is not surprising that the appointment of a new management team so closely associated with the oil

industry brought about major changes in corporate culture and operational safety was given a high priority, particularly within the Offshore Division.

The high degree of commitment to safety was demonstrated by the decision of the new senior managers at Company A to develop without delay a new management system that met the ISM Code requirements in full.

Upon review, the old SMS was found to have been drawn up in isolation without taking into consideration the actual structure of the company and without employee involvement. It was recognised that the new system would have to avoid similar mistakes and also, because of the diversity of corporate and national cultures inherited from recently acquired companies, the new SMS would have to be suitable for use by a polyglot management ashore and a polyglot sea staff. The new SMS had to be kept as simple as possible yet still be effective. That required commitment from senior management and also giving to people involved with the SMS, both ashore and on board ship, a sense of ownership.

A new SMS was subsequently drawn up, selected shore staff were trained as internal auditors, the new documented procedures were distributed and a successful external audit was conducted following which a new DOC was issued.

Senior management recognised however, that achieving compliance with the ISM Code was only the start of developing a true safety culture within the company. As noted in Chapter VI section 6.5.1, the introduction of an SMS, whether initially or to replace another SMS, involves an organisational change and requires subsequent monitoring of the system.

To ensure that a new system is implemented effectively it is essential for senior management to consistently disconfirm patterns of behaviour not in keeping with the new organisational philosophy and consistently support any evidence of movement in the direction of the new assumptions (*Schein, 1992; p.328*).

In order to raise the safety awareness of individuals Company A employed various tools such as no-blame incident reporting and five star safety awards for vessels with a good safety record. One tool that stood out as being not only novel, innovative and creative but also practical and successful was the introduction of a quarterly HSE Safety Incidents Booklet, distributed throughout the fleet and also amongst clients. Not only was the booklet unique in its concept of open reporting of safety-related incidents, but it also had great diversity of content from the statistical to the practical, from the humorous to the serious, reflecting the values of the contributors to the booklet.

In today's environment, which places great emphasis on not only being safe but also being seen to be safe, it is most unusual and counter-intuitive for a company to be so forthright in acknowledging its actual lapses of safety and to advertise them so widely. But this very concept of transparency in accident reporting provided the quarterly HSE Safety Incidents Booklet with a unique and innovative character whilst at the same time raising the safety awareness of its readers.

Steady standardization of the company's safety culture over a period of years was a long-term objective of the Company. However, there could be no short-cuts since in a multicultural, global environment it takes time to distil and codify the many different values and perceptions into a standardized format suitable for developing a true safety culture.

11.2.2 Company B

The President and CEO of the Corporation B Holdings Inc conglomerate was a licensed attorney admitted to practice in New York State and the District of Columbia. However, through his business enterprises he had been associated with shipping for a considerable number of years, having bought, operated and sold a number of shipping enterprises.

Company B had its roots in early 2000 with the demise of the fishing industry in the North Sea. An amalgamation of former fishing companies then operating offshore safety stand-by vessels in the North Sea was acquired by a wholly owned company within the Offshore Marine division of Corporation B Holdings Inc. The newly acquired company was subsequently integrated into the organisational management structure of Corporation B Holdings Inc but remained an operationally and financially autonomous company within the Offshore Marine division of the organisation.

Most of the staff of the newly acquired company were formerly employed in the fishing industry and subsequently transferred to Company B when the takeover occurred in the year 2000 but still tended to identify with their former corporate culture. Because of this, it might be expected that a lower level of safety awareness prevailed in Company B than in Company A. However, that was not the case. All staff interviewed in Company B, in both formal interviews and relational conversations, were well aware that both corporate and organisational senior management placed great emphasis on safety and that offshore clients such as BP Amoco, Shell, Parengo, Conoco and Phillips demanded a very high standard of safety from the management and crews of vessels that they chartered.

Indeed, in both Company B and Company A the safety culture was not only the result of senior management commitment but was also upward driven, with offshore clients demanding ever higher standards of operational safety and a target of zero accidents. Client driven safety requirements applied a constant upward pressure on operations staff and senior management alike, and this is reflected at safety levels 4 and 5 in the ISM Code model (figure 10).

Also in common with Company A, Company B encouraged the reporting of accidents and hazardous incidents by introducing a no-blame culture in which a person can report a minor accident or a hazardous incident without incurring any blame even though they were at fault. In neither company did this mean that a seafarer would not be sacked or suffer some form of sanction for causing serious injury, extensive property damage or heavy environmental pollution through negligent or reckless action. In both companies people were expected to take responsibility for their actions. In Company B this was referred to as a 'just culture'.

11.3 CULTURAL CONTEXT

In terms of Hofstede's cultural dimensions, those prevailing in the geographical regions where the two case study companies operated were diametrically opposite to each other in terms of Power-Distance and Individualism / Collectivism but similar to each other in terms of Uncertainty Avoidance and Masculinity / Femininity. This was also true of the cultural dimensions of the staff employed by the two companies.

Utilising the values determined by Hofstede in his study, the index values of the prevailing cultural norms relevant to each company are shown in Table 6 below:

	British	Filipino	Indian	Arab	Pakistani	Other
Company B Shore Staff	100 %	-	-	-	-	-
Company A Shore Staff	9%	6%	70%	12%	-	3%
Company B Sea Staff	96 %	-	-	-	-	4 %
Company A Sea Staff	-	47%	30%	2%	6%	15%
PDI Score	35	94	77	80	55	-
IDV Score	89	32	48	38	14	-
UAI Score	35	44	40	68	70	-
MAS Score	66	64	56	53	50	-

TABLE 6: MATRIX OF PREVAILING CULTURAL NORMS

From the literature review Individualism / Collectivism and Power-Distance were determined to be the two cultural dimensions most likely to impact upon Organisational Management and Operational Management. The percentages and differentials between cultural dimensions shown in Table 6 above for the seagoing and shore-based staff of the case study companies also indicate that those are the two most relevant cultural dimensions in relation to the current study.

11.4 SUMMARY

The two companies selected for the comparative case study were Company A which operated offshore support vessels in the Middle East and South East Asia, and Company B which operated offshore support vessels in the North Sea.

Both companies were subsidiaries of American conglomerates and their corporate structures were therefore similar, thus minimising any resultant constraints and pressures emanating from that quarter. However, Company A was financially a heavily leveraged company and employed mainly Asian personnel whilst Company B was cash-rich and employed essentially British personnel, thus maximising any differences in corporate cultures resulting from the impact of financial and cultural influences.

The corporate safety cultures of the two companies had developed differently. Company A was a relatively new company that had assimilated several other companies. The resultant safety culture had consciously developed the strong points of the safety cultures of the assimilated companies. Company B, also a relatively new company, operated North Sea safety stand-by and supply vessels which had been taken over by Corporation B Holdings Inc. The pre-existing corporate culture was still evident in Company B.

CHAPTER XII

CASE STUDY: PHASE ONE

ORGANISATIONAL SAFETY MANAGEMENT

12.1 KEY INFORMANT INTERVIEWS

Six people from each company were interviewed in order to:

- Gain a comprehensive view of the company and its organisational structure;
- Explore the effect on each company of the legal and moral obligations and corporate economic considerations shown in the ISM Code model, (fig. 10), to be acting at Safety Level 3; and
- Determine the commitment of each organisation's senior management towards safety management and compliance with the provisions of the ISM Code.

The following respondents were interviewed:

<u>Company A</u>	<u>Company B</u>
1. Managing Director	Area General Manager
2. Operations Manager	Operations Manager
3. Operations Superintendent	Technical Director
4. QA-HSE Manager	Area Safety Manager
5. HR Manager	Personnel Manager
6. Crewing Supervisor	Senior Crewing Coordinator

In Company B the Technical Director rather than the Operations Superintendent was interviewed because at the time of the field research the role of Operations Superintendent in Company B was being undertaken by the Technical Director.

The respondents were selected on the basis of two criteria:

1. All had a responsibility within the parameters of their job function for ensuring safe operation of the vessels by the people on board;
2. They represented the various tiers of management and supervision within the companies for which they worked.

In both companies the Safety / HSE Manager was also the Designated Person Ashore (DPA), a role clearly identified in Cl.4 of the ISM Code as providing a link between the Company and those on board the ships.

The interview responses reflected the views of both senior and middle management and also supervisory personnel, thus providing an indication of the overall prevailing attitude to safety and implementation of the ISM Code within each company (*Tremblay, 1982*).

To assist in identifying any heuristics and biases exhibited by the respondents resulting from their cultural origins, educational attainments and employment backgrounds, transcripts of the interview questions and responses were formatted and grouped according to the socio-cultural backgrounds of the interviewees as shown in Table 4 (Chapter X). Copies of the transcripts are attached as Annexes A and B of this study.

12.2 THE INTERVIEW RESPONDENTS

The cultural, educational and occupational backgrounds of the twelve key informants are described in some detail in the Key Interviews Response Analysis in Annex C. For ease of reference they are summarised in Tables 7 and 8 below using the scale established for Table 4 in Chapter X.

Respondent	MD	Op'ns. Manager	DPA	Op'ns. Super.	HR Manager	Crewing Super
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D

TABLE 7: COMPANY A KEY INTERVIEW RESPONDENTS

Respondent	Area GM	Op'ns. Manager	DPA	Tech. Director	HR Manager	Senior Crewing Coordinator
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C

TABLE 8: COMPANY B KEY INTERVIEW RESPONDENTS

Scale:

North European:	1	Indian:	2
Sri Lankan:	3	Filipino:	4

Tertiary education and structured managerial development:	A
Tertiary education and informal managerial development:	B
Secondary education and structured training:	C
Secondary education and no structured training:	D

12.3 ORGANISATIONAL CONSTRAINTS AND PRESSURES

The constraints and pressures prevailing at level 3 of the safety hierarchy are shown on the ISM Code model (fig. 10) and were outlined in some detail in Chapter VII section 7.1.3. They can be briefly summarised as follows:

1. There is both a moral and a legal obligation to run their operations in accordance with the provisions of the ISM Code;
2. There are economic factors to take into consideration which may be reflected in budgetary constraints with regard to safety, training and the quality of ship maintenance
3. The type and style of safety management system developed and implemented will reflect:
 - e. The prevailing cultural norms of the decision makers;
 - f. The organisation's corporate culture;
 - g. Management style;
 - h. Managerial competence

The manner in which those constraints and pressures have impacted upon each of the case study companies and the way in which those companies have dealt with them are examined in turn in the following sections of this chapter using information acquired from analysis of the key informant interview responses together with information gathered during research conversations and observation.

12.4 LEGAL AND MORAL OBLIGATIONS

As noted in Chapter III, section 3.4 and as further discussed in relation to education and training in Chapter VI, section 6.8, and in relation to the ISM Code in general in Chapter VII, sections 7.1 and 7.2, every shipping company has:

- A legal obligation to develop and implement policies and procedures compliant with the provisions of the ISM Code;
- A moral obligation to observe the spirit of the Code and not simply the detail of the regulatory requirements, i.e. it ought to develop policies and procedures that do not simply meet regulatory requirements but also serve to achieve the ISM Code objectives of safety at sea, prevention of human injury or loss of life, and avoidance of damage to the marine environment.

To determine the approach of the management and supervisory staff towards these issues in the two case study companies, the respondents were asked what they believed was the prime motivation behind the company's Safety Management policies. The responses to that question are shown at Q.F.3 in Annexes A and B and are reproduced below in Tables 9 and 10 for ease of reference.

Analysis of the responses indicates that all respondents in both companies were not only well aware of the legal requirements imposed upon them by the introduction of the ISM Code but also fully supportive both of its introduction and of the need of the companies to implement its provisions.

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Top management drive it to ensure safety on board the vessels but middle management drive it to comply with regulatory requirements	To enhance safety performance	To enhance safety performance and in order to comply with safety requirements	To comply with regulatory requirements, enhance safety performance and avoid legal actions. However, the prime reason is for commercial considerations, e.g. boats under 500 grt do not require ISM but Company Ado it anyway for marketing reasons – safety is an added bonus.	To comply with regulatory requirements	To comply with regulatory requirements

TABLES 9: COMPANY A RESPONSES TO QUESTION F.3

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	50% to comply with regulatory requirements and 50% to enhance safety performance.	To enhance safety performance	1st – to avoid legal actions 2nd – to comply with regulatory requirements 3rd – to enhance safety performance	To enhance safety performance	Primarily to enhance safety performance and as a secondary consideration to avoid legal actions.	A combination of factors: 1. Commercial advantage; 2. regulatory requirements 3. To keep employees safe 4. Less accidents means less expenditure

TABLE 10: COMPANY B RESPONSES TO QUESTION F.3

The similarity of views expressed across the cultural divide may have been due in part to the effects of globalisation blurring cultural differences but most probably in the main to all respondents having undergone ISM Code training. As shown in response to Question D.13 in Annexes A and B, eight of the twelve key informants had attended identical training courses covering ISM familiarisation and auditor training, two had attended in-house ISM introductory seminars and the remaining two were qualified lead auditors of management systems. This is supportive of the argument for standardised training to implement a common standard of safety in a global industry.

With regard to the moral obligations imposed upon the company and its employees to act within the spirit of the ISM Code and not merely in strict accordance with its regulatory provisions, it is clear from the answers given to the questions in section G of the interview 'Perceptions of the ISM Code' (see Annexes A and B) that all respondents were very positive about the potential benefits of the introduction of the ISM Code, although in the case of Company A's Operations Manager it was felt that his responses may have been influenced to some extent by social desirability.

12.5 ECONOMIC CONSIDERATIONS

When the new management took control of Corporation A International Inc the corporation was very heavily leveraged with a debt of some US\$800 million. The need to reduce that debt was a critical factor in the decisions of corporate management and was reflected in the decision making of Company A's senior managers.

Strategic steps were taken to either reverse losses by applying standard management techniques or to cut losses by retreating from particular areas of operation as illustrated by the examples in Table 11.

Problem Area	Resolution
Company shipyard sustaining heavy losses	Shipyard sold
High overheads	Office relocation and staff reduction
Cost of stockpiling equipment remaining from former project.	High value parts distributed to vessels. Other parts and equipment sold. Warehouse closed.
Large outstanding payments receivable.	1. Specific staff assigned to debt recovery. 2. Future charters covered by letters of credit

TABLE 11: EXAMPLES OF COST CONTAINMENT MEASURES

Economic considerations were not however, allowed to impact upon safety in operational areas in either of the two companies. From an examination of company records, analysis of the responses to the relevant interview questions, relational conversations and observation it was possible to establish that areas of safety potentially subject to cutbacks as a result of economic considerations were in fact not affected by cost containment policies.

It was clear that both companies sought economies wherever and whenever money had to be spent. Shipyards were invited to tender for repairs, purchase orders for spare parts and consumable items were placed on the most economical suppliers, bulk order discounts were sought, staff headcount was reduced where possible and insurance requirements were regularly reviewed with a view to reducing premiums.

However, those measures were simply good commercial practice and had no adverse impact upon matters of safety. This is illustrated in Table 12 below.

Area of Potential Cost Saving Impact	Potential Economic Impact	Company A Observed Status	Company B Observed Status
Class Surveys	Delayed	Up to date	Up to date
Flag State Surveys	Delayed	Up to date	Up to date
Voyage Repairs	Postponed	As required	As required
Dry-dockings	Postponed	Up to date	Up to date
Vessel Appearance	Corrosion	Well Painted	Well Painted
Safety Audits	Postponed	Done when due	Done when due
Safety Training	Not Done	As required	As required
Safety Equipment	Bare Minimum	Above minimum	Above minimum
Spare Parts	Delayed Delivery	Prompt delivery	Prompt delivery
Consumable Items	Not Supplied	As requested	As requested

TABLE 12: OPERATIONAL EFFECTS OF ECONOMIC CONSTRAINTS

Relational conversations did reveal one area relating to corporate and economic governance where both companies were under pressure to observe certain strictures imposed by American law. Following the introduction of the Sarbanes Oxley legislation in the USA in 2004 as a consequence of large corporate financial scandals involving Enron, WorldCom, Global Crossing and Arthur Andersen, all publicly traded U.S. companies and non-U.S. companies with a U.S. presence are required to submit an annual report of the effectiveness of their internal accounting controls to the Securities Exchange Committee. Both Company A and Company B were required by their respective corporate head offices to comply with the provisions of the Act, which is concerned with corporate governance and increased financial disclosure.

12.6 ORGANISATIONAL AND CULTURAL NORMS

Because Company A was formed from the amalgamation of a number of companies operating in the offshore sector of the shipping industry, there was no long-established organisational culture associated with the company. The feeling within the head office in Dubai was one of goals and achievements and even though many of the staff employed in the head office had originally been employees of the former companies, most identified with their new employer.

All employees were intent on helping the company to achieve its stated goals and that was quite understandable considering that failure of such a heavily leveraged company to achieve its goals would probably result in financial ruin, dissolution of the company and employees losing their livelihoods.

As noted previously, Company A had a multinational shore management and primarily Filipino seafarers with a sprinkling of Hondurans and East Europeans. Consequently, sound cross-cultural management was a necessity to achieve positive results.

The Managing Director of Company A was well practiced in cross-cultural management. A former Master Mariner, he had spent nearly twenty years in shore-based ship management with a major oil company, several of those years in South East Asia and a number in the USA, prior to joining Company A.

Company B was the antithesis of Company A. Many of the Company B staff tended to identify with their former company (pre take-over) rather than with Company B and the prevailing corporate culture was that of a long-established

company undergoing a process of change management driven from corporate level. This was to some extent compounded by the manner in which Corporation B Holdings Inc operated internationally. Each separate sub-division of the corporation had its own Area General Manager, Area Safety Manager, operations and technical staff, and support staff with each separate division and sub-division operating independently. Therefore, in the event of an established company becoming a part of the Corporation B Holdings Inc conglomerate its continuing autonomy would tend to lead to the existent corporate culture continuing rather than adapting to the Corporation B Holdings Inc culture.

The fact that Company B had an all British shore staff and employed predominantly British seafarers with a sprinkling of East Europeans lent a degree of homogeneity to the company that was quite evident in the similarity of the attitudes of the respondents during formal interviews and relational discussions.

12.7 MANAGEMENT STYLE AND COMPETENCE

In Chapter VI, three important points were developed:

- At section 6.5.5, it was noted that of the four risk factors considered important in the development and implementation of an SMS, two, leadership style and end user involvement, are also particularly subject to the influence of Power- Distance and Individualism / Collectivism.
- At section 6.5, the importance of leadership style and the direction it gives to organisational culture (*Schein, 1992*) was discussed and it was argued that without senior management commitment there will be only token commitment to safety within any organisation (*Pidgeon & O'Leary, 2000; Cox & Flin, 1998; Cheyne et al, 1998*).

- At section 6.5.2 it was further argued that unless end users of a safety system are given a sense of ownership through participation and involvement in the development and operation of the system, then safety procedures may not be followed with any degree of enthusiasm, if at all (*Schein, 1992; p.134*), and authoritarian measures may need to be employed in order to achieve corporate safety goals (*Etzioni, 1975*).

In a high power-distance culture there is a high degree of stratification and each layer of management distances itself from the layer below, leading potentially to management by command rather than management by consultation. This does not lend itself to feedback analysis nor to a climate of user involvement or empowerment.

A high power-distance index therefore tends to increase the risk of lack of user involvement or commitment whilst a lower power distance index tends to have a positive effect and decrease the risk.

With regard to national culture it can be seen from the matrix of prevailing cultural norms shown in Table 6, that whilst Company B was not culturally challenged, Company A was located and operating in an environment where the prevailing cultural norms of the local people and of the staff employed by the company exhibited a high power-distance index and a strong collectivist tendency.

The two cultural dimensions identified in the literature review as being most influential upon leadership style and hence end user involvement were power-distance and collectivism. The negative tendencies of those prevailing cultural norms are autocratic management with a rigid hierarchy and an organisational

culture wherein subordinates do not question their superiors, and managers do not get involved in matters they have delegated to their staff.

From relational conversations with senior managers it was evident that such a leadership style and corporate culture had in fact existed in Company A under the previous management. That was a major reason why, as discussed in Chapter XI section 11.2.1, the original SMS was ineffective resulting in the company's original DOC being withdrawn.

However, from relational conversations and the personnel profiles obtained during the Key Informant Interviews (see Annex C for interview responses analysis) it was apparent that Company A's new Managing Director and new HSE Manager both had backgrounds that prepared them for cross-cultural management. Both men had:

- Spent several years living and working in Asia and the Middle East;
- Spent their working lives in a marine and/or offshore environment;
- Always worked in a multi-cultural environment.

Because of their backgrounds both men would have been well aware of the potential negative effects of the prevailing cultural dimensions and would have been instinctively prompted to take appropriate steps to ensure that the potential pitfalls were avoided.

The effectiveness of their cross-cultural management skills was evidenced by the fact that in less than two years they had been able to develop and implement an entirely new and ultimately effective SMS in a company with a multi-ethnic, multi-cultural workforce.

The twelve key informants were requested to complete the Questionnaire (Annex D) used in the survey to measure the locus of control of seafarers as described in Chapter X, section 10.3, and Chapter XIV. The concept of locus of control orientation is discussed in more detail in Chapter VI section 6.2.1 of the thesis. Using Rotter's scale a high score indicates a strong external locus of control orientation and a low score indicates a strong internal locus of control orientation.

	M.D. / A.G.M.	Ops Man'gr	HSE Man'gr	Ops. Super. / Tech M'gr	HR Man'gr	Crew Super.
Company A	52.2 %	*	14.3 %	21.7%	13.0 %	30.4 %
Company B	43.5 %	43.5 %	17.4 %	39.1 %	13.0 %	56.5 %

* Declined to take part in the survey

TABLE 13: KEY INFORMANTS' LOCUS OF CONTROL ORIENTATION

Although the sample size was too small to draw any firm conclusions, the results are interesting insomuch as they do indicate that there may be a correlation between job function and locus of control orientation. That is an area which may benefit from further research.

12.8 SUMMARY

This chapter examined in turn each of the constraints and pressures identified at Safety Level 3 of the ISM Code model (Figure 10) as those potentially acting on the managements of the two companies being studied.

From the analysis of the Key Informant Interviews and also from the content of the previous chapter it is clear that there was a genuine commitment by the senior management of both case study companies to establish a genuine safety culture, while the similarity of respondents' views regarding safety reflected the influence of the similarity of the training undertaken by the respondents.

It is also evident that the management teams of both companies recognised and understood their legal and moral obligations with regard to safety and in neither company were economic considerations allowed to dictate safety policy.

What comes out very strongly from this part of the case study is that constraints and pressures resulting from legal and moral obligations, economic considerations and organisational and cultural norms not only impact upon organisational safety management but can also be suitably dealt with by good strategic and organisational management using standard management techniques which in a culturally homogenous company may be of an indigenous nature but in a culturally heterogeneous company require the addition of well developed cross-cultural management skills.

Whether there is a correlation between locus of control and job function was identified as an area where future management research might usefully be undertaken.

CHAPTER XIII

CASE STUDY: PHASE TWO OPERATIONAL SAFETY MANAGEMENT

The second phase of the case study research involved a documentary review within each company. The four main areas of documentary review were:

- The Documented SMS;
- Accident reporting and follow-up procedures;
- Accident statistics;
- Training policies and procedures.

13.1 SAFETY MANAGEMENT SYSTEMS

Both Company A and Company B had developed a closed cycle SMS as described in Chapter V section 5.3.2. Considering their completely separate development, the systems were remarkably similar, possibly because both companies were engaged in the same sector of the shipping industry.

The comprehensive documented SMS of each company was available in both computerised and hard-copy format. There was some debate amongst seagoing staff about which was the preferred format and the arguments tended to hinge not on a person's computer literacy but on their job function. Chief Engineers tended to prefer the computerised format for the simple reason that it tended to save space whilst ships' Masters tended to prefer the hard-copy format because it was easier to reference than a computerised version whilst alone in the Wheelhouse handling the vessel.

The SMS of both companies comprised a comprehensive documented system in a tiered format under three heads:

- Company Policies
- Company Procedures
- Company Forms

Each of the three heads was further sub-divided so that specific areas could be referenced with comparative ease.

Since in both companies the official language of communication was English, the SMS in each company was in English. Each SMS had controlled and uncontrolled copies, the controlled copies being updated on a regular basis, control of the documentation in each company being the responsibility of the Safety Department.

13.2 PLANNED MAINTENANCE SYSTEMS

Although the ISM Code does not specifically require ship operating companies to develop and implement a Planned Maintenance System (PMS), the Code does require them to have in place a system for ensuring proper maintenance of the ships and their equipment. Many operators find that a PMS is the easiest way to address this particular provision of the Code and therefore, pedantically speaking the PMS forms part of the SMS.

Each case study company had in place a self-contained PMS that could be reviewed separately from the rest of the SMS. Each company's PMS was completely different from that of the other but both required a great deal of back-up from their respective company's Technical Department.

13.2.1 Company A

Some months before the study took place in Company A, the company had changed from a paper-based to a computer-based PMS. The computer program used a Microsoft Windows operating platform and the system was designed to be as straightforward as possible whilst covering all shipboard machinery maintenance except major machinery overhaul, the latter being scheduled by shore-based engineering staff. In addition to the computer hardware and software the system comprised three manuals:

1. Administrators Guide with program installation instructions (14 pages).
2. User's Manual (25 pages) with instructions covering *inter alia*:
 - Computer program operating instructions;
 - Data transfer and back-up systems;
 - PMS description;
 - PMS schedule;
 - Job cards for each machinery item;
 - Vessel survey status;
 - Ship information system.
3. Defect System User's Guide (9 pages) designed to record and manage defects that occur during operation of the vessel and which are not covered in the Planned Maintenance System.

Since a large percentage of the Filipino seagoing staff was not computer literate, implementation of the system was certainly not straightforward and a great deal of back-up from the company's shore-based technical staff was required before even a semblance of operational success was evident. That was not due to cultural factors: senior managers had simply overestimated the educational standards and computer literacy of the Filipino seafarers.

13.2.2 Company B

The PMS used by Company B was designed to be as simple and easy to operate as possible. The paper-based system comprised:

1. An Engine Room Maintenance Sheet listing some 105 items, each with a unique reference number.
2. The items were divided into sections showing which items had to be carried out daily, weekly, fortnightly and monthly.
3. Each page of the Engine Room Log Book had on it four maintenance related sections:
 - a. One listing the reference numbers of the daily maintenance items with space for a signature against each item when completed;
 - b. One for noting any maintenance or repairs carried out;
 - c. One for spare gear used (including filters);
 - d. One for recording the running hours of the principal machinery: main engines, generators, bow thruster engine, Aqua Master and fire pumps.
4. A summary page at the back of the log book with two maintenance related sections:
 - a. One listing the reference numbers of all 105 maintenance items with space for a signature against each item when completed;
 - b. One listing all main machinery with an adjacent space against each item for comments and a check box to indicate its condition (A - Good running order, B - Running but needs maintenance, C - Not running awaiting opportunity to repair, D - Not running require assistance to repair).

Mechanical maintenance of principal machinery required to be undertaken on a regular or periodic basis was scheduled by shore-based staff in the company's Technical Department and carried out either in the company's own workshops or by independent contractors. The work was carried out during port turnarounds whenever possible or during scheduled dry-dockings when necessary.

Only simple maintenance tasks were entrusted to seagoing staff. Company B's PMS system placed the main onus for repair and mechanical maintenance on the shore-based technical staff. This was not a culturally related factor but indicated either:

- Senior shore management's lack of trust in the ability or conscientiousness of the seagoing staff; or
- Continuance of a system introduced when the company operated fishing vessels and the seagoing staff was of a much lower technical calibre.

13.2.3 Socio-Cultural Inferences

Vessels operating in the offshore sector of the shipping industry are usually crewed by seafarers with Certificates of Competency that are limited by horsepower for Engineers and by tonnage for Masters and Mates. Such certificates are of a lower academic and professional standard than those held by officers on vessels employed in the deep sea trades.

It would therefore not be surprising to find that a company operating vessels in the offshore sector of the industry had a PMS that was somewhat basic in nature such as that used by Company B. However, with the growing familiarity that people have with computers and the wide availability of computer training courses in the

United Kingdom one might have expected the introduction of a simple computerised system in Company B.

What was surprising in the instant case was that Company A had implemented a relatively sophisticated system even though many of the Filipino seafarers were not computer literate. Company A took steps to address that problem, firstly by advising crewing agencies that officers they supplied must be computer literate, and secondly by providing senior seagoing personnel with the requisite computer training where appropriate. It was evident that the training worked because in a short space of time the computerised PMS was fully operational.

There do not appear to be any cultural inferences to be drawn from this, only a difference of approach by senior management of the two case study companies. What is significant however is that the vocational training provided by Company A to overcome a specific problem was successful.

13.3 ACCIDENT REPORTING AND FOLLOW-UP PROCEDURES

In both companies accidents and hazardous occurrences were immediately reported by the vessel to the DPA, by means of the appropriate report form in the case of minor incidents and by means of telecommunications followed up with the appropriate report form in the case of major incidents.

The reports included the Master's or ship-board Safety Officer's evaluation of the cause of the incident, extent of the damage, pollution or injury, and steps taken or to be taken to redress the problem and to avoid a recurrence of the incident.

If the incident was of a serious nature a safety alert would be sent out to all vessels in the fleet to avoid a similar accident occurring on another vessel. Meanwhile, the incident would be included in the DPA's weekly (Company B) or monthly (Company A) safety report which was sent to the Corporate HSE Manager and copied to all vessels.

By these means, important experiences were shared immediately they happened and less important experiences were shared soon after they occurred.

In both Corporation A International Inc and Corporation B Holdings Inc there were a number of divisions or sub-divisions, each with its own Safety Manager. In order to ensure that all Safety Managers were working in harmony Corporation A International Inc had a system of monthly safety conference calls and quarterly safety meetings. In Corporation B Holdings Inc however, there were no formal discussions between Safety Managers although it was reported that there were plans to start a system of having meetings twice per year in order to standardise divisional Safety Management Systems and divisional safety regulations.

The differences between the two companies were due mainly to differences in their organisational cultures and partly to the different managerial and occupational backgrounds of the senior managers of the two companies.

13.4 RECORDING ACCIDENT STATISTICS

As noted in Chapter V section 5.4, the most common method of evaluating the effectiveness of an organisation's SMS is the recording of accidents, lost time incidents and hazardous occurrences (near misses) (ACNSI, 1993).

But when using such data to measure the effectiveness of a company's SMS or as a means of comparing a company's safety performance with that of other companies, it is important that each company uses the same criteria for categorising accidents and the same mathematical procedures for preparing the datasets used in calculating the statistics that are to be presented.

The Marine Injuries Reporting Guidelines (OCIMF, 1997) developed by the Oil Companies Marine Forum and used by Company A are widely used throughout the shipping industry, particularly those sections of the industry associated with the production, storage and carriage of crude oil and petroleum products.

The Occupational Safety & Health (OSHA) guidelines used by Company B are very similar to the OCIMF guidelines so direct comparisons between the accident statistics of the two companies can readily be made.

The two principal variables most commonly measured on an on-going basis and presented as a monthly or annual statistic are Lost Time Injury Frequency (LTIF) and Total Recordable Case Frequency (TRCF). Each of these figures is a composite, calculation of which is carried out using the formulae contained in the Appendices at Annex D.

13.5 COMPARISON OF ACCIDENT STATISTICS

Accident statistics are by definition quantitative in nature and therefore present a convenient method of assessing the effectiveness of a company's SMS. Trends can be analysed, comparisons can be made with other companies and benchmarking can be achieved by comparing a company's statistics with those of the industry sector overall.

Charts of the accident statistics per 200,000 exposure hours for a three year period in Company A and in Company B are given in Figure 11 and Figure 12 below.

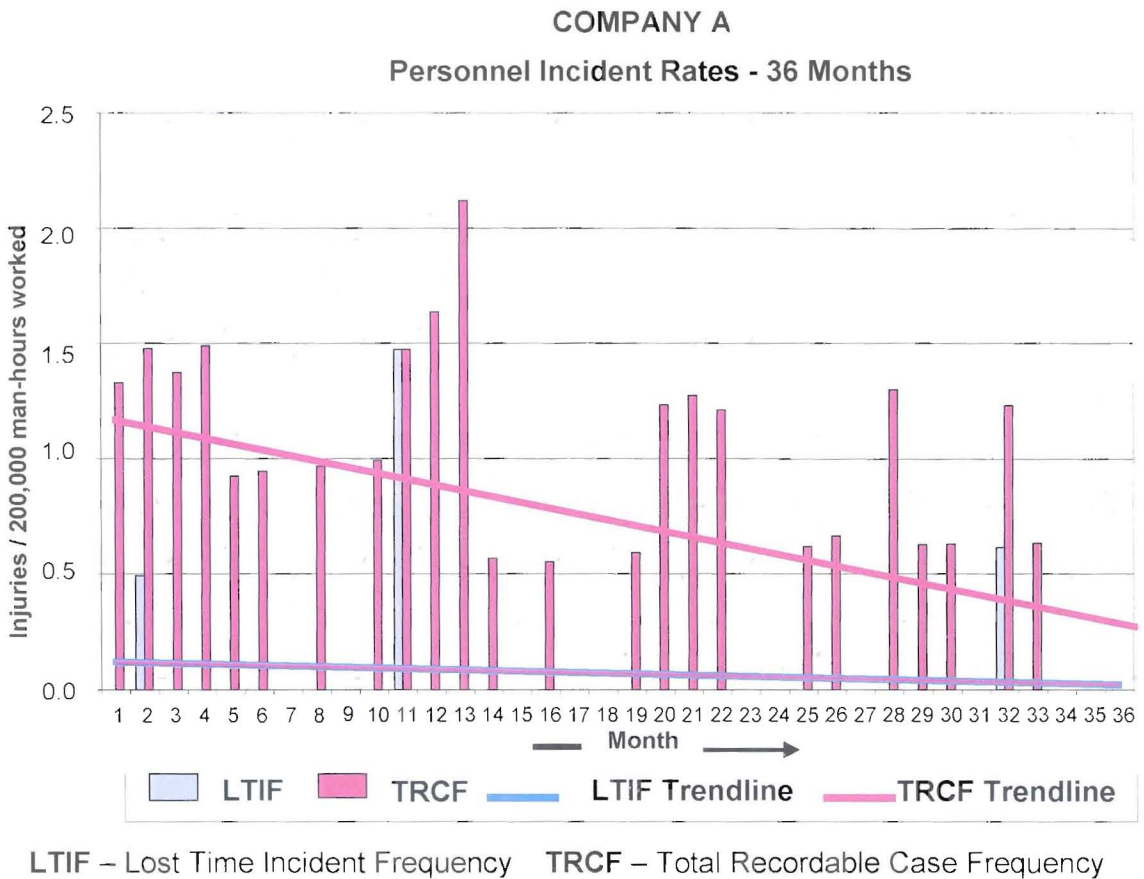


Figure 11: Company A Accident Statistics - January 2002 to December 2004

COMPANY B
Personnel Incident Rates – 42 Months

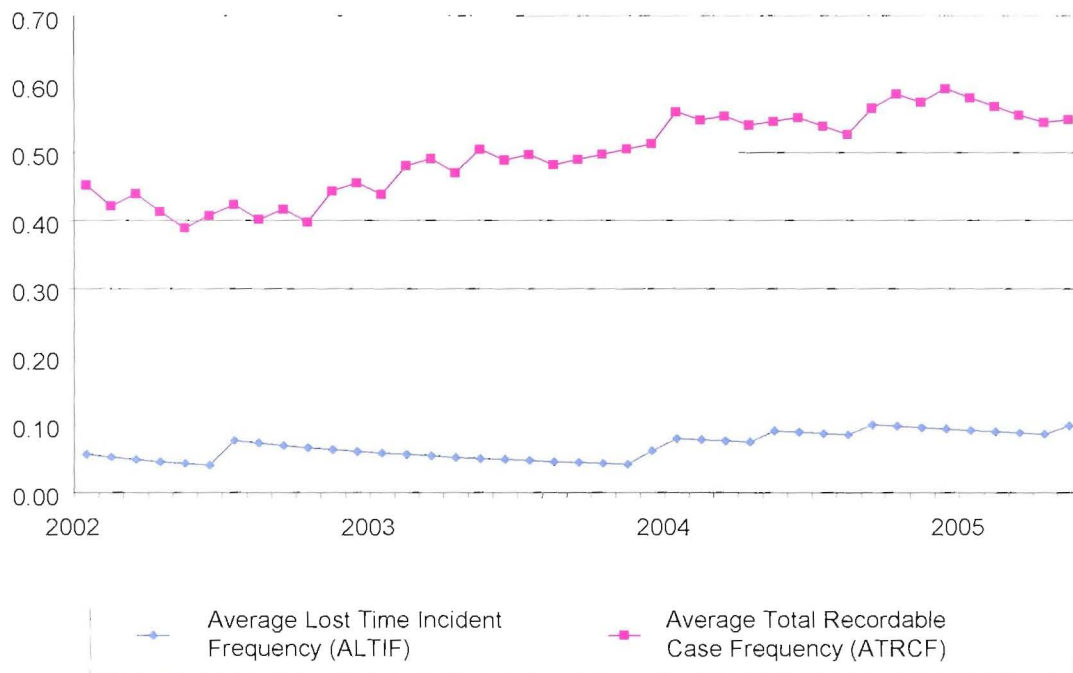


Figure 12: Company B Accident Statistics - January 2002 to June 2005

From Figures 11 and 12 it is quite evident that during the periods covered:

- Company A has been extremely successful in lowering the frequency of both Lost Time Incidents (LTIs) and Total Recordable Cases (TRCs) with zero LTIs and TRCs in some months;
- Company B has maintained a low frequency of LTIs but has experienced a rise in the frequency of TRCs; and
- By 2004, both companies had achieved similar LTI frequencies but Company B had a much higher frequency of TRCs than Company A.

Figure 13 below shows the overall Lost Time Accident Frequency Rates for the offshore sector of the shipping industry as recorded by the International Support Vessel Owners' Association (ISOA) for the years 1998 to 2003 inclusive. The data was extracted from the Associations' annual Personnel Accident Survey 2003

(ISOA, 2004) and converted so as to be expressed in the same units as those used by Company A and Company B.

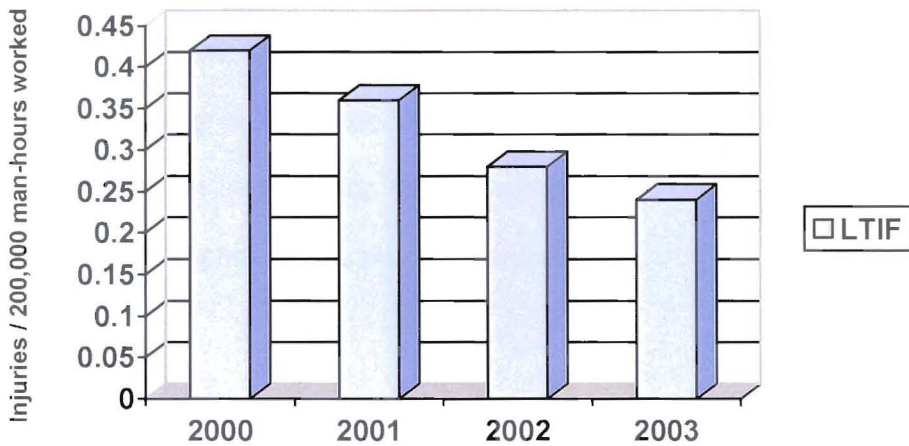


Figure 13: Industry Sector LTIF from January 2000 to December 2003

From figure 13 it is evident that

- The overall trend of LTIs in the Offshore sector of the shipping industry is one of decreasing frequency; and
- The LTI frequency of both case-study companies is approximately half of that for the industry sector in general.

From this quantitative examination of both companies' accident statistics no significant cultural inferences could be drawn. However, it is significant that since the introduction of the ISM Code and the STCW Convention the seagoing and shore-based personnel in both case-study companies have undergone similar training and safety indoctrination which infers that the training provided may well be the reason for the good and improving safety statistics in both companies, thus lending support to the argument for more emphasis on education and training in preference to stricter enforcement of safety regulations in order to improve maritime safety standards.

13.6 TRAINING AND EMPLOYMENT POLICIES

There were differences between the training philosophies of Company A and Company B. In Company A training was provided on an *ad hoc* basis whilst in Company B training was provided on a planned basis monitored by a Training Officer. The main reason for the difference was because of the different employment philosophies of the two companies.

13.6.1 Company A

Crewing agents were the principal source of ships' officers and ratings, although some senior officers were directly employed by the company. But in either case, the personnel were employed on a single voyage contract basis. No seagoing personnel were employed using long-term or 'rolling' contracts of employment. As a consequence of this employment philosophy, seagoing personnel were free to move on to another employer after completing a single voyage with the company.

Senior management had put forward to corporate management a proposal to employ a Human Resources Manager at a senior level to develop a personnel management system that would encourage the most capable and promising seagoing staff to stay with the company. This would have ensured that finite resources spent on training would not be expended on people who did only one or two voyages with the company and then moved on to another company.

The Corporate HSE Manager supported the proposal noting that employing personnel on a casual basis to crew company ships made continual improvement of safety standards particularly difficult. However, senior commercial managers at

corporate level resisted the proposal, seeing the employment of a senior Marine HR Manager as unnecessary and a potential drain on corporate resources.

The proposal was therefore not advanced any further, which resulted in a lack of direction in the HR Department and reliance on crewing agencies to provide personnel with only basic safety training. Company training was not methodical and provided only on an *ad hoc* basis as illustrated by the following examples.

Two new vessels fitted with Azimuth thrusters rather than conventional propellers and rudders were to be delivered to Company A, and Operations staff realised that it would be necessary to train the Masters being appointed to the vessels in the requisite ship-handling techniques which are quite different from those used on conventional vessels. A five-day course for three Masters and two Operations Superintendents was arranged with the Singapore Port Authority and the vessels went into service without mishap as far as ship-handling was concerned.

Similarly, both new vessels had Wartsila main engines, and because no other vessels in the fleet were equipped with Wartsila engines Company A sent three selected Chief Engineers on familiarisation courses at the manufacturer's factory.

In contrast to the foregoing, each of the two new vessels was equipped with a fast rescue craft (FRC) the handling of which also requires specialist training. None of the crew appointed to the first vessel to be delivered had the requisite training and when the FRC was launched for testing during vessel acceptance trials, it was only by good fortune that the ship's Bo'sun in charge of the operation narrowly escaped severe physical injury. The subsequent hazardous incident report was sufficient to identify the need for FRC training and this was subsequently provided.

13.6.2 Company B

Because Company B operated in the British sector of the North Sea from a UK port, its vessels were British registered and regulations imposed by the Marine and Coastguard Agency (MCA) and by seafarers' trade unions were a strong incentive for Company B to employ British seafarers in preference to foreign nationals.

The parent company minimised the impact of this constraint by using its own employment agency to oversee and administer not only the supply of seafarers to Company B but also their training. The agency had a full-time Training Officer responsible for sending seafarers on mandatory and elective training courses including the following:

- One week mandatory MCA approved basic training course for new entrants to the shipping industry covering Fire Fighting, First Aid, Sea Survival and Personal Safety & Social Responsibility;
- One week obligatory course approved by the Offshore Petroleum Industry Training Industry (OPITO) covering First Aid and Casualty Recovery by Fast Rescue Craft (FRC);
- Five-day Advanced Medical Course (AMA). To attend this course the candidate must first have passed a Company B multiple-choice test and have been recommended by the college.
- All deck crew were obliged by Company B to attend a two-day FRC course for the award of Boatman Certificate.
- Selected deck crew attended an additional five-day course for the award of FRC Coxswain Certificate.
- After at least three months experience, selected FRC Coxswains could attend a five-day Daughter Craft Coxswain Certificate course qualifying them to cox an enclosed rescue boat steering by compass and GPS only.

With the exception of the AMA course, the foregoing courses were refreshed by periodic training on board carried out by North Sea Training Services Ltd (NSTS). AMA refresher courses were carried out ashore. An on-going training programme was also in place, validated by OPITO, with exercises covering six modules set by NSTS. Each module had questions for selected crew members and the responses together with the record sheet were returned to NSTS for marking and identifying any areas of concern. All the relevant information was then entered into an agency database.

During a relational discussion, Company B's Training Officer affirmed the effectiveness of the training by means of an illustration. Throughout the basic first aid course a deckhand complained for the entire week about having to attend the course. The Training Officer told him that once he had successfully completed the course it might one day prove useful. About three months later the deckhand told the Training Officer that his newly gained knowledge had indeed proved useful. Whilst the deckhand was on leave his father had suffered a heart attack and he had been able to keep his father alive until the paramedics arrived.

13.6.3 Cultural Factors

Of interest and important to note in the context of this study is that whilst both companies sourced their seagoing personnel through crewing agencies, seagoing personnel in Company B were virtually company employees because Company B's parent company owned the agency. Seagoing personnel in Company A on the other hand were effectively contract labour hired on a *per voyage* basis.

Attempts made by Company A to engage Filipino officers on long-term contracts were abandoned without success after two years of negotiation. The Filipino

officers preferred to be employed on short-term contracts and remain free to join another company at the end of each voyage. This was the case even with officers who had worked for the company for a number of years and were considered more as permanent employees than casual employees.

From relational conversations it is apparent that similar situations have been observed in other companies employing both British and Indian seafarers, such as Mobil Shipping Company Ltd. Whilst the British seafarers were content to sign long-term employment contracts the Indian seafarers preferred to be employed on a *per voyage* basis. This tends to show either an independence of thought on the part of Asian seafarers in general or a general distrust by Asian seafarers of shipping companies as employers.

13.7 COMPETENCIES, UNDERSTANDING & REGULATION

From the ISM Code model (fig. 10), three of the four constraints and pressures to be found at the level of Operational safety are the cultural norms and heuristics of the operational staff, their competencies and understanding, and how they perceive the degree of regulation that currently exists with regard to implementing the ISM Code in accordance with the guidelines.

During Phase I of the empirical study, all twelve of the key informants interviewed were asked three definitive questions regarding operational safety relevant to those particular constraints and pressures. From the detailed questions and responses (contained in Annexes A and B and summarised below), the general consensus of opinion was as follows:

- **Question G.6:**

From your experience, what do you believe is the most effective way of improving overall ship operating standards?

Summary of responses:

- a. More emphasis on professional training
- b. More emphasis on safety training and quality control; and
- c. Stricter enforcement of existing regulations.

- **Question G.7:**

How do you perceive the degree of regulation of the shipping industry?

Summary of responses:

- a. Eleven of the twelve respondents thought the shipping industry was already sufficiently regulated
- b. One respondent thought the industry was over regulated; and
- c. One respondent thought the industry was under regulated.

- **Question H.1.**

What do you believe are the two most significant potential hazards to safety in the shipping industry?

Summary of responses:

Although couched in different terms, one theme was common to the responses of all interviewees: too low a standard of education and training.

From the forgoing it is apparent that the respondents across both the cultural and managerial divides in each company were of the opinion that the shipping industry is already sufficiently regulated and what is required to improve overall safety standards in the industry is greater emphasis on education and training.

13.8 SUMMARY

In this chapter operational safety was examined, firstly from a quantitative aspect by examining the accident statistics of both companies, and secondly from a qualitative aspect by examining each company's:

- Documented systems of management; and
- Salient human aspects, particularly employees' perceptions regarding safety and company training and employment policies.

The chapter commenced with a review of each company's safety management system. Both had elected to use a closed cycle SMS as described in Chapter V section 5.3.2 and the SMS of both companies comprised a comprehensive documented system in a tiered format under three heads:

- Company Policies
- Company Procedures
- Company Forms

Where the two company's systems were completely different was in their approach to maintenance of the vessels. Although each company had a Planned Maintenance System, Company A operated a computer based system that put the onus of all operational maintenance on ships' staff whereas Company B had a documentary system that charged shore-based staff with the responsibility for all maintenance other than routine checks.

An examination of each company's accident reporting and follow-up procedures was followed by a comparison of their accident statistics, which were seen to be somewhat similar and much better than the average for the industry sector.

Finally, the training and employment policies of both companies were reviewed and a connection between the two policies was established. Although the differences between the training policies employed by the two companies was quite distinct, the key interview responses indicated that all interviewees were agreed that raising the standards of education and training was the key to improving standards of safety in the shipping industry world wide.

CHAPTER XIV

CASE STUDY: PHASE THREE

BEHAVIOURAL SAFETY

14.1 THE APPROACH

Analysis of behavioural safety at level 5 of the safety hierarchy involved comparison of the psychological and cultural dimensions of the seafarers engaged to crew the vessels in the fleets of the two case study companies.

Both quantitative and qualitative techniques were used to gather the information necessary to make the comparison. The former involved distribution of a two-part questionnaire-style survey amongst representative samples of British and Filipino seafarers to measure the locus of control orientation, rank, experience, and professional and academic qualifications of the respondents. The latter involved visiting ships, observing their overall condition and holding relational conversations with crewmembers to gain an impression of how they viewed the introduction of the ISM Code.

The results of these two modes of enquiry are examined in this chapter. Firstly, the responses to the questionnaires are examined statistically to identify any significant differences or correlations between the two samples. Secondly, an illustrative account is given of the salient points noted during the relational conversations and observations carried out on board the ships

14.2 THE QUESTIONNAIRE

The questionnaire, a copy of which is appended as Annex E, comprised two parts. The first part contained several questions of fact used to establish each respondent's rank, experience, professional qualifications and academic qualifications.

The second part consisted of a psychometric test designed to establish each respondent's locus of control orientation (LOC). This part of the questionnaire contained twenty-nine pairs of statements based on Rotter's inventory with the wording slightly modified to lend an overall maritime flavour to the questionnaire. Respondents were asked to select the one statement in each pair that best described their feelings. Of the twenty-nine pairs of statements twenty-three contained choices with an internal / external bias and the other six were filler statements, one of which was used to gauge each respondent's feelings about the increasingly high degree of safety regulation now in force in the shipping industry.

14.3 QUESTIONNAIRE RESPONSE ANALYSIS

The questionnaire responses were first tabulated using Microsoft Excel software and the datasets produced (see Annex F) were then subjected to statistical analysis with the analytical platform provided by an integrated SAS computer package.

The output of each test was entered into a new data file creating a new dataset that was refreshed by adding the probabilities for each test. A final test was then

run and the resulting dataset exported to an Excel file for presentation in the format used for the statistical tables below.

Because the population distribution of the samples could not be assumed to be normal and the data produced by the questionnaire responses involved predominantly category data and ranked data, the statistical analysis involved the use of non-parametric tests. The tests fell into three categories:

- Tests of differences between groups (independent samples);
- Tests of differences between variables (dependent samples);
- Tests of relationships between variables.

In each category the following non-parametric methods were used for computer modelling and subsequent analysis:

- Tests of differences between groups:
 - Mann-Whitney U Test for independent samples;
 - Kruskal-Wallis analysis of ranks for multiple groups.
- Tests of differences between dependent groups:
 - Wilcoxon Matched Pairs Test to compare two variables measured in the same sample;
 - Chi-square test for variables of a dichotomous nature
- Tests for relationships between variables that were categorical in nature:
 - Chi-square test for the relationships between the variables;
 - Spearman Correlation Coefficients to express those relationships.

The analysis enabled a picture to be built up of how the samples of Filipino and British seafarers differed. Firstly, correlations were examined, both overall and then for each nationality. Secondly, the two samples were compared to see if there were any significant differences between the nationalities using the measured variables. Thirdly, analysis was carried out on the component parts of the questionnaire to detect any unusual differences between the groups.

14.4 BASIC STATISTICS AND CORRELATIONS

Basic statistics and correlation matrices are presented below together with descriptive analysis of the results.

14.4.1 Statistics and Correlations (Combined Samples)

Variable	N	Mean	Std Dev	Median	Minimum	Maximum
LOC Index	60	34.06	17.37	30.43	4.35	82.61
Rank	60	2.75	1.27	3.00	1.00	5.00
Experience	60	4.52	1.17	5.00	2.00	6.00
Professional Qualifications	60	4.12	2.18	3.00	1.00	9.00
Academic Qualifications	60	3.85	0.88	4.00	1.00	5.00

TABLE 14: BASIC STATISTICS (COMBINED SAMPLES)

Table 14 above provides a picture of the measured variables of the combined samples overall.

Spearman Correlation Coefficients, N = 60					
Prob > r under H0: Rho=0					
	LOC Index	Rank	Experience	Professional Qualifications	Academic Qualifications
LOC Index <i>p</i>	1	-0.06325 0.6312	0.03799 0.7732	-0.08815 0.503	-0.18662 0.1534
Rank <i>p</i>	-0.06325 0.6312	1	0.35927 0.0048	0.92981 <.0001	0.48028 0.0001
Experience <i>p</i>	0.03799 0.7732	0.35927 0.0048	1	0.29615 0.0216	-0.19434 0.1368
Professional Qualifications <i>p</i>	-0.08815 0.503	0.92981 <.0001	0.29615 0.0216	1	0.49258 <.0001
Academic Qualifications <i>p</i>	-0.18662 0.1534	0.48028 0.0001	-0.19434 0.1368	0.49258 <.0001	1

TABLE 15: STATISTICAL CORRELATIONS (COMBINED SAMPLES)

Table 15 presents the results of analysis of the basic statistics contained in Table 14. From Table 15 none of the variables is significantly correlated with the LOC Index. However, rank is significantly correlated with:

- experience ($p = .0048$);
- professional qualifications ($p < .0001$); and
- academic qualifications ($p = .0001$).

Also, experience is significantly correlated with professional qualifications ($p = .0216$) and academic qualifications are significantly correlated with professional qualifications ($p < .0001$). However, academic qualifications are not correlated with experience ($p = .1368$).

14.4.2 Statistics and Correlations (British Seafarers)

Variable	N	Mean	Std Dev	Median	Minimum	Maximum
LOC Index	30	39.28	19.32	41.31	4.35	82.61
Rank	30	3.03	1.38	3.00	1.00	5.00
Experience	30	4.90	1.09	5.00	3.00	6.00
Professional Qualifications	30	4.83	2.35	6.00	2.00	9.00
Academic Qualifications	30	3.60	1.10	4.00	1.00	5.00

TABLE 16: BASIC STATISTICS (BRITISH SAMPLE)

Table 16 above gives a picture of the measured variables of the samples of British seafarers.

Spearman Correlation Coefficients, N = 30					
Prob > r under H ₀ : Rho=0					
	LOC Index	Rank	Experience	Professional Qualifications	Academic Qualifications
LOC Index	1	-0.22687	-0.12186	-0.26845	-0.21509
<i>P</i>		0.228	0.5212	0.1515	0.2537
Rank	-0.22687	1	0.06318	0.92568	0.78709
<i>P</i>	0.228		0.7401	<.0001	<.0001
Experience	-0.12186	0.06318	1	-0.02066	-0.25581
<i>P</i>	0.5212	0.7401		0.9137	0.1724
Professional Qualifications	-0.26845	0.92568	-0.02066	1	0.76217
<i>P</i>	0.1515	<.0001	0.9137		<.0001
Academic Qualifications	-0.21509	0.78709	-0.25581	0.76217	1
<i>P</i>	0.2537	<.0001	0.1724	<.0001	

TABLE 17: STATISTICAL CORRELATIONS (BRITISH SAMPLE)

From Table 17 it is evident that, as with the combined sample, none of the variables in the sample of British seafarers is significantly correlated with the LOC Index.

However, unlike the overall sample, rank and experience are also not significantly correlated although academic qualifications are significantly correlated with professional qualifications. This may be indicative of the practice in the British Merchant Navy of training school leavers as officer cadets rather than ratings working their way up from the lower ranks to become officers.

In the British system, young people entering the shipping industry as officer cadets must have attained a stipulated minimum academic standard. They then undergo training for further academic awards as well as professional certificates.

14.4.3 Statistics and Correlations (Filipino Seafarers)

Variable	N	Mean	Std Dev	Median	Minimum	Maximum
LOC Index	30	28.84	13.57	30.43	4.35	60.87
Rank	30	2.47	1.11	2.50	1.00	5.00
Experience	30	4.13	1.14	4.00	2.00	6.00
Professional Qualifications	30	3.40	1.75	3.00	1.00	8.00
Academic Qualifications	30	4.10	0.48	4.00	3.00	5.00

TABLE 18: BASIC STATISTICS (FILIPINO SAMPLE)

Table 18 above provides a picture of the measured variables of the samples of Filipino seafarers.

Spearman Correlation Coefficients, N = 30					
Prob > r under H0: Rho=0					
	LOC Index	Rank	Experience	Professional Qualifications	Academic Qualifications
LOC Index	1	-0.06163	0.05314	-0.07789	-0.11635
<i>p</i>		0.7463	0.7803	0.6824	0.5404
Rank	-0.06163	1	0.69438	0.87957	0.09921
<i>p</i>	0.7463		<.0001	<.0001	0.6019
Experience	0.05314	0.69438	1	0.57151	-0.03765
<i>p</i>	0.7803	<.0001		0.001	0.8434
Professional Qualifications	-0.07789	0.87957	0.57151	1	0.25087
<i>p</i>	0.6824	<.0001	0.001		0.1812
Academic Qualifications	-0.11635	0.09921	-0.03765	0.25087	1
<i>p</i>	0.5404	0.6019	0.8434	0.1812	

TABLE 19: STATISTICAL CORRELATIONS (FILIPINO SAMPLE)

In Table 19, as with the previous two samples, none of the variables is significantly correlated with the LOC Index.

However, unlike the sample of British seafarers, rank and experience are highly correlated ($p < .0001$) amongst the sample of Filipino seafarers. Also of note is that there is no significant link between the attainment of professional qualifications and academic qualifications ($p = .1812$).

This may be a reflection of a culture of moving up the ranks. Contrary to the practice in the British Merchant Navy, it is quite usual for Filipino seafarers employed in the Offshore sector of the shipping industry to work their way up the ranks over the years they are employed.

14.5 MANN-WHITNEY U TEST

To test the differences between the samples of British and Filipino seafarers the Mann-Whitney U Test was used rather than its parametric counterpart for reasons listed earlier in section 14.3. The results of the analysis are shown in Table 20:

Observed Variable	British Mean	Filipino Mean	Mann-Whitney U Test
Rank	3.03	2.47	0.0804
Experience	4.90	4.13	0.0146
Professional Qualifications	4.83	3.40	0.0284
Academic Qualifications	3.60	4.10	0.0776
Loc Index	39.28	28.84	0.0452

TABLE 20: SIGNIFICANCE OF DIFFERENCES BETWEEN SAMPLES

All the comparisons are either significant or close to being statistically significant, but the most surprising fact is that British seafarers have a significantly higher Locus of Control Index than Filipino seafarers (39.28 vs. 28.84) ($p = .0452$). The greater the LOC Index the more external the LOC orientation and the lower the LOC Index the more internal the LOC orientation. From the analysis therefore, Filipino seafarers are significantly more internally oriented than British seafarers.

This finding is contrary to that anticipated from the literature review, specifically Chapter VI section 6.3.1 where it was argued the general consensus of opinion was that a significant positive correlation exists between individualism and internal locus of control, from which it could be assumed that British seafarers would have

a more internal LOC orientation than Filipino seafarers, the former belonging to a more individualistic society than the latter.

With regard to the other observed variables in Table 20, although Filipino seafarers have higher levels of academic qualifications than British seafarers the difference is not statistically significant ($p = .0776$). Similarly, although British seafarers have a slightly higher mean rank than the Filipino seafarers, the difference is not statistically significant ($p = .0804$). These differences may simply reflect the make-up of the two samples, the populations of which were randomly selected. This may also account for British seafarers having a higher level of professional qualifications than Filipino seafarers ($p = .0284$), higher ranks requiring higher levels of professional qualifications.

Although random selection of the sample populations may have a bearing on the fact that the British seafarers are more experienced than Filipino seafarers ($p = .0146$), this difference may also reflect a demographic difference between the two groups, British seafarers having a high age profile (*NUMAST 2004*).

14.6 COMPONENT ANALYSIS

To detect any unusual differences between the two groups of seafarers at the level of the individual components that comprise the LOC questionnaire, the responses to the individual alternatives were tested. A Chi-square analysis was made of the cross tabulated frequencies of each selected alternative compared to the expected frequencies. The cumulative difference over all the cells in the cross tabulation was then used to identify whether there were any significant differences.

To compensate for the increased probability of making Type I errors due to the sheer number of repeated comparisons, a Bonferroni adjustment (Hsu, 1996) was applied. To keep the overall error rate to an acceptable level of 5% the α - level of 0.05 was divided by the number of measured responses (twenty three) so that for any one comparison to be considered significant the obtained p-value would have to be less than 0.002174. The results of the analysis are shown in Table 21.

Table	Chi-Square Value	Test Probability	Bonferroni Adjusted Significance Level	Significance
Table a2 * Nationality	3.930567	0.04742	0.002174	Not Significant
Table a3 * Nationality	0.111317	0.73865	0.002174	Not Significant
Table a4 * Nationality	1.066667	0.30170	0.002174	Not Significant
Table a5 * Nationality	8.07564	0.00449	0.002174	Not Significant
Table a6 * Nationality	0.130719	0.71769	0.002174	Not Significant
Table a7 * Nationality	0.826967	0.36315	0.002174	Not Significant
Table a9 * Nationality	2.013932	0.15586	0.002174	Not Significant
Table a10 * Nationality	4.285714	0.03843	0.002174	Not Significant
Table a11 * Nationality	1.490683	0.22211	0.002174	Not Significant
Table a12 * Nationality	5.454545	0.01952	0.002174	Not Significant
Table a13 * Nationality	0.218182	0.64043	0.002174	Not Significant
Table a15 * Nationality	0	1.00000	0.002174	Not Significant
Table a16 * Nationality	6.444444	0.01113	0.002174	Not Significant
Table a17 * Nationality	4.419048	0.03554	0.002174	Not Significant
Table a18 * Nationality	1.380952	0.23994	0.002174	Not Significant
Table a20 * Nationality	0.174212	0.67640	0.002174	Not Significant
Table a21 * Nationality	0.953841	0.32874	0.002174	Not Significant
Table a22 * Nationality	22.5	<0.00001	0.002174	Significant
Table a23 * Nationality	1.023479	0.31170	0.002174	Not Significant
Table a25 * Nationality	0.74359	0.38851	0.002174	Not Significant
Table a26 * Nationality	0.066741	0.79614	0.002174	Not Significant
Table a28 * Nationality	1.001855	0.31686	0.002174	Not Significant
Table a29 * Nationality	0.296182	0.58629	0.002174	Not Significant

TABLE 21: COMPONENT QUESTIONS RESPONSE ANALYSIS BY NATIONALITY

The only difference found at the Bonferroni adjusted significance level of 0.002174 was in the responses to alternative 22 where the choice of responses was between:

- With enough effort we can wipe out political corruption; and
- It is difficult for people to have much control over things politicians do in office.

The response frequencies are shown in Table 22 below, from which it is evident that there is a striking difference between the number of Filipinos that think they can work together to wipe out political corruption and the few British seafarers of like mind.

Table of responses to a.22 by Nationality			
a22(a22)	Nationality		Total
	British	Filipino	
With enough effort we can wipe out political corruption	9	27	36
It is difficult for people to have much control over the things politicians do in office	21	3	24
Total	30	30	60

TABLE 22: RESPONSES TO ALTERNATIVE CHOICE 22

Also of interest was the perfect correlation between the samples in the responses to alternative 15 which, as shown in Table 23, indicated there was absolutely no difference between the sample groups in the belief that luck has nothing to do with getting what they want.

Table of responses to a.15 by Nationality			
a15(a15)	Nationality		Total
	British	Filipino	
In my case, getting what I want has little or nothing to do with luck	26	26	52
Many times we might just as well decide what to do by flipping a coin	4	4	8
Total	30	30	60

TABLE 23: RESPONSES TO ALTERNATIVE CHOICE 15

This may be an area where, due to their occupation, seafarers hold common beliefs and values regardless of their national cultures.

14.7 CHRONOLOGICAL CORRELATION

In Chapter VI section 6.3.1 it was deliberated whether or not by measuring the locus of control of individuals and comparing it with their educational attainments, cultural backgrounds and work roles it might be possible to discern whether or not locus of control has situational and chronological aspects, moving from external to internal as people gain knowledge and experience or gain promotion, i.e. as they gain greater control over their lives.

From the foregoing analysis it does at first appear that such a connection might be made from taking the correlation of rank and experience of the two samples and comparing that with the LOC index.

For British seafarers the overall correlations of rank and experience are not significantly correlated: [$p=0.7401$] and the mean LOC index is 39.28.

For Filipino seafarers rank and experience are highly correlated: [$p<.0001$] and the mean LOC index is 28.84.

The LOC Index scale is such that the higher the Index score the more external the orientation and the lower the Index score the more internal the orientation. It is tempting to infer therefore that the greater the correlation of rank and experience the lower will be the LOC index and correspondingly more internal the locus of control orientation, thus confirming the hypothesis that locus of control has situational and chronological aspects. Intuitively it seems logical that as people progress through life and gain increased knowledge, more skills and greater control over their lives then their locus of control orientation would tend to move from external to internal.

However, this is an area of some uncertainty. Whilst there is a statistically significant difference between the LOC scores of Filipino and British seafarers, this difference cannot be definitely attributed to rank or experience. There is a possibility that it is, but there is insufficient data to support that theory.

In terms of correlation, variable A can be correlated to variable B and variable A can be correlated to variable C. However, without very strong correlations or lots of observations it is perfectly possible that variables B and C may not be significantly correlated.

This is generally a feature of small datasets due to the fact that a few unusual observations have a much larger influence on a statistical test. With a large

dataset the background noise loses its influence. A much larger sample normally removes all these inconsistencies. However, even then correlation should not be mistaken for causation.

On reflection, without completing a large empirical study it would not be possible to say that a higher rank or greater level of experience would cause a lower LOC. Even then, if there was a significant correlation some additional testing in the field would need to be carried out to establish a positive link determining cause and effect. This would be a fruitful field for further research.

Meanwhile, the most positive assumption that can be made from the present statistical analysis is that it provides tenuous evidence of a link between LOC and experience thus providing some weight to the argument for greater emphasis on education and training as a means of developing internal motivational cognition in emergency situations.

14.8 RELATIONAL DISCUSSIONS AND OBSERVATION

Statistical analysis of the responses to the questionnaire-style survey of two samples of seafarers, one from each cultural group, was one of two methods used in the third stage of the empirical research. The other method was qualitative, comprising documentary review, relational discussions and observation.

Considering that the seafarers employed by the two case study companies were from two completely different cultural backgrounds, it is surprising how similar their attitudes were to various operational matters as illustrated in the following vignettes.

14.8.1 Customer Satisfaction

Both the Filipino seafarers and the British seafarers felt that it was their duty to ensure that the end-user of their vessels' services, whether a time charterer, voyage charterer or, cargo receiver, was satisfied with the performance of the vessel and its crew. Sometimes the desire to keep the customer happy was so strong that safety became a secondary consideration. Two examples will help to illustrate this point.

The first example concerns a Company A offshore supply vessel with a Filipino Master and Chief Mate. The remainder of the crew comprised Filipinos and Indonesians. The vessel loaded a cargo of diesel oil, fresh water and pipes in a port on the east coast of Malaysia to take to an oil rig 150 miles offshore. The voyage from the port to the oil rig would take approximately 14 hours.

Just before the vessel reached the rig however, instructions were received to return to port and offload the cargo. The Master turned the vessel around and started to return to port. The weather was moderate to rough and seas were breaking over the vessel's decks. Two hours later the vessel lost all power and was floundering with no motive power at night, in a shipping lane for several hours before the Chief Engineer managed to restart the generators and engines.

Subsequent investigation showed that having first loaded a part cargo of diesel oil and fresh water in designated tanks, the vessel then began taking on board a deck cargo of pipes. Charterers wanted to load as many pipes as possible for delivery to the oil rig and in order to please the charterers the Master took on board so many pipes that his vessel was in fact overloaded, considerably reducing the freeboard. As a result, when the vessel left port and encountered choppy seas,

water entered the vessel's bunker fuel tanks through vents on deck and eventually the water in the fuel caused the generators and main engine to splutter to a halt.

In reviewing the case with the Master it became apparent that he believed he had acted reasonably in allowing his vessel to be overloaded because in his opinion it was of the utmost importance both to avoid confrontation and to please the clients in their dual role of charterer and customer.

The second example concerns a number of potential collisions by Company B vessels with oil rigs and production platforms in the North Sea. Reports of such hazardous occurrences were not infrequently submitted by British Masters of North Sea vessels and subsequent investigation found that in many cases the root cause of the incidents was the Master's desire to please the charterer by loading or offloading cargo in circumstances such as bad weather when he should in fact have refused to work cargo at all.

It could be argued that the first incident was an example of two of Hofstede's (1991) cultural dimensions, power-distance and uncertainty avoidance, influencing the Master's judgement. However, that would not account for the reported hazardous occurrences in the North Sea. It is more likely that in both cases the Masters were either overconfident in their abilities or lacked sufficient knowledge or experience to recognise the hazards confronting them.

14.8.2 Exercising a Master's Overriding Authority

The ISM Code makes it very clear, as does the SMS of each case study company, that in circumstances where a decision has to be made concerning the safety of a vessel or her crew the Master has overriding authority. But the exercise of

authority is invariably accompanied by responsibility and exercising overriding authority implies taking ultimate responsibility for one's decisions.

Therefore, whilst cultural factors may to some extent influence decisions made concerning the safety of a vessel and her crew, it is more likely that pragmatic considerations and public reaction will play a greater part in the decision-making process, as illustrated by the following further two examples.

The first concerns a production platform located offshore Vietnam, a developing country where public pressure to raise safety standards is not significant. The physical location of the particular production platform and the position of its crane used for transferring cargoes to and from supply boats were such that the supply boats had to work against the current and, dependant upon the time of day, sometimes against the tide also. Several hazardous occurrences were reported and two actual collisions with the platform were recorded.

Several Filipino Masters had discussed with various European Offshore Installation Managers (OIMs) on the platform the dangers posed by the current, the tide and the crane location but were told that there was nothing that could be done. Reluctance on the part of the Filipino Masters to argue the case was understandable not only because of their cultural preference to avoid confrontation but also because of a perceived lack of support from shore-based management coupled with public indifference. The Masters knew that such operations had previously been carried out without mishap and realised that refusal on their part to service the platform would very quickly have led to cancellation of the vessel's contract and another company taking it over with subsequent loss of their jobs.

They knew also that in the event of an accident there would be no public outcry in a country with a centrally controlled economy and a government controlled media.

The second example concerns a supply boat operation to a production platform in the North Sea, and serves to illustrate how in Northern Europe public perception of the hazards of oil and gas production, heightened by the Piper Alpha disaster, requires operators of offshore installations to take into consideration public reaction should an accident occur due to unacceptable risk-taking.

During a relational discussion, the British Master of a 3,860 horsepower supply boat was asked whether he felt his vessel was sufficiently powered for North Sea operations, especially if he were to find himself in a difficult situation. His response was that his vessel was sufficiently powered because one should not allow oneself to get into a difficult situation in the first place. By way of support for his argument he pointed out that Parengo (the company now operating many of the former BP marginal platforms in the North Sea) had agreed that as a measure to reduce the risk of accidents supply boats would not be required to do up-tide or weather-side operations.

Most OIMs and many other staff on offshore installations have worked in various different areas of the world and ultimately the safety criteria are similar wherever the offshore installations are located. It is arguable therefore that the difference between the attitudes of the Masters of the supply boats in the South China Sea and the North Sea, and also the difference between the attitudes of the OIMs on platforms in the South China Sea offshore Vietnam and the OIMs on platforms in the North Sea offshore UK, was due not to the influence of the prevailing cultures but to the influence of the media and public pressure.

14.8.3 Condition of Vessels

Several vessels of each case study company were visited on a completely random basis dependent upon their availability. Some were visited in shipyards whilst undergoing repairs and others were visited during operational port turnarounds.

The majority of vessels operated by both companies and all of the vessels visited were between twenty and thirty years of age, which is quite old in shipping terms. However, from observation it was apparent that the vessels visited were all well maintained. This was substantiated by inspection of documentary records which showed that all the vessels were in Class with reputable Classification Societies and had current trading certificates including Safety Management Certificates.

From observation and relational conversations it was also established that all of the vessels had at least the required minimum safety equipment and many of the vessels actually carried safety equipment over and above the required minimum.

The standard of operational maintenance and overall appearance of the vessels depended upon a number of considerations: e.g. whether the vessel was in a shipyard or in port at the time of the inspection; whether it had been operating on safety stand-by or carrying out anchor handling duties; whether the vessel had been operating in heavy seas which precluded painting and similar maintenance work or whether it had been sailing in calm water. Overall however, the vessels were all found in an acceptable condition and there was no significant difference between the observed standards of operational maintenance or overall appearance of either company's vessels. The different economic circumstances of the case study companies were not reflected in the standard of vessel maintenance.

14.8.4 Response to Increased Emphasis on Safety

In relational discussions with seagoing staff most expressed the view that improving safety at sea was a laudable objective and this feeling was substantiated by a response to one of the alternate choice statements in the questionnaire distributed to both sample groups of seafarers.

The questionnaire contained six pairs of alternate choice statements that were not relevant to the main objective of measuring each respondent's locus of control. However, one of them was relevant to the general perception of seafarers to the increasing emphasis on safety in shipping operations. Alternate choice statement number 27 asked respondents to choose between the following options:

- a. There is too much emphasis on safety on board ships nowadays;
- b. Emphasising safety on board ship helps to develop a team spirit.

Of the sixty respondents a total of four declined to respond, eight selected option (a) and forty-eight, i.e. 80%, selected option (b).

The general feeling expressed during relational conversations with Masters and Chief Engineers was summed up by the Master of a North Sea supply boat who said that the introduction of the ISM Code was a good thing insofar as it requires not only procedures but also authorities to be documented, that it has undoubtedly helped to improve safety standards, but the system needs to be refined to reduce paperwork.

14.9 SUMMARY

The research format described in this chapter was both quantitative and qualitative in nature and focused on the seafarers employed by the two case study companies.

14.9.1 Findings of Quantitative Research

Statistical analysis of the responses to a questionnaire distributed amongst two representative samples of the seagoing personnel employed in each company found that:

- LOC index was not significantly correlated to any of the variables;
- Rank and experience were not significantly correlated in the case of British seafarers but were highly correlated in the case of Filipino seafarers. This may be a reflection of the difference between the traditional officer training methods between the two sample groups.
- Filipino seafarers had a lower LOC index (i.e. greater internal orientation) than the British seafarers, who had a greater external orientation. This finding together with the correlations of rank and experience in each sample group may indicate that locus of control has chronological aspects such that as people progress through life and gain increased knowledge, more skills and greater control over their lives then their locus of control would tend to move from external to internal. However, there is insufficient data to confirm the theory and more research would need to be done in this area to establish a positive link.

- A Chi-square analysis of the cross-tabulation frequencies of each pair of selected alternative responses to the questionnaire compared to the expected frequencies detected only two unusual results:
 - Firstly, the Filipino seafarers were more certain than the British that they could work together to wipe out political corruption, which may reflect the difference between their LOC indices or simply the different political systems in their home countries.
 - Secondly, both groups were strongly convinced that luck had little or nothing to do with getting what they want. This may indicate that due to their occupation seafarers hold some common beliefs and values regardless of their national cultures.

14.9.2 Findings of Qualitative Research

From documentary review and key informant interviews supplemented by relational conversations and observation, some vignettes were used to illustrate that what could be interpreted on one hand as the influence of cultural dimensions could also be interpreted on the other hand as a lack of knowledge or experience

Vignettes were also used to illustrate that a Master's willingness to exercise his over-riding authority in cases where the safety of a vessel or its crew might be compromised could be interpreted as being culturally influenced on the one hand or pragmatically driven on the other hand.

Vessels of both companies were visited and seen to be well maintained and well equipped. The vessels were all in Class and showed no signs of suffering from a lack of maintenance or equipment as a result of economic restrictions.

The crews generally expressed their approval and acceptance of the increasing emphasis on improving safety standards at sea and this was supported by the 'filler' alternative choice No.27 in the LOC Questionnaire.

CHAPTER XV

CASE STUDY: A REVIEW AND SUMMARY

This chapter comprises a brief synopsis of the findings from each area in which research was undertaken, firstly into the structure of the two case study companies (section 15.1 below) followed by safety management at levels 3, 4 and 5 of the safety hierarchy (sections 15.2, 15.3 and 15.4 below). The information from each area of research is then used to construct a table showing the strengths and weakness of the safety culture components of each case study company and hence provide a comparative measure of the safety climate of the two companies.

15.1 THE COMPANIES

Chapter XI compared and contrasted the two companies in which the empirical research was carried out. The companies had similar corporate structures but operated in culturally different contexts and with different financial pressures. Company A was a financially heavily leveraged company that operated offshore support vessels in the Middle East and South East Asia, whilst Company B was a cash-rich company that operated offshore support vessels in the North Sea.

The corporate safety culture of each company had developed differently due to their different corporate histories. Company A had consciously developed the strong points of the safety cultures of companies it had taken over whilst Company B retained a safety culture that reflected the values of the company taken over by Corporation B Holdings Inc and now operating as Company B.

15.2 ORGANISATIONAL SAFETY MANAGEMENT

Chapter XII examined in turn each of the constraints and pressures identified at Safety Level 3 of the ISM Code model (fig. 10).

Research at this phase of the case study determined that whilst constraints and pressures resulting from legal and moral obligations, economic considerations and organisational and cultural norms impact upon organisational safety management, they can be suitably dealt with by good strategic and organisational management using standard management techniques, which in a culturally homogenous company may be of an indigenous nature but in a culturally heterogeneous company require the addition of well developed cross-cultural management skills.

The possibility of correlation between an individual's locus of control and job function was identified as an area where future management research might usefully be undertaken.

15.3 OPERATIONAL SAFETY MANAGEMENT

Chapter XIII examined operational safety, firstly from a quantitative aspect by examining the accident statistics of both companies, and secondly from a qualitative aspect by examining each company's:

- Documented systems of management; and
- Salient human aspects, particularly employees' perceptions regarding safety and company training and employment policies.

Comparison of each company's accident statistics showed them to be somewhat similar and much better than the average for the industry sector.

Both companies had elected to develop and implement a closed-cycle SMS and the two systems were similar in format and content. Where the systems differed was in their approach to maintenance of the vessels. Although each company had a Planned Maintenance System, Company A operated a computer based system that put the onus of all operational maintenance on ships' staff whereas Company B had a documentary system that charged shore-based staff with the responsibility for all maintenance other than routine checks.

Finally, a review of both companies' training and employment policies established that the former was dependant upon the latter. Whilst the differences between the policies employed by the two companies were quite distinct, the importance of those policies was not lost upon senior management. Analysis of the key interview responses indicated that all interviewees were agreed that raising the standards of education and training was the key to improving standards of safety in the shipping industry world wide.

15.4 BEHAVIOURAL SAFETY

The research format described in Chapter XIV was both quantitative and qualitative in nature and aimed at the seafarers employed by the two case study companies.

15.4.1 Results of Quantitative Research

Firstly, a statistical analysis of the responses to a questionnaire distributed amongst two representative samples of the seagoing personnel employed in each company found that:

- LOC index was not significantly correlated to any of the variables;
- Rank and experience were not significantly correlated in the case of British seafarers but were highly correlated in the case of Filipino seafarers. This may be a reflection of the difference between the traditional officer training methods of the two sample groups.
- Filipino seafarers had a lower LOC index (i.e. greater internal orientation) than the British seafarers, who had a greater external orientation. This finding together with correlations of rank and experience in each sample group may indicate that locus of control has chronological aspects such that as people progress through life and gain increased knowledge, more skills and greater control over their lives then their locus of control orientation would tend to move from external to internal. However, there is insufficient data to confirm the theory and more research would need to be done in this area to establish a positive link.
- A Chi-square analysis was made of the cross-tabulation frequencies of each pair of selected alternative responses to the questionnaire compared to the expected frequencies. This detected only two unusual results.
 - Firstly the Filipino seafarers were more certain than the British seafarers that they could work together to wipe out political corruption. This may be a reflection of the difference between

the groups' LOC indices or of the different political systems in their home countries.

- Secondly, both groups were strongly convinced that luck had little or nothing to do with getting what they want. This may be an indication that due to their occupation seafarers hold some common beliefs and values regardless of their national cultures.

15.4.2 Results of Qualitative Research

From documentary review and key informant interviews supplemented by relational conversations and observation, some vignettes were used to illustrate that what could be interpreted on one the hand as the influence of cultural dimensions could also be interpreted on the other hand as a lack of knowledge or experience.

Vignettes were also used to illustrate that the Master's willingness to exercise his over-riding authority in cases where the safety of a vessel or its crew might be compromised could be interpreted as culturally influenced on the one hand or pragmatically driven on the other hand.

Vessels of both companies were visited and seen to be well maintained and well equipped. The vessels were all in Class and showed no signs of suffering from a lack of maintenance or equipment as a result of economic restrictions.

The crews generally expressed their approval and acceptance of the increasing emphasis on improving safety standards at sea. This was supported by the 'filler' alternative choice response to option No.27 in the LOC Questionnaire.

15.5 QUALITATIVE ASSESSMENT OF SAFETY CLIMATE

As noted in Chapter V section 5.4, the most common method of evaluating the effectiveness of an organisation's SMS is recording accidents, lost time incidents and hazardous occurrences (*ACNSI, 1993*). However, due to the quantitative nature of statistics they do not readily reflect either the maturity of a company's SMS or the effects of human influences on the application of the SMS. Other performance indicators must be selected to determine such qualitative issues.

In Chapter V section 5.2.3, it was noted that safety climate is best measured by perceptual audit (*Cooper, 2000*) and in Chapter X Section 10.4.6 the following factors were identified as being necessary for the development of an organisational safety culture (*Fleming 2001, ACSNI 1993*):

- Senior Management Commitment;
- Line Management Commitment;
- Commercial Management Involvement;
- Operational Pressures *versus* Safety;
- Ship / Shore Safety Communications;
- Provision of Safety Resources;
- Employment Philosophy;
- Training Programmes;
- Mutual Trust Between Seagoing and Shore Staff;
- Shared Perceptions about Safety.

These essential factors, most of which are highly value laden and hence potentially subject to cultural influences, were therefore examined during the empirical study and can be used to determine a company's relative safety maturity. Each factor is briefly summarised below.

15.5.1 Senior Management Commitment

From the Key Informant Interviews, relational conversations, observation and document reviews, it was evident that the main strength of each company's safety profile was a sincere commitment by senior management to ensuring safe operation of its vessels. This was confirmed in relational conversations with the Corporate CEO of Corporation A International Inc (*CEO A, 2004*) and the Corporate CEO of Corporation B Holdings Inc (*CEO B, 2005*).

15.5.2 Line Management Commitment

Whilst line management in both companies acknowledged the benefits of good safety management, their enthusiasm was tempered by the realities of implementing safety policies and ensuring that safe operating procedures were not only documented but also followed.

From a review of Company A's accident statistics and analysis of the key informant interview responses it was evident that a new SMS had been effective in reducing accidents and that near-miss reporting was being carried out by sea staff.

It was also clear from the key interview analysis and from relational conversations with a wide spectrum of Company A staff that the vast majority of employees felt that the industry was already sufficiently regulated and that whilst there should be stricter enforcement of the existing regulations the first priority was to place greater emphasis on both professional education and safety training.

One discordant note was an initial perception, later reinforced from documentary review, that Company A's Operations Manager, although saying that he fully

supported the company's safety policies, was in reality less committed to improving the overall safety performance of the fleet by implementation of an effective SMS, preferring instead to deal with problems as they arose rather than take proactive measures to obviate the problems in the first place. He recognised perhaps that to develop and put in place preventative measures to decrease the possibility of hazards eventuating or to minimise the effects of their occurrence requires a substantial amount of hard and disciplined work in the first instance.

Line management in Company B appeared to be fully supportive of the company's attempts to develop a safety culture within the organisation. It was evident however that line managers tended to identify with the corporate ethos that was formerly present in the company taken over by Corporation B Holdings Inc and now operating as Company B rather than with the corporate identity of the new parent company.

However, training in ISM Code familiarity and internal auditing had resulted in line management having a common understanding of the need to not only develop and implement an effective SMS but also to ensure its acceptance by ships' staff and ensure continued improvement of the system.

15.5.3 Commercial Management Commitment

In the commercial departments of both case study companies the lack of safety training and only a passing acquaintance with operational risks was identified as a weakness in developing an overall safety culture.

None of Company A's commercial managers had a seafaring background or specific training in marine chartering. This occasionally led to substantial

expenditure being necessary to retrieve a situation that chartering managers had not foreseen. Absence of safety training and lack of operational awareness also led to a policy differential between the company's marine personnel department and the desire of senior operations personnel to improve the standard of ship's crews.

During relational conversations two points of view were expressed that indicated an overall weakness in Company B's commercial management commitment to safety.

The first was that although overall management commitment to safety was good there was a disconnect at local level insofar as the Area General Manager did not have a marine background and had greater concern for commercial matters than for safety matters.

The second was that whilst interdepartmental and ship-shore safety communications were generally very good, the commercial department were 'always ready to sell more than they have got' thus bringing additional pressures to bear on the operations staff.

15.5.4 Operational Safety

The difference in employment philosophies and consequently training programmes of the two companies had little effect on the accident statistics in the short term but might ultimately be expected to favour Company B in the longer term.

The computerised Planned Maintenance System introduced by Company A initially met a lot of resistance from middle management and supervisory staff and

there were many hurdles to be overcome before the system could be fully implemented. By dint of perseverance and the application of suitable education and training programmes however, the system was eventually implemented and its effectiveness was reflected in a significant reduction in the number of days that vessels in the fleet were out of service for repair.

The manual documentary Planned Maintenance System used by Company B was very basic and straightforward. It assumed little competence on the part of the seagoing personnel and required them to operate rather than maintain the vessels. All maintenance other than that of a simple nature was scheduled and undertaken by shore-based staff. The reason for this approach may have been due to the origins of the fleet, the background of which was the fishing industry.

One area of interest noted during relational conversations with some Company B staff, both seagoing and shore-based, concerned flag State inspections. The SMS in Company B was audited by the Marine and Coastguard Agency (MCA) and one particular inspector whose cultural background was Pakistani was reportedly very difficult to deal with. It was felt by Company B staff, all of whom had British cultural backgrounds, that because of his cultural heritage the MCA inspector:

- Lacked both discretion and flexibility in dealing with non-conformities;
- Was unable to make a decision that might later be shown to be wrong.

This is a classic example of Uncertainty Avoidance displayed by a person from a cultural environment with a high UAI (70 on Hofstede's scale) dealing with people from a cultural environment with a low UAI (35 on Hofstede's scale).

15.5.5 Safety Communications

Both companies operated similar systems of reporting accidents and disseminating the information. There was a strong desire by senior management in both companies to ensure that accident reports were submitted as soon as possible after the occurrence of an incident. This was partly driven by a desire to receive the information from the vessel before hearing it from the client.

Inspection of reports from vessels during the documentary review gave no indication of any reluctance on the part of either British or Filipino seafarers to report either accidents or hazardous occurrences. This supported the assurances given by shore-based management and supervisory staff during the key informant interviews.

15.5.6 Safety Resources

In both Company A and Company B the commitment of senior management to safety was reflected in the provision of resources. The budgets for safety items were both generous and extensive, covering all areas of the safety spectrum, including:

- Provision of safety equipment on board vessels
- Personal protective equipment for all personnel
- Safety training
- Monitoring and analysing accidents and near misses
- Upgrading vessels to meet new industry regulations and standards.

Nowhere was any evidence found in either company of economic considerations impacting upon the provision of safety resources

15.5.7 Employment Policy

Whilst both companies sourced seagoing personnel through crewing agencies, those employed by Company B were virtually company employees because the parent company owned the crewing agency. Company A seagoing personnel on the other hand were effectively contract labour hired on a *per voyage* basis.

Attempts made by Company A to engage Filipino officers on long-term contracts were unsuccessful. Ostensibly the Filipino officers preferred to work on short-term *per voyage* contracts so they were free to join another company at the end of each voyage. This may have been due to cultural factors, it may have demonstrated an independence of thought on the part of the Filipino seafarers or it may have been the result of an inherent distrust of shipping companies as employers.

15.5.8 Training Programmes

The difference in employment policies between the two companies was reflected in their training programmes. Whilst Company B had in place a structured training programme under the direction of a Training Officer, Company A carried out training on an *ad hoc* basis initiated by perceived needs. Although Company A had a generous training budget, the company was understandably reluctant to provide more than minimum training for staff who were reluctant to give long-term commitment to the company.

15.5.9 Mutual Trust

Generally speaking there was a high standard of mutual trust between the seafarers and shore-based staff in both companies, evidenced by the forthright reporting of hazardous incidents.

But that mutual trust was qualified in some areas, particularly with regard to machinery and vessel maintenance. In both companies the shore-based staff felt that the seafarers were not sufficiently knowledgeable or experienced to carry out more than basic maintenance.

This was reflected in responses received during the key informant interviews when respondents were asked what they believed were the two most significant potential hazards to safety in the shipping industry. Although couched in different terms, one theme was common to the responses of all interviewees across both the cultural and managerial divides: too low a standard of education and training.

15.5.10 Shared Perceptions of Safety

Personnel who had attended training courses and seminars on the introduction and working of the ISM Code had very similar views concerning safety. Seafarers also had mandatory safety training and were therefore well versed in the objectives of the modern safety environment.

Accidents still happen however, and a review of the incident reports in both case study companies determined that many of the incidents were due not to a lack of safety training but to a lack of either forethought or knowledge. This indicates the need for more extensive vocational and professional training to establish heightened safety awareness and correspondingly improved perceptions of safety.

15.6 RELATIVE SAFETY CLIMATE

The foregoing summary of the findings of the empirical study carried out in the two case study companies provides a synopsis of what may be termed a perceptual audit of the two companies.

As a means of measuring the safety climate of each company, and of each company relative to the other, the results of the perceptual audit have been used to construct a table indicating the strengths and weaknesses of each company in the various safety related areas of research. The tabulated results of the analysis provide:

- An indication of where each company needs to concentrate efforts to raise levels organisational safety;
- A comparison of the relative maturity of each safety culture element in both companies.

A perceptual audit is a somewhat subjective means of measurement and hence is itself open to cultural influences. Therefore, to be as objective as possible in establishing the safety climate of both case study companies, each of the essential factors was examined in turn with evidence drawn from the four research techniques utilised in the study, interview, documentary review, relational discussion and observation, noting whether any culturally influenced risk factors prevailed and if so whether they exercised a positive or negative influence on safety organisation and performance. A strengths and weaknesses analysis was then carried out, each essential factor being reviewed and given a low, medium or high rating in accordance with the perceived efficacy of organisational safety in that area of research as shown in the Safety Climate Comparator at Table 24 below.

	COMPANY A			COMPANY B		
	Rating			Rating		
Essential Factor	Low	Med	High	Low	Med	High
Senior Management Commitment			√			√
Line Management Commitment			√			√
Commercial Management Involvement	√				√	
Operational Safety		√			√	
Ship/Shore Safety Communications			√			√
Provision of Safety Resources			√			√
Employment Philosophy		√				√
Training Programmes	√				√	
Mutual Trust Between Seagoing and Shore Staff			√		√	
Shared Perceptions about Safety			√		√	

TABLE 24: SAFETY CLIMATE COMPARATOR

Where an essential aspect has been given a high rating, then the applicable constraints and pressures identified in the ISM Code model as impacting upon that element have been suitably dealt with by standard management techniques, combined with suitable education and training and the application where necessary of good cross-cultural management skills.

Conversely, where an essential aspect has been given a low rating then the applicable constraints and pressures identified in the ISM Code model have had a notable influence and remain to be suitably dealt with.

As noted in Chapter VII section 7.1, safety is a relative concept and the Safety Climate Comparator illustrated in Table 24 could be used to monitor improvements in a company's own safety climate by comparing periodic perceptual audits.

Alternatively, by establishing a benchmark standard against which to measure a company's safety climate, the comparator could be used as a Relative Safety Culture Maturity Model (RSCMM) to measure the safety climate of other shipping companies. Unlike Fleming's draft Safety Culture Maturity Model examined in Chapter V section 5.4, the proposed model does not rely on organisations progressing through iterative stages, moving from one stage to the next only when the strengths and weakness of each stage have been built upon or removed respectively. The proposed model involves identifying by means of perceptual audit any areas of weakness in safety management relative to a benchmark standard so that appropriate remedial action can be taken.

CHAPTER XVI

CONCLUSIONS AND DISCUSSION

In this final chapter, the aims and objectives of the study are restated and the means by which they were addressed and the extent to which they were achieved are summarised and reviewed. A discussion of the main findings of the study ensues, followed by a synopsis of the contribution the study has made to professional knowledge, the limitations of the study and areas identified in which further research might usefully be conducted

16.1 ADDRESSING THE AIMS AND OBJECTIVES OF THE STUDY

The aims and objectives of this study were:

1. To identify how the diversity of cultures impacts upon the implementation of safety regulations in the shipping industry;
2. To determine what obstacles that impact may present to the development of safe practices and attitudes within the industry;
3. To ascertain whether stricter enforcement of existing regulations or more emphasis on education and training is the better way to overcome those obstacles.

The first two objectives were addressed by developing a model of the working of the ISM Code (Chapter IX, Figure 10) from which it was possible to focus the findings of the literature review to discover how various constraints and pressures impact upon the development and implementation of safety regulations at various levels throughout the shipping industry from governmental level to shipboard level.

Using the model in conjunction with the literature review it was possible to identify:

- Those constraints and pressures that are susceptible to cultural influences;
- The organisational level of safety management at which the constraints and pressures are to be found; and
- The effects of the cultural influences upon the constraints and pressures.

Finally, during the empirical study evidence of the actual impact of the culturally influenced constraints and pressures were monitored in the case study companies and the organisational methods used to deal with the impact were identified.

The third objective gave rise to the following alternative hypotheses:

Hypothesis A: Cultural norms influence an individual's perceptions of safety.

However, culture is learned and is not a static dimension.

Therefore, by means of suitable education and training a common standard of safety can be achieved across a spectrum of individuals having diverse cultural norms.

Hypothesis B: Cultural norms influence an individual's perception of safety.

Therefore, rigorous enforcement of common rules and regulations is necessary to achieve a common standard of safety across a spectrum of individuals having diverse cultural norms.

The hypotheses were tested by means of an empirical study of two structurally similar but financially and culturally different shipping companies. Using Bayesian principles rather than a classical 'null hypothesis' approach, the study determined that the key to overcoming both cultural and economic obstacles, which might otherwise impede the development of a true safety culture in an organisation, is three-fold:

- Constraints and pressures resulting from legal and moral obligations, economic considerations and organisational and cultural norms that impact upon organisational safety management can be suitably dealt with by good strategic and organisational management using standard management techniques which in a culturally heterogeneous organisation require in addition the application of good cross-cultural management skills (Chapter XII section 12.9);
- Training can be used effectively to develop a common understanding of safety and safety systems (Chapter XII section 12.5). However, safety training alone is not sufficient to develop a true safety culture and reduce accidents: that requires additional vocational and professional training (Chapter XIII section 13.8).
- A company's training policies cannot be considered in isolation since they are to a large extent dictated by the company's employment philosophy (Chapter XIII section 13.7).

16.2 DISCUSSION

The study examined in depth the working of the ISM Code and the constraints and pressures that impact upon the development and implementation of a Safety Management System, in particular those constraints and pressures that may be influenced by cultural values and attitudes.

Such constraints and pressures exist at all levels of safety management, but from the model developed of the working of the ISM Code it was evident that for the purposes of the current study the most benefit could be gained from carrying out empirical research at levels 3, 4 and 5 of the safety management hierarchy.

The empirical study highlighted the relevance and importance of effective education and training in raising safety standards. In particular:

- In Chapter XII, section 12.5, it was noted that of the twelve key informants
 - Eight had attended identical training courses covering ISM familiarisation and auditor training,
 - Two had attended in-house ISM introductory seminars, and
 - Two were qualified lead auditors of management systems.

The training had resulted in harmonisation of their safety perspectives.

- In Chapter XIII, section 13.2 computer training of seagoing personnel in Company A provided an example of how vocational training can be used to successfully overcome a specific safety-related problem.
- In Chapter XIII, section 13.7, a connection was established between training and employment policies, and it was noted that all twelve key interviewees were agreed that raising the standards of education and training was the key to improving standards of safety throughout the shipping industry.
- In Chapter XIV section 14.7, statistical analysis of seafarers' responses to the LOC questionnaire provided some evidence, albeit tenuous of a link between LOC and experience, thus lending some weight to the argument for greater emphasis on continuing education and training as a means of developing internal motivational cognition in emergency situations.

The obligation to develop personnel by means of suitable education and training is supported by a series of actions brought in English courts of law (*Trafford, November 2005*) that have done much to identify and clarify the duty both of organisations and of individuals:

- To act in a safe manner and with an acceptable and predictable level of both competence and competency; and

- To not only hire competent staff and competent contractors but also to identify training needs and ensure that staff receive continuing developmental instruction in order to meet changing organisational needs and advances in technology.

The duty includes a requirement for continuing instruction for all personnel including managers so that they understand the risks associated with existing practices, keep abreast of risks in light of developing knowledge, and acquire the ability to raise safety standards by the application of the highest standards of safety management. Indeed, the requirement for continuing instruction is included in the ISM Code itself, the two most relevant Clauses of the Code in this respect being:

- Cl.1.2.2 Safety management objectives of the Company should, *inter alia*:
- .3 continuously improve safety management skills of personnel ashore and aboard ships, including preparing for emergencies related both to safety and environmental protection.
- Cl.6.5 The Company should establish and maintain procedures for identifying any training which may be required in support of the safety management system and ensure that such training is provided for all personnel concerned.

Shipping companies that interpret Clause 6 as merely a legal requirement to ensure that the seafarers it employs are properly qualified and in possession of the requisite certificates may have fulfilled their legal obligations. It is arguable however, that they have not fulfilled their moral obligation to interpret the Clause not only to the letter but within the spirit of the Code as argued in the thesis, particularly Chapters III, Vi and VII, sections 3.4, 6.8, 7.1 and 7.2 respectively.

Regulations and standards are by definition minimum requirements and must be adhered to. As evidenced in the case of the M/V Eurasian Dream (*Papera Traders v Hyundai Merchant Marine, 2002*) if those minimum standards are not complied with then a ship may be rendered unseaworthy. In that particular case the judge found the ship to be unseaworthy and held that 'Lack of due diligence is negligence and in this case there were numerous failures and errors of judgement that amounted to professional negligence in respect of the provision of equipment, competent master and crew and adequate documentation'.

But the spirit of the ISM Code is to introduce a genuine safety culture within the shipping industry and this implies training staff beyond the minimum stipulated requirements. Education and training provide the requisite knowledge and skills to undertake a particular task whilst experience guides the individual in the application of that knowledge and those skills. Without sufficient skills and experience individuals may be unable to correctly tackle tasks that should be within their capability. Simply to try and plug gaps in knowledge or skills on an industry wide basis by safety training alone is unlikely to achieve positive results.

If when developing their corporate training programmes senior managers observe only the minimum requirements of the STCW and ISM Codes and also misguidedly substitute safety training for vocational training and professional development, that may cause the decision making of employees to be influenced by cognitive biases based upon outdated information or false premises, possibly leading to unsound judgements and subsequent unsafe actions or inactions.

In order to make a sound decision, to be able to balance risk against reward, individuals must be in possession of appropriate knowledge, requisite skills and

sufficient experience to be able to evaluate a situation, understand the consequences of their actions or inactions, and subsequently exercise suitable judgement. Without the knowledge, skills and experience to undertake a particular task, potential hazards associated with that task may not be identified or the correct course of action may not be apparent to the individual concerned and the consequences of a wrong decision may be far reaching.

For shipping companies to operate safely, their employees must be suitably educated, adequately trained and given sufficient opportunity to gain experience. This requires companies to ensure that people they employ are competent people and that continuing education and training are undertaken to keep them abreast of developments within their areas of expertise. It also requires the companies to provide employees with the opportunity to exercise newly acquired knowledge and skills in order to gain experience, for instance by developmental assignments.

However, although localised decisions about providing training to address failures in operational safety can be made at level 3 of the safety management hierarchy, it is clear from the ISM Code model (figure 10) developed in Chapter IX, that even-handed application and enforcement of the provisions of both the ISM Code and the STCW Code to achieve an industry wide safety culture and subsequent improvement in overall safety standards throughout the shipping industry, require international cooperation at levels 1 and 2 of the hierarchy. But as noted in Chapter VI section 6.8, historically there has been a large disparity between flag States with regard to their stipulated minimum standards of education and training.

The implementation by IMO of the 1995 revision of the 1978 STCW Convention, which entered fully into force in 2002 and contains provisions for an internationally

agreed basic minimum standard of training for the award of certificates of competency to seagoing personnel, may go some way to correcting this disparity.

But a competence-based approach that simply provides an individual with basic training and the correct tools for the job would be insufficient (*Trafford, November 2005*). It is necessary also to teach people the underlying principles behind the work that they are expected to do and how the tools may be used to the best effect. Individuals must be provided with continuing professional education, vocational training and the opportunity to gain experience (*Munro-Faure, 1992, p.91*), otherwise they will not only be unable to carry out their work effectively, but may also become a liability to the safety of themselves, others, company property and the environment.

Chomsky (1991) noted that in a totalitarian society the executive need not worry about what people think because the executive controls what people do, but in a democracy to control what people do the executive needs to control what people think. Applying this argument to raising safety standards throughout a worldwide, fragmented industry it is clearly not possible to control everything people do on a ship or offshore structure, and therefore it is essential to ensure that they have the requisite knowledge, skills, training and experience to be able to think and act safely, to recognise hazards, take appropriate action to prevent hazards eventuating, to do their work effectively and hence to operate safely.

This cannot be achieved by safety training alone or simply by developing competences. It can however, be achieved by suitable vocational training together with continuing professional development of which safety training forms an integral part, and then providing individuals with developmental assignments to gain

experience in accordance with their needs. But to ensure that such education and training are actually being provided and that they are of a suitable standard, it is necessary to audit the organisations responsible for its provision. To this end, the establishment of an international accreditation body, either as a singular body or as a network of institutions, is considered essential.

The authority to do this already rests with IMO because, as noted by Lord Donaldson (2001), an important administrative difference exists between the ISM Convention and the STCW Convention. Flag States signatory to the ISM Convention operate within a self-regulatory system under which the flag States certify to IMO that they are fully discharging their obligations under the Convention. The STCW Convention on the other hand, contains a provision under which the signatory States delegate to IMO the authority to assess whether or not a signatory State is complying with its obligations under the Convention. How rigorously and with what ardour IMO monitor and enforce the provisions of the revised STCW Convention may well decide the effectiveness of the Convention in practice.

16.3 CONTRIBUTION TO PROFESSIONAL KNOWLEDGE

The contributions made by this study to professional knowledge emanate from the style and approach of the study and from the empirical research itself.

Previous enquiries into the introduction of the ISM Code have tended to concentrate upon the change elements involved (*Anderson, 2002*) and whether the Code is actually achieving its objectives (*Marine Engineers Review, October 2001*). The current study adopted a completely different approach and developed a model of the working of the ISM Code that made it possible to identify:

- The various levels of safety management at which specific steps are taken to develop and implement an effective SMS in individual shipping companies, which is the essence of the ISM Code;
- The corresponding levels of safety management at which specific constraints and pressures susceptible to cultural influence operate and militate against SMS development and implementation;
- The levels of safety management at which cooperation is necessary to achieve an industry wide safety culture and subsequent improvement in overall safety standards throughout the shipping industry;
- The corresponding, specific, culturally influenced constraints and pressures militating against such cooperation.

Using a case study methodology for the empirical research provided a richness of detail, analysis of which:

- Determined that in order to improve industry-wide maritime safety standards more emphasis on education and training would be more productive than concentrating on stricter enforcement of existing regulations or the introduction of further regulations;
- Demonstrated that individual shipping companies can not only improve their safety standards by providing for the educational and training needs of their employees but have a legal duty and moral obligation to do so;
- Provided a model for determining a company's safety culture maturity relative to previous audits or in comparison with a benchmark standard.

16.4 LIMITATIONS OF THE STUDY

The study explored the impact of culturally influenced constraints and pressures at levels 3, 4 and 5 of the safety hierarchy because that is where safety management systems are developed and implemented. However, from the ISM Code model developed in Chapter IX (figure 10) it is evident that culturally influenced constraints and pressures also operate at levels 1 and 2 of the safety hierarchy and it is those that influence the rigour with which nation States ensure that the provisions of the ISM Code are implemented by ships entered on their registers. Investigation of the effects of the constraints and pressures operating at levels 1 and 2 of the safety hierarchy was beyond the scope of the empirical phase of the present study.

Whilst the literature review indicates that constraints and pressures operating at levels 3, 4 and 5 of the safety hierarchy are similar throughout the shipping industry, only one sector of the industry was examined in the current study. To demonstrate industry-wide commonality of the constraints and pressures, research encompassing other sectors of the shipping industry would be necessary

16.5 AREAS FOR FURTHER RESEARCH

During the current study, the following were identified as areas that might usefully be researched in the future.

- Empirical research at levels 1 and 2 of the safety hierarchy to determine how best to persuade nation State Administrations and industry bodies to more evenly enforce existing regulations throughout the shipping industry.

- Empirical research in other sectors of the shipping industry to demonstrate industry-wide commonality of the constraints and pressures shown in the present study to be operating at levels 3, 4 and 5 of the safety hierarchy within the offshore sector of the industry.
- Analysis of the responses of the key informants to the LOC questionnaire (Chapter 12, section 12.8) indicated a possible correlation between job function and locus of control orientation. However, the sample size was too small to draw firm conclusions and to do so would require additional empirical research.
- Analysis of the responses of the two samples of seafarers to the LOC questionnaire (Chapter XIV, section 14.7) indicated the possibility of a chronological aspect to locus of control orientation. However, on reflection, it was decided further empirical research would be necessary to establish a positive link determining cause and effect to demonstrate that a higher rank or greater level of experience result in a more internal LOC orientation.

APPENDICES

ANNEX A

TABULATED TRANSCRIPTS OF KEY INFORMANT INTERVIEW RESPONSES COMPANY A

KEY INFORMANT INTERVIEW RESPONSES

COMPANY A

RESPONDENT PROFILES

Six people in the Company head operations office in Dubai were interviewed. The respondents were selected on the basis of two criteria:

1. All had a responsibility for ensuring safe operation of the vessels by the people on board;
2. Their divergent cultural backgrounds.

The Respondents

- 1: Managing Director
2. Operations Manager
3. HSE Manager (& DPA)
4. Operations Superintendent
5. HR Manager
6. Crewing Supervisor

Commonalities

1. All had worked for the company for between one and five years
2. All were living in Dubai
3. Four of the six respondents were ex-seafarers and a fifth had worked on offshore oilrigs and production platforms. The sixth had worked as a shore based Radio Operator communicating with vessels.

Ethnic Origins

Two (Managing Director and HSE Manager) were British of Caucasian-Celtic origins

Two (Operations Manager and HR Manager) were Indian

One (Operations Superintendent) was Filipino

One (Crewing Supervisor) was Sri Lankan

Cultural Backgrounds

There were a number of differing cultural influences bearing upon the respondents:

1. The Managing Director felt that his cultural background was North European although he regarded his country of domicile as U.K. and U.A.E.
2. The Operations Manager felt that his cultural background was Indian-Western; English was the language used in his home and he regarded his country of residence as India.
3. The HSE Manager considered his cultural background as Western / Oriental – he was of Scottish descent and his country of domicile as Malaysia.
4. The Operations Superintendent was sure that he was both ethnically and culturally Filipino and his home was in the Philippines.
5. The HR Manager had lived in the U.A.E. together with his family for 25 years. He is what is known in the UAE as a Non-Resident Indian or NRI
6. The Crewing Supervisor had lived in the U.A.E. for 14 years and although he stated that his country of domicile was the U.A.E. his family lives in Sri Lanka.

Occupational & Educational Background

1. The Managing Director, Operations Manager and Operations Superintendent were all ex-seafarers and had Class I (Master Foreign Going) Certificates of Competency. In addition, the Managing Director had worked for approximately 20 years in a major oil company and had a Diploma in Surveying from the Nautical Institute.
2. The HSE Manager had completed secondary school but had not attended a full-time tertiary education course. However, practical safety training and experience enabled him to become a member of the Institute of Occupational Safety and Health (IOSH). He had also trained as a Lead Auditor (IRCA)
3. Both the HR Manager and Crewing Supervisor had finished secondary school but had no formal academic or professional qualifications.

INTERVIEW TECHNIQUE & RESPONSES

A semi-structured interview technique was utilised. A list of questions was drawn up and used as an *aide-mémoire* by the researcher to ensure that each respondent was asked the same questions regarding their cultural background and:

- A. The Company Profile;
- B. Vessel reporting Procedures;
- C. Ship Manning Policies;
- D. Safety, Education and Training Perceptions;
- E. Interpretation of the Company's SMS;
- F. Maturity Level of the Company Safety Climate;
- G. Perception of the ISM Code; and
- H. Overall Safety Perceptions

The list of questions was not however, a check box document. It was not given to the respondents to fill out, the respondents were interviewed individually and there was sufficient latitude for them to answer the questions in their own words.

Analysis of the Responses

For purposes of analysis it would have been possible to group the respondents in a number of different ways, such as their level of managerial responsibility, their direct involvement with seafarers, or their own seagoing experience, and then analyse their responses by groupings. However, the objective of the interviews was to determine whether:

1. Significant heuristics or biases emanating from different cultural backgrounds influenced the way in which the respondents viewed safety, particularly with reference to the ISM Code and its implementation;
2. Whether education and training or better policing and enforcement of existing regulations is the better path to follow in ensuring the objectives of the ISM Code are achieved.

Therefore, matrices of the responses against a combination of ethnic origins and cultural backgrounds on the one hand and formal education together with

managerial responsibility on the other hand have been developed for each of the question areas. And in order to more readily present the results of the interviews in a tabular format it was found useful to assign nominal values to the ethnic and educational categories (*Blaxter et al 2000*) as follows:

VARIABLE	CODE	VARIABLE	CODE
North European	1	Tertiary education and structured managerial development.	A
Indian	2	Tertiary education and informal managerial development.	B
Sri lankan	3	Secondary education and structured training.	C
Filipino	4	Secondary education and no structured training	D

COLLATED REPONSES

A. COMPANY PROFILE

All Respondents agreed that the Company was an independent ship owner with more than forty vessels. This was a matter of simple fact, but there was some difference of opinion as to whether the company had a QA System and, if so, whether it was accredited as meeting the ISO 9000 Standard.

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
Q. Does the Company have a QA System	YES & NO	YES	NO	YES	UNSURE	UNSURE
Q. If so, is it ISO 9000 accredited	NO	NO	N/A	NO	N/A	N/A

Further analysis of the answers to this question revealed the following:

- 1. There seemed to be some confusion in the minds of the majority of the respondents as to the difference between a Quality Assured, documented system of working, which is a purely voluntary system used by many companies for purposes of efficiency, and an approved SMS, which is a legal requirement under the ISM code for a ship operating company.*
- 2. The company has another office in Europe which is concerned with two functions, commercial activities and manning of the fleet in West Africa. The office in Europe is a separate company from the one in Dubai and it has a Quality Assured, documented system of working but it is not accredited as being ISO 9000 compliant.*
- 3. The company in Dubai does not have a Quality Assured, documented system of working.*

B. VESSEL REPORTING PROCEDURES

All respondents were asked a series of questions relating to the submission of condition reports by the ships to the company. The questions were:

Q.B.1 Are vessels required to submit to the Company condition reports concerning:

Vessel structure	Yes / No
Machinery	Yes / No
Radio & Navigation Equipment	Yes / No
General Operating Condition	Yes / No
Accommodation	Yes / No
Overall appearance of vessel	Yes / No
Voyage Repairs Carried Out	Yes / No
Voyage Repairs Required	Yes / No
Dry-docking Repairs Required	Yes / No
Classification Certificate Status	Yes / No
Flag State Certificate Status	Yes / No

Q.B.2 Are the reports submitted on a regular, periodic basis or on an *ad hoc* basis?

Q.B.3 What is the frequency of reporting?

Q.B.4 Who receives the reports?

Q.B.5 How often are vessels usually inspected by technical and operational staff from the Company?

Q.B.6 What is the status of Planned Maintenance in the Company?

The answers from all respondents to the above questions were very closely correlated and no significant deviation was noted. Everyone was agreed that there were condition reports that had to be submitted by vessels to the company on a regular basis, that there were differing frequencies for different reports, that the reports were sent to designated departments and that vessels were inspected on an ad hoc basis but there was a requirement for every vessel to be inspected at least once per annum.

All respondents were also aware that there was an existing Planned Maintenance System and that it was in the process of being replaced by a new, computer based Planned Maintenance System.

C. SHIP MANNING POLICIES

A series of questions regarding the manning policies of the company elicited some quite different answers from the respondents.

Q.C.1 Are ships' Masters Company employees or contract employees?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Contract	Company	Contract	Contract	Contract	Contract

From discussion, the difference between the Managing Director and the Operations Manager on this somewhat crucial question would from discussion appear to be the meaning of the term 'Company employee'.

To the Managing Director it means somebody who is directly employed by the Company on an open-ended basis, who receives a salary both at sea and also whilst he is home on leave.

To the Operations Manager it means someone who is on contract to the company for a fixed term and who has worked several such contracts in succession so that by virtue of long term service he is regarded as a 'Company employee'.

This difference most likely stems from the different managerial backgrounds of the two people, the former having served with a major international oil company for nearly thirty years and the latter having worked mainly for commercial ship operators.

Q.C.2 Are ships' senior officers Company employees or contract employees?

All respondents agreed that they are all Contract Employees.

Q.C.3 Are ships' junior officers Company employees or contract employees?

All respondents agreed that they are all Contract Employees.

Q.C.4 Are ships' ratings Company employees or contract employees?

All respondents agreed that they are all Contract Employees

Q.C.5 Does the company use an established crewing agency for contract sea staff?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational /Managerial Group	A	B	C	B	D	D
	Partially. Agencies used for West Africans and U.K. seafarers. Rest are 'walk-ins'.	Only selected agencies after background checks	Yes, agencies have facilities to vet validity of seafarers documents	3 in the Philippines one of which is used purely for West Africa crewing.	3 in the Philippines (1 to be discontinued) 1 in India, 1 in U.K. & 1 in Singapore	2 in the Philippines, 1 in India, 1 in U.K. and 1 in Singapore

Surprisingly, this seemingly straightforward question elicited quite different responses with the most marked differences being across Educational / Managerial Groups. This tends to indicate a difference of opinion about what constitutes an 'established crewing agency' rather than a lack of knowledge of the Company's crewing procedures.

Q.C.6 Does the company have a policy regarding the nationality of the crew or are crewmembers of mixed nationalities.

All respondents were agreed that the crews of the vessels were best described as:

- *Mainly Filipino ratings and junior officers;*
- *Multinational senior officers of whom 50% are Filipino;*
- *The company had no specific crewing policy regarding the number of different nationals employed on a vessel nor any exclusive policies regarding employment of any particular nationality.*

Q.C.7 What is the official language of communication on board Company vessels and between the operations office and vessels?

All respondents were agreed that the official language on board the vessels and between the vessels and the shore was English.

Q.C.8 Who, if anybody, ensures that crewmembers have an adequate command of the official language of communication?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Personnel Dept.	Interviews, both personal and telephonic by crewing agency, verify the ratings' language capability	Operations Dept for officers and crewing dept for ratings.	Not sure how new intakes are checked. Agency should check them.	Captains, Chief Engineers and Chief Officers routed through office. If not possible then at least will talk on telephone	Captains and senior officers come through the office or are interviewed on telephone.

All respondents were quite sure that somebody checked that new employees had an adequate command of English but there were quite different views about who was responsible for carrying out the checks. The Operations Manager did not even mention Officers in this context, only ratings.

Q.C.9 What background checks does the Company make on new (or potential) seagoing employees?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Certificates checked through the flag state. No other documents are checked. References are not taken up: discharge entries in Seamen's books are inspected.	Validity of Seafarers Certificates checked, references taken up from former employers and candidates interviewed	Company has a very strict and efficient system for checking validity of certificates, documents and references. In 2000 it was discovered that 93% of officers had false certificates.	Validity of Seafarers Certificates and documents checked and references taken up from former employers.	All Seafarer Certificates and validity of Seamen's book. References taken up for Officers.	Seafarers Certificates and documents all checked and former employers asked for references for officers.

Q.C.10 Who makes the checks referred to in Question.9 above?

Everyone was agreed that the Personnel Department were responsible for checking the validity of Seafarers' Certificates. In addition, the Operations Superintendent, HR Manager and Crewing Supervisor all noted that for Filipino seafarers the Philippines Overseas Employment Agency (POEA) checked all Seafarers' Certificates and Documents before going on contract.

D. SAFETY, EDUCATION & TRAINING PERCEPTIONS

Q.D.1 Briefly describe in your own words what you understand by the following:

Hazard:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	An event likely to cause the company loss of time or money or to create bad publicity.	Any potentially dangerous situation that could result in an incident or accident.	A situation that could cause harm.	Anything that you can identify that can later cause accidents if not rectified.	Danger.	Danger.

Risk:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	2	3	4
Educational / Managerial Group	A	B	C	D	D	B
	Something that is outside normal operating procedures or day-to-day events of the vessel or the people on board.	Anything that could lead to potential liabilities for the person, vessel or company.	Chance of a person and the potential for harm coming together.	Taking a chance.	Emergency	Anything that can actually become a hazard.

Safety:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Awareness of the working environment from both a physical and a place perception of what the person is doing or where he is.	Doing a job right the first time with no risk.	Free from harm.	Protecting yourself and the environment.	To try and avoid accidents, bodily harm, etc.	Taking preventive action before doing anything.

Safety Culture:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	A programme adopted in the company by employees throughout the company from top to bottom that is manifested in every act that is performed.	Implementing the attitude amongst staff of doing things correctly the first time.	The way you think generally about being free from harm in an organisation	How you have been indoctrinated in safety and how you have observed safety throughout your life. A mindset of an individual.	Everybody works in a safe manner and safe environment and policies are available to all.	Working in a safe place and a safe manner.

Safety Management System:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	A system that enables the company to prescribe their system onto the individuals working within the company and on the company as a whole.	An SMS incorporates and documents the way of doing things correctly the first time.	A documented system that communicates the system to and from the people using it.	A procedure developed by a company to comply with ISM code requirements.	An SMS is to prove that you are using the company system. The chain of command is in the company system. Management can prove from records that the system is in place and in use.	An SMS is a system to comply with the ISM code.

Analysis of the above responses to Question 1 of this section is most interesting because it does show a divide, albeit minimal, between Western and Eastern thinking with regard to safety management.

The Western approach has a tendency to be internally oriented, the respondents seeing people being involved in their actions and being involved with the implementation of safe working practices.

The Eastern approach is more externally oriented with respondents indicating that the system is imposed upon individuals so that, if they follow the rules laid down by the company, they will avoid accidents.

However, the divide is minimal and far from conclusive.

Q.D.2 Do you think Safety Training is effective?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes	Yes if conducted in the right atmosphere – which means giving ownership and understanding to the participants not just telling them what they must do.	Yes, provided that motivation and delivery are correct.	I believe it is effective. When in command, if you give continuous safety training to the crew they become more safety conscious.	Yes. It is a 'must' because it provides experience.	Yes, very important. It works and it is required by clients.

Q.D.3 Describe briefly whether you consider there is any connection between professional training and safety training:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Marginal	Yes. The professional training teaches you <i>what</i> to do and the safety training teaches you how to do it without risk.	Yes: any vocational training should include the inherent safety training.	Yes. Safety is a continuous process, a mindset, and the individual is his own safety officer. No one can enforce safety if the individual does not have the right attitude and knowledge of the danger, e.g. ratings wearing safety harnesses when working overside or up a mast.	Yes. It refers to specialised training, e.g. slinging, rigging, etc.	Yes, specialist training - electronics, etc - is a help.

Q.D.4 Does the Company provide training for office-based staff? If 'Yes', please specify:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes. ISM auditor training, safety courses, computer and IT literacy, environmental training, safety training, recycling training.	Yes. Internal auditor training for everyone required.	Yes, by request. Courses are advertised on the notice board. There is also some in-house training.	Not sure.	Yes. ISO 14000, computers, safety and tap root training.	Yes, safety training, computers etc.

Q.D.5 Does the Company provide training for seagoing staff? If 'Yes', please specify:

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes. Fire fighting, safety, ISM, H ₂ S, Fast Rescue Craft, first aid.	On-board training by means of video cassettes and briefings by the Master and Chief Engineer.	Financial support is given for mandatory training as motivation. Opportunity for vocational training has been offered but so far during the past six months there has been no response.	Yes. Preliminary on-board training by Captain and senior officers.	Only where the client has specialist requirements. Otherwise rely on STCW certificates.	Formerly there was in-house training but not now because the facilities no longer exist.

Q.D.6 Who in the Company is responsible for training?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	The DPA. He does some of the training himself and some is outsourced	The HSE Manger.	The HR Manager and the DPA	QA-HSE Manger.	Department heads in consultation with HR Manager	Department heads.

Q.D.7 How aware are you of the provisions of the STCW 95 Convention, Fully Aware, Reasonably Aware, Slightly Aware or Not Aware?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Fully aware.	Fully aware.	Fully aware. In top 20% world wide	Reasonably aware.	Reasonably aware	Reasonably aware.

Q.D.8 Has the Company made any changes or administrative provisions specifically to cater for the implementation of STCW 95?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes: lots of checking of licences, certificates, crewing levels and working hours.	Yes: screening of crew members' certificates and provision of early breaks to complete certification	Yes: e.g. log book entries of watch-keeping hours; all employees must have STCW 95 certificates	Yes: we don't employ crew without the correct documentation . Multiple applications for flag state documentation	Yes: document checking and ensuring compliance	Don't really know.

Q.D.9 Which Convention do you think will have the most effect on raising safety standards in shipping: The ISM Code, STCW 95, Neither, or they will have Equal Effect?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	The ISM Code. People are getting around STCW 95	The ISM Code. It gives you more detail of what you <i>must</i> do on board. STCW to most people just means you need an extra bit of paper to be able to work on board.	The ISM Code 20%, STCW 95 80%.	Equal effect.	The ISM Code is to ensure that the company is following IMO guidelines.	STCW is a 'must'. ISM provides guidelines to follow an SMS.

Q.D.10 Have you any safety related qualifications?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes. First aid, fire fighting, tap root training, survival at sea, helicopter evacuation.	Yes. Internal auditor.	Yes, ISM lead auditor. But most of my safety knowledge is experience related.	Yes. Officer's STCW qualifications In-house safety training courses, Singapore Polytechnic training, and internal auditor course.	Yes. Basic auditor's course.	Yes. Pre-sea training course.

Q.D.11 Was any of your safety training provided by the Company?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Not really. All my training was provided by previous employers. However, we do conduct emergency response drills on a six monthly basis, which adds to my experience.	Yes. The company sent me on the Internal Auditor's course.	No.	Yes. The company provided the in-house training and provided for me to attend Singapore Polytechnic and the ISM Auditor's course.	Yes. The company sent me on the Basic Auditor's course.	No.

Q.D.12 Are you a member of a professional body or learned society?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes: Nautical Institute, Honourable Company of Master Mariners. The company is a member of the Association of Contractors	No, not at present.	Yes: IOSH	No.	No.	No.

Q.D.13 Have you received any training specifically related to ISM?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes; two-day Auditor course.	Yes: Internal Auditor training.	Yes: ISM Lead Auditor training.	Yes: ISM internal auditor course, conducted by Ferriby Marine Consultants in Singapore.	Yes: In-house, two-hour seminar.	Yes: in-house, two-hour seminar.

E. ISM SYSTEM PROFILE

Q.E.1 Has the Company got a valid DOC? If so, who issued the DOC: Flag State Administration, Classification Society on behalf of Flag State, or another organisation on behalf of Flag State?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes. Class on behalf of Flag State	Yes. Class on behalf of Flag State	Yes, 5: 1 issued by SVG 4 issued by Class on behalf of Flag State	Yes. Class on behalf of Flag State. The company has vessels registered in several different countries and therefore several DOCs.	Yes B.V.	Yes B.V.

Q.E.2 How long has the Company had a valid DOC:

Less than 1 year; 1 – 2 years; More than 2 years?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	3 years	About 2 years	More than 2 years	Originally issued in 1999 but later withdrawn. Got it back about 2 years ago	Not sure. About two years.	Don't know precisely.

Q.E.3 Have all the vessels in the fleet got a valid SMC? Yes / No

All respondents were agreed that all vessels in the fleet had a valid SMC even though, as pointed out by the HSE Manager, only eleven of the vessels in the entire fleet actually required one under the regulations.

Q.E.4. If answer to previous question is 'No', what percentage of fleet vessels has a valid SMC:

- Less than 10% 30% - 60%
 10% - 30% More than 60%

Question not applicable (see previous question and response)

Q.E.5 Who issued the SMC:

- Flag State Administration
 Classification Society on behalf of Flag State
 Other organisation on behalf of Flag State (Please specify) _____

All respondents agreed that Class issued the SMCs on behalf of the Flag State.

Q.E.6 Who prepared the ISM documentation:

External Consultant; Member of Shore Staff; Member of Sea Staff; Shore Staff & Sea Staff jointly; or other agency?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	American partner company	Member of shore staff	External consultant together with members of the shore staff. 80% was later revised by the DPA with ships' staff assistance. The documentation is still under review.	The first SMS was developed by the QA-HSE Manager. Now we are trying to develop a joint system with Nyon	Safety department with assistance from other people	Not sure.

Q.E.7 Who in the Company is the DPA:

The Managing Director; Technical Manager; Operations Manager; a Superintendent; the Safety Manager or another person?

All respondents agreed that the QA- HSE Manager (i.e. the Safety Manager) was also the DPA.

Q.E.8 Who conducts the internal audits of the Company ISM System?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	HSE Manager together with Master and Chief Engineer on shore assignment	Internal auditors and HSE department	14 internal auditors (trained company staff) four of whom are lead auditors. External auditors on an <i>ad hoc</i> basis	The QA-HSE Manager appoints internal auditors. They include Superintendents	HSE Department	Safety Department

F. SAFETY CLIMATE

Q.F.1 Do you believe the Company has a genuine Safety Culture?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	No	Yes	Yes	Yes – just getting going	Yes	Yes

Q.F.2 Where do you believe the Company Safety Culture stands on a scale of 0 to 10, where 0 = low priority and 10 = high priority?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	3	6	7	7	6.5	7

Q.F.3 What do you believe is prime motivation behind the Company's Safety Management policies? For example, do you believe that it is to comply with regulatory requirements or to enhance safety performance, to avoid legal actions or to shift responsibility for safety from shore to ship? Or do you think there are other reasons?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Top management drive it to ensure safety on board the vessels but middle management drive it to comply with regulatory requirements	To enhance safety performance	To enhance safety performance and in order to comply with safety requirements	To comply with regulatory requirements, enhance safety performance and avoid legal actions. However, the prime reason is for commercial considerations, e.g. boats under 500 grt do not require ISM but Company Ado it anyway for marketing reasons – safety is an added bonus.	To comply with regulatory requirements	To comply with regulatory requirements

Q.F.4 In your experience, what accidents that occur on Company ships are reported to the Company ashore?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	All lost time incidents. If the ship does not report it the Client does.	Every accident	All lost time incidents and every accident because the company operates a no-blame culture instigated by the M.D. and the D.P.A.	Most accidents	Every accident	Every accident

Q.F.5 In your experience, are 'near misses' reported to the Company ashore?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes	Yes	Yes	Yes	Yes	Yes

Q.F.6 When the Company receives an accident report from a ship would a corrective action be raised and sent to the ship?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Always	Always	Always	All accident reports are analysed by the Safety Department and a memo is sent to the fleet to avoid repetition of the incident elsewhere	No	Never

Q.F.7 If a corrective action is raised is a follow-up audit carried out?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Never	Normally not	Depends upon the type of accident. Yes, if necessary; if the causal factors identify a need.	Most of the time.	Yes	Yes

Q.F.8 Approximately how many accidents are reported in one year for the whole fleet?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	More than 50 including near misses.	Not sure but the data is collated by the Safety Department	The information was immediately available from the computer: 20 in 1998 23 in 1999 17 in 2000 27 in 2001 Note: 2001 was the year in which the no-blame policy was introduced.	About 300 in one year which is well below the 1,000 expected in a fleet of this size.	Not sure	Don't know offhand

Q.F.9 How often does the Company carry out drills to test its emergency response systems?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Twice per year	Twice per year	Twice per year plus: Ship to shore monthly and shipboard drills weekly.	Twice per year. Also, there is a ship to shore drill by each vessel once per year.	Twice per year	Twice per year

Q.F.10 Do you believe that ships' staff can report all accidents and near misses without fear of retribution?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Yes	Yes, because of the no-blame culture.	Yes	Ships' staff are hesitant to report all accidents but it has been emphasised that if they report truthfully there will be no retribution.	Yes, thanks to the new management. For example, in the Company ADuke incident the master was not sacked but transferred to another vessel.	Yes, because of the no-blame policy.

Q.F.11 In your opinion, why is there reluctance on the part of ships' staff to report accidents and / or near misses to the Company ashore? If you feel there is more than one reason, please prioritise the causes [1]...[2]...[3] where [1] is the most important Please do not choose more than three causes.

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	There is no reluctance. However, some accidents and / or near misses are not reported due to sheer laziness on the part of ships' staff.	There is no reluctance	Since the introduction of the no-blame policy, there is no reluctance to report accidents or near misses. Prior to that there was a reluctance because (1) of fear of losing job, (2) fear of adverse effect on career, and (3) a feeling that the company was not interested and didn't really want reports.	Hesitancy to report accidents is probably due to (1) fear of losing job (2) fear of adverse effect on career coupled with a fear of prosecution, and (3) reporting is considered to be a waste of time.	There is no reluctance	There is no reluctance

G. PERCEPTION OF ISM CODE

Q.G.1 From your experience, to what degree do you believe that the ISM Code is achieving its three specific objectives of ensuring:

G.1.1 Safety at sea

G.1.2 Prevention of human injury or loss of life

G.1.3 Avoidance of damage to the marine environment

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
G.1.1	30%	Slight	Significant	Slight	Significant	Significant
G.1.2	30%	Significant	Significant	Training & drills have significantly reduced injuries to the crew	Significant	Significant
G.1.3	30%	Significant	Significant	Significant effect because MARPOL is enforced by the ISM Code	Significant	Significant

Q.G. 2 From your experience, to what degree do you believe that the ISM Code is achieving its purpose of providing an international standard for the safe management and operation of ships and for pollution prevention?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Not noticeably	Significant	80% It boils down to the policing of the system	Significant	Significant	Significant

Q.G.3 Have you personally noticed a reduction of accidents or near misses in your fleet since the introduction of the ISM Code?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	<p>Significant reduction but this coincides with the introduction of other regulations.</p> <p>Too many managers see ISM as a hurdle to jump rather than a system to implement.</p>	Slight reduction	There has been a noticeable reduction in accidents but the reported near misses have increased	There has been an increase in reported accidents because of the new open management system	Significant reduction	Significant reduction

Q.G.4 Have you personally noticed an improvement in the overall condition of the vessels in your fleet since the introduction of the ISM Code?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Significant	Significant improvement	Significant improvement	Yes. There has been a significant improvement in both the physical condition of vessels and in their safe operation.	N/A	N/A

Q.G.5 Have you personally noticed an improvement in the operating standards of the vessels in your fleet since the introduction of the ISM Code?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	There has been a noticeable improvement with more discipline in operating standards	There has been a significant improvement in operating standards	I have noticed a slight improvement in operating standards	I have noticed a slight improvement in operating standards	N/A	N/A

Comparing the responses to Questions G3, G4 and G5 it is quite evident that those people who are closest to the vessels, those who most frequently go on board and carry out safety audits, i.e. the HSE Manager and the Operations Superintendent, have similar views regarding whether or not the introduction of the ISM Code has had any appreciable effect on the safety of vessels, reduction in accidents and improvement in operating standards.

The response from the Operations Manager appeared to be in line with what he thought he ought to say as a senior manager in the Company.

The response of the Managing Director was revealing in so far as it demonstrated a better degree of understanding of what could be expected from the implementation of an SMS. His responses were in some instances quite at variance with those of his managers.

Q.G.6 From your experience what do you believe is the most effective way of improving overall ship operating standards? Please prioritise your responses [1]...[2]...[3] where [1] is the most important. Please do not offer more than three propositions.

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	1. More emphasis on professional training 2. More emphasis on safety training and Quality Control 3. Stricter enforcement of existing regulations	1. More emphasis on professional training 2. More emphasis on safety training 3. More emphasis on quality control	1. More emphasis on both professional and safety training 2. Stricter enforcement of existing regulations 3. Greater regulation of the industry	1. More emphasis on professional training 2. Stricter enforcement of existing regulations 3. More emphasis on safety training	1. More emphasis on Quality Control 2. More emphasis on safety training 3. More emphasis on professional training	1. More emphasis on professional training 2. More emphasis on safety training 3. More emphasis on Quality Control

Q.G.7 How do you perceive the degree of regulation of the shipping industry?

Respondent	M.D.	Ops Mgr	HSE Mgr	Ops Sup	HR Mgr	Crew Sup
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D
	Over regulated	Sufficiently regulated	Under regulated	Sufficiently regulated	Sufficiently regulated	Sufficiently regulated

H. OVERALL SAFETY PERCEPTIONS

Q.H.1 What do you believe are the two most significant potential hazards to safety in the shipping industry?

Managing Director

1. *Poor communications due to both cultural and linguistic differences.*
2. *Different levels of training internationally.*

Operations Manager

Most potential hazards to safety are mainly leadership issues. It is really only one point with two facets.

1. *Insufficient knowledge or commitment from Superintendents inspecting / visiting vessels. (They do not give the ships' staff the drive to implement the Company's policy or are too lax or incompetent to notice deficiencies).*
2. *Safety leadership from the Master and Chief Engineer on board. (They do not enforce safety and so the crew are quite lax in their application of what is really required).*

The other issues of supply of safety gear, written instructions, posting of notices are generally displayed for all to see, but the will to follow is what really counts. We need people to enforce safety when nobody is looking, that is the only way it will work.

Companies are all talking the talk, but we need to help and motivate the people on board to walk the walk.

HSE Manager

1. *Lack of competency.*
2. *Failure of personnel to take responsibility for their actions.*

Operations Superintendent

1. *We have to change the attitude of our seafarers and to do this we have to give them more professional training.*
2. *We have to give ships' crews a sense of ownership of safety systems. The Fleet Officers Conferences are excellent in this respect.*

HR Manager

1. *Gross negligence.*
2. *Lack of safety training.*

Crewing Supervisor

4. *Pressure put on seafarers by clients.*
5. *Low minimum standard of training requirement by the flag state*

ANNEX B

TABULATED TRANSCRIPTS OF KEY INFORMANT INTERVIEW RESPONSES COMPANY B

KEY INFORMANT INTERVIEW RESPONSES

COMPANY B

RESPONDENT PROFILES

Six people in the Company head operations office in England were interviewed. The respondents were selected on the basis of two criteria:

1. All had a responsibility for ensuring safe operation of the vessels by the people on board;
2. Their common cultural backgrounds.

The Respondents

1. Area General Manager
2. Operations Manager
3. Area Safety Manager (& DPA)
4. Technical Director
5. Personnel Manager
6. Senior Crewing Coordinator

Commonalities

- 1 All six respondents were British and of Anglo-Saxon / Celtic origins.
2. The Area Safety Manager and the Personnel Manager had worked for the company for 4 years and 5 years respectively. The other four respondents had each worked for the company for between thirteen and nineteen years.
3. All respondents had successfully completed a course in "ISM Code Familiarisation & Internal Auditor Training".
4. All were living in England.
5. Two respondents were ex-seafarers, a further two had been closely connected with ship operations throughout their careers and two became involved with shipping only when they joined Company B.

Occupational & Educational Backgrounds

1. The Area General Manager was the son of a ship owner and after completing his education had been systematically exposed to ship operations, maintenance and management in various companies over a number of years before taking up a position in his father's company.

2. The Operations Manager started his career working on the fish quays and later joined the shore staff of a trawler company that moved from fishing into the Offshore industry.
3. The Area Safety Manager went to sea in the Catering Department of BP oil tanker company and later transferred to oil rigs and production platforms as a Camp Boss. That gave him a general grounding in HSE with emphasis on hygiene and stimulated his interest in other areas of HSE. He transferred from Catering to the Safety Department on offshore structures and finally came ashore into the Safety Department of Company B.
4. The Technical Director had served at sea as an Engineer on cargo ships, cruise ships and offshore supply vessels. He has a First Class Engineer's Certificate of Competency (Steam and Motor).
5. The Personnel Manager has a degree in Business Management majoring in Human Resources. Prior to joining Company B she was employed in contracts engineering.
6. The Senior Crewing Coordinator had worked in pensions administration with Norwich Union prior to joining Company B HR Department 17 years ago.

INTERVIEW TECHNIQUE & RESPONSES

A semi-structured interview technique was utilised. A list of questions was drawn up and used as an *aide memoir* by the researcher to ensure that each respondent was asked the same questions regarding:

- A. The Company Profile;
- B. Vessel Reporting Procedures
- C. Ship Manning Policies;
- D. Safety, Education and Training Perceptions;
- E. Interpretation of the Company's SMS
- F. Maturity Level of the Company Safety Climate
- G. Perception of the ISM Code
- H. Overall Safety Perceptions

The list of questions was not however, a check box document and was not given to respondents to fill out. Respondents were interviewed individually and there was sufficient latitude for them to answer the questions in their own words.

Analysis of the Responses

For purposes of analysis it would be possible to group the respondents in a number of different ways, such as their level of managerial responsibility, their direct involvement with seafarers, or their own seagoing experience, and then analyse their responses by groupings. However, the objective of the interviews was to determine whether:

3. Significant heuristics or biases emanating from different cultural backgrounds influenced the way in which the respondents viewed safety, particularly with reference to the ISM Code and its implementation;
4. Whether education and training or better policing and enforcement of existing regulations is the better path to follow in ensuring the objectives of the ISM Code are achieved.

For the above reasons and for sake of uniformity with the manner in which the Company A responses were analysed, matrices of the responses against a combination of ethnic origins and cultural backgrounds on the one hand and formal education together with managerial responsibility on the other hand were developed for each of the question areas.

Also, to more readily present the results of the interviews in a tabular format that was directly comparable to those of the Company A interviews, it was useful to assign the same nominal values to the ethnic and educational categories (*Blaxter et al 2000*) as those used for the Company A responses as follows:

VARIABLE	CODE	VARIABLE	CODE
North European	1	Tertiary education and structured managerial development.	A
Indian	2	Tertiary education and informal managerial development	B
Sri Lankan	3	Secondary education and structured training	C
Filipino	4	Secondary education and no structured training	D

COLLATED REPOSSES

A. COMPANY PROFILE

All respondents agreed that the Company was an independent ship owner with twenty-seven vessels. All respondents stated this as a matter of simple fact, and all similarly understood the difference between an SMS meeting the ISM requirements and a QA System accredited as meeting the ISO 9000 Standard.

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
Does the Company have a QA System	NO	NO	NO	NO	NO	NO
If so, is it ISO 9000 accredited	N/A	N/A	N/A	N/A	N/A	N/A

The company in England does not have a Quality Assured, documented system of working. All staff were aware of this and there was no confusion between the documentation required to fulfil ISM requirements and the documentation that would be required to meet the requirements of an approved QA system.

B. VESSEL REPORTING PROFILE

All respondents were asked a series of questions relating to the submission of condition reports by the ships to the company. The questions were:

Q.B.1 Are vessels required to submit condition reports concerning:

Vessel structure; Machinery; Radio & Navigation Equipment;
General Operating Condition; Accommodation;
Overall appearance of vessel; Voyage Repairs Carried Out;
Voyage Repairs Required; Dry-docking Repairs Required;
Status of Classification and flag State Certificates?

Q.B.2 Are the reports submitted on a regular, periodic basis or on an *ad hoc* basis?

Q.B.3 What is the frequency of reporting?

Q.B.4 Who receives the reports?

Q.B.5 How often are vessels usually inspected by technical and operational staff from the Company?

Q.B.6 What is the status of Planned Maintenance in the Company?

All respondents' answers were closely correlated and no significant deviation was noted. All were agreed that there were condition reports that had to be submitted by vessels to the company on a regular basis, mostly on a monthly basis although there were differing frequencies for some reports, that the reports were sent to the Operations Department from where they were distributed and that vessels were inspected on a monthly basis when they returned from safety stand-by duties.

All respondents were also aware that there was an existing Planned Maintenance System (PMS) administered by the Technical Department but only the Technical Director and his staff seemed to know that the PMS comprised two parts:

- 1. A check-box system in the back of the Engine Room logbook. This covered basic maintenance.*
- 2. Shore based tracking and monitoring of the more complex maintenance such as engine overhauls.*

C. SHIP MANNING POLICIES

A series of questions regarding the manning policies of the company elicited very similar from the respondents.

Q.C.1 Are ships' Masters Company employees or contract employees?

All respondents agreed that they are all Company employees.

Q.C.2 Are ships' senior officers Company employees or contract employees?

All respondents agreed that they are all Company employees

Q.C.3 Are ships' junior officers Company employees or contract employees?

All respondents agreed that they are all Company employees.

Q.C.4 Are ships' ratings Company employees or contract employees?

All respondents agreed that they are all Company employees

Q.C.5 Does the company use an established crewing agency for contract sea staff?

All respondents were aware that Company B seagoing staff is employed via Southern Crewing, a wholly owned subsidiary of Company B Marine (International) Ltd.

Q.C.6 Does the company have a policy regarding the nationality of the crew or are crewmembers of mixed nationalities.

All respondents were agreed that the Company has a policy of employing British crews on the vessels as far as practicable but due to a worldwide shortage of seafarers a number of West African and East European Engineers were also employed.

Q.C.7 What is the official language of communication on board Company vessels and between the operations office and vessels?

All respondents were agreed that the official language on board the vessels and between the vessels and the shore was English.

Q.C.8 Who, if anybody, ensures that crewmembers have an adequate command of the official language of communication?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Personnel Dept.	Personnel Dept.	Personnel Dept.	Personnel Dept	Foreigners have to sit an MCA test in English proficiency to obtain a British certificate.	The interviewer

All respondents were quite sure that somebody checked that new entrants to the company had an adequate command of English. However, apparently only the Personnel Manager was aware that all foreign nationals who wish to sail on British ships not only have to have a Certificate of Competency from their home country but also have to sit a Marine & Coastguard Agency examination to demonstrate proficiency in English before they will be granted an equivalent British Certificate of Competency enabling them to sail on British ships.

Q.C.9 What background checks does the Company make on new (or potential) seagoing employees?

All respondents were agreed that the Company routinely validated the validity of Seafarers' Certificates of Competency and other documentation of new employees.

Q.C.10 Who makes the checks referred to in Question.9 above?

Everyone was agreed that the Personnel Department were responsible for checking the validity of Seafarers' Certificates. The Technical Director added that not only were references from former employers taken up but that additional background checks were made by Heads of Departments or their deputies when employing senior officers.

D. SAFETY, EDUCATION & TRAINING PERCEPTIONS

Q.D.1 Briefly describe in your own words what you understand by the following:

Hazard:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	A potential risk.	Something that you have not got much control over waiting to trip you up.	Something that can cause you harm.	A potential danger.	Something that could cause an accident	A danger: something that could cause an accident or injury.

Risk:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	How likely something is to happen	Always there but not always aware of the problem.	Likelihood of that (a hazard) happening.	Whether it is safe to do something or not.	Possibility of a hazard eventuating	How much danger there is in a procedure.

Safety:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Protecting others.	Overall management approach. Everybody is involved in safety. Ourselves and others. More empowerment.	Everything to do with ensuring no harm comes to people or damage to equipment.	Being more careful.	Personal protection of yourself and others.	Working so that no one gets hurt or that the environment does not get damaged. You are responsible for yourself and others.

Safety Culture:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	A way of corporate thinking led from the top by example. The Corporate CEO is very keen on safety.	Looking after other people's safety as well as your own.	Beliefs of the organisation and the actions of the people in the organisation	Training people to be more careful and look after each other. Emphasis on doing things properly and doing that automatically.	Building a culture in which safety is a priority, both your own safety and that of others.	The procedures, methods of reporting, etc that the company works to, e.g. the PAUSE culture.

Safety Management System:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	A system to ensure you are operating as safely as possible; reducing impact on the environment and third persons	Formalising company's safe working practices and normal routine procedures.	Formal system used to manage the way we do our business.	Formalising proper procedures.	A system in place detailing procedures of working in a safe way. A laid down procedure of safe working practices.	The ISM system to which we work: the company's formalised procedures.

Analysis of the above responses shows markedly similar safety perceptions among the respondents. This may be due to the fact that all respondents are of the same ethnic origins and cultural background or, perhaps more likely, to the fact that all respondents had successfully completed a course in "ISM Code Familiarisation & Internal Auditor Training".

Essentially an overall active response indicating an internal orientation rather than a reactive response indicating an external orientation.

Q.D.2 Do you think Safety Training is effective?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Generally yes. Depending on course content. Raises awareness.	Yes, but it depends upon the person's background and attitude. Some who are already well versed in safety will get less out of it than others.	Yes.	Yes. An accident in a shipyard in which two men were killed brought it home to everyone.	Yes, provided it is continuous. A one-off course is not effective.	Yes, provided it is done on an ongoing basis.

The HSE Manager and the Technical Director responded both positively and unreservedly to the above question. The other four respondents also responded positively but qualified their responses to some degree.

Q.D.3 Describe briefly whether you consider there is any connection between professional training and safety training:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes. Competency factor	Yes. Teaches the correct way to do things. Reinforces the safety message	Yes: professional training should lead to competence and competence should lead to safety. However, not enough emphasis is put on safety in professional training.	Yes. The link is competency. You <u>must</u> have the basics.	Yes, Professional training shows you how to do things safely.	Yes. The better trained a person is the better he can do his job and the less likely he is to have an accident.

The response to this question from all respondents is extremely positive. Each has indicated that professional training leads to competency and that competency is the key to safety.

Q.D.4 Does the Company provide training for office-based staff?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes.	Yes. If the need is there then the company will support it.	Yes, but not on a structured basis. Training is provided <i>ad hoc</i> when seen to be beneficial.	Yes. I have just been on a communications course and a PAUSE course (Prevent Accidents Using Safety Equipment)	Yes. Induction course for new employees plus on-going <i>ad hoc</i> courses.	Yes. I have just completed the communications course.

In light of the preceding question, it is interesting to note that all the specific courses referred to by the respondents were safety training courses and not continuing professional development (CPD) courses.

Q.D.5 Does the Company provide training for seagoing staff?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes.	Yes. The Offshore Safety Stand-by industry has its own requirements over and above STCW.	Yes. The training programme for seafarers is fully structured and managed.	Yes. Primarily safety training but with occasional technical training on an <i>ad hoc</i> basis	Yes. Safety awareness courses, safety officer's course, induction courses when joining vessels.	Yes.

The training provided for seagoing staff was safety orientated and primarily client driven. The focus on safety training seemed to overshadow any requirements that may have existed for job-related functional training.

Q.D.6 Who in the Company is responsible for training?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	HR and Safety Departments plus departmental Heads	The Training Officer in the Personnel Department is responsible for Sea Staff training.	There is a Training Officer within Personnel but some training is arranged by the Safety Department. It is a management function with no clear line of demarcation.	Mainly the DPA and the Training Officer although I occasionally arrange specific technical training	The Training Officer tracks and administers the programme.	Mainly HR and the Safety Department

Again, from the responses, the emphasis is once again upon safety training courses although the existence of vocational training was evident from the references to training courses arranged by departmental heads.

Q.D.7 How aware are you of the provisions of the STCW 95 Convention, Fully Aware, Reasonably Aware, Slightly Aware or Not Aware?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Slightly aware.	Reasonably aware.	Reasonably aware insofar as it affects me	Reasonably aware	Fully aware.	Fully aware.

Q.D.8 Has the Company made any changes or administrative provisions specifically to cater for the implementation of STCW 95? If so, please specify:

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes. Transition courses and conversion courses.	Yes. There is now more emphasis on training.	All STCW mandatory training is offered as required by the staff.	Yes. Training is offered in accordance with the STCW regulations.	Yes. Mostly the introduction of training courses to meet the STCW requirements and ensuring that seafarers' Certificates meet the STCW requirements	Yes. The legal requirements form an embedded part of the ISM Code and are therefore reflected in our Company requirements.

Q.D.9 Which Convention do you think will have the most effect on raising safety standards in shipping: the ISM Code, STCW 95, neither, or they will have equal effect?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	The ISM Code, provided a good system is in place.	The ISM Code.	It depends how they are applied within a company.	From a Putford (i.e. company) point of view the ISM Code. From an industry point of view the STCW 95 Code.	The ISM code because it is on-going whilst the STCW Code operates on a one-off basis.	The ISM Code is your every day running. STCW is only examination requirements.

Q.D.10 Have you any safety related qualifications?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
All respondents had completed an ISM Code Familiarisation & Internal Auditor Training Course. In addition, the following comments were noted:						
	Yes. Offshore Survival Course, Various specialist courses, Oil Major's courses.	Yes. Oil Company short courses and experience	Yes. Numerous Safety Training course Certificates, Lead Auditor, RYA Yacht Master Certificate, currently studying for Diploma in Ship Management.	Yes. Company courses.	Yes. Basic safety course.	Yes. STCW familiarisation

Q.D.11 Was any of your safety training provided by the Company?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes.	Yes.	Yes. This company and previous employer.	Yes.	Yes and No. Firstly at University and subsequent in-house courses.	Yes.

Q.D.12 Are you a member of a professional body or learned society?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	No.	No.	Yes: IOSH	No.	Yes. CIPD	No.

Q.D.13 Have you received any training specifically related to ISM?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes. ISM Code familiarisation and internal auditor training.	Yes. ISM Code familiarisation and internal auditor training.	Yes ISM Code familiarisation and internal auditor training.	Yes. ISM Code familiarisation and internal auditor training.	Yes. ISM Code familiarisation and internal auditor training.	Yes. ISM Code familiarisation and internal auditor training.

E. ISM SYSTEM PROFILE

Q.E.1 Has the Company got a valid DOC? If so, who issued the DOC: Flag State Administration, Classification Society on behalf of Flag State, or another organisation on behalf of Flag State?

All respondents were aware that the Company had a valid DOC and that it was issued by the Flag State Administration. The Area Safety Manager noted that it had originally been issued by the DNV Classification Society,

Q.E.2 How long has the Company had a valid DOC:

- Less than 1 year
- 1 – 2 years
- More than 2 years

All respondents were aware that the Company had been in possession of a valid DOC for more than 2 years. The Area Safety Manager advised that the original DOC was awarded 7 years ago in 1998.

Q.E.3 Have all the vessels in the fleet got a valid SMC?

All respondents were aware that all the vessels in the fleet had a valid SMC.

Q.E.4 If 'No', what percentage of fleet vessels have a valid SMC:

- | | | | |
|---------------|--------------------------|---------------|--------------------------|
| Less than 10% | <input type="checkbox"/> | 30% - 60% | <input type="checkbox"/> |
| 10% - 30% | <input type="checkbox"/> | More than 60% | <input type="checkbox"/> |

In light of the answer to QD4, this question was not applicable.

Q.E.5 Who issued the SMC:

- Flag State Administration
- Classification Society on behalf of Flag State
- Other organisation on behalf of Flag State (Please specify) _____

In light of the answer to QD.1, this question was not applicable.

Q.E.6 Who prepared the ISM documentation?

The Area General Manager advised that an External Consultant drew up the initial ISM documentation and involved all the shore staff and a large number of sea staff in designing the Safety Management System. The Area Safety Manager noted that documented systems were already in existence and the External Consultant had pulled them together into an integrated ISM system.

Q.E.7 Who in the Company is the DPA?

All respondents were aware that the Area Safety Manager was also the DPA.

Q.E.8 Who conducts the internal audits of the Company ISM System?

All interviewees were aware that internal audits of the Company system are carried out by an audit team comprising:

- *The Area Safety Manager;*
- *The Operations Manager; and*
- *One other person*

F. SAFETY CLIMATE

Q.F.1 Do you believe the Company has a genuine Safety Culture?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Yes	Yes	Yes	Yes. Definitely	Yes	Yes

Q.F.2 Where do you believe the Company Safety Culture stands on a scale of 0 to 10, where 0 = low priority and 10 = high priority?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	8	7	7	10	8	9

The responses to the first two questions in this section indicate that all the respondents are quite positive that the company not only has a genuine safety culture but also that the culture is already well developed. This finding was supported by the responses received to the next question: see below.

Q.F.3 What do you believe is prime motivation behind the Company's Safety Management policies? For example, do you believe that it is to comply with regulatory requirements or to enhance safety performance, to avoid legal actions or to shift responsibility for safety from shore to ship? Or do you think there are other reasons?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	50% to comply with regulatory requirements and 50% to enhance safety performance.	To enhance safety performance	1 st – to avoid legal actions 2 nd – to comply with regulatory requirements 3 rd – to enhance safety performance	To enhance safety performance	Primarily to enhance safety performance and as a secondary consideration to avoid legal actions.	A combination of factors: 1. Commercial advantage; 2. regulatory requirements 3. To keep employees safe 4. Less accidents means less expenditure

Q.F.4 In your experience, what accidents that occur on Company ships are reported to the Company ashore?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	Every accident – without a doubt.	Most accidents. Reporting is encouraged. If you can catch the minor incidents you can avoid the major.	Almost every accident.	Every accident - emphatically	Don't know.	Every accident.

Q.F.5 In your experience, are 'near misses' reported to the Company ashore?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Yes	Yes. As mentioned in response to the last question, reporting is encouraged.	Yes. The company promotes a Just Culture, i.e. a no-blame culture but people must take responsibility for their actions.	Yes - emphatically	Don't know	Yes

Q.F.6 When the Company receives an accident report from a ship would a corrective action be raised and sent to the ship?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Yes.	Depends upon level of severity. Safety Department currently has responsibility for investigation although that is currently changing.	Levelled response. All accident reports are investigated at Level 1 (i.e. on board ship). Level 2 is a shore investigation by the Safety Department and if not happy then a corrective action is issued. Level 3 is a shore investigation of serious incidents such as a LTI and involves senior managers. Level 4 is an investigation at Corporate level of very serious incidents. NOTE: The levelled response system is based on the potential of the incident and not the actual outcome.	Always	N/A	N/A

Q.F.7 If a corrective action is raised is a follow-up audit carried out?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Yes	Normally yes	Always	As required	N/A	N/A.

Q.F.8 Approximately how many accidents are reported in one year for the whole fleet?

The answer to this question was immediately available from the company's computer files and the figures are used in Chapter X111 of the thesis.

Q.F.9 How often does the Company carry out drills to test its emergency response systems?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Once per year	Once per year	Once per year.	Twice per year	Once per year	Once per year.

Q.F.10 Do you believe that ships, staff can report all accidents and near misses without fear of retribution?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Yes	Yes, because there is more chance of retribution if an incident <u>not</u> reported.	Yes. Definitely. It's when they don't report them that they should fear retribution.	Yes, thanks to the no-blame culture.	Yes.	Yes.

Q.F.11 In your opinion, why is there reluctance on the part of ships' staff to report accidents and / or near misses to the Company ashore? If you feel there is more than one reason, please prioritise the causes [1]...[2]...[3] where [1] is the most important Please do not choose more than three causes.

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	There is no reluctance	There is no reluctance There is no 'target zero' approach so people do not feel a need to hide accidents. Justness and pragmatism. No-blame culture tempered with responsibility for one's own actions.	Fear of losing job. Ships' staff perceive the company to have a different culture from that which actually exists.	There is no reluctance	There is no reluctance	There is no reluctance

G. PERCEPTION OF ISM CODE

Q.G.1 From your experience, to what degree do you believe that the ISM Code is achieving its three specific objectives of ensuring:

G.1.1 Safety at sea;

G.1.2 Prevention of human injury or loss of life; and

G.1.3 Avoidance of damage to the marine environment?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
G.1.1	Generally good but hampered by the fact that there are a few dodgy Flag States	Very positive effect	Significant degree when / if used correctly.	Significant degree	To a significant degree. Ships will frequently notify the office if they have concerns. There is a two-way communication	Definitely works very well in the company and probably in the industry as a whole. Written procedures leave less room for mis-interpretation
G.1.2						
G.1.3						

Q.G. 2 From your experience, to what degree do you believe that the ISM Code is achieving its purpose of providing an international standard for the safe management and operation of ships and for pollution prevention?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C
	As per the previous question.	Yes, but the problem is that some Flag States are not as conscientious as the MCA in enforcing the rules. There is a lack of consistency	You can be compliant without achieving improvements in safety.	Significant	It is providing a standard but some Flag States are not so enthusiastic as others in enforcing regulations	As per the previous question

Q.G.3 Have you personally noticed a reduction of accidents or near misses in your fleet since the introduction of the ISM Code?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	No. We were heading in the right direction before the introduction of the ISM Code. Since its introduction more matters of a minor nature are being reported.	Slight reduction plus a definite increase in safety awareness.	There has been an increase in reporting but the serious high potential accidents have reduced.	Yes, but due more to company safety policies and priorities than anything to do with the ISM Code.	Significant reduction. However, that could be due to the direction in which the company was already heading.	Yes, but there has been a change in the role of company vessels. The initial concept was safety stand-by: now there is a lot of cargo work.

Q.G.4 Have you personally noticed an improvement in the overall condition of the vessels in your fleet since the introduction of the ISM Code?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	The vessels are all well maintained. The PMS has helped considerably.	Yes, but not due to the introduction of the ISM Code. However, the Code reinforces the maintenance.	The fleet has always been well looked after. It is an old fleet. It is better to spend on repair than capital acquisition	Yes, but due more to company safety policies and priorities than anything to do with the ISM Code.	Yes, but that could be due to the direction in which the company was already heading	Yes. There has been a significant improvement

Q.G.5 Have you personally noticed an improvement in the operating standards of the vessels in your fleet since the introduction of the ISM Code?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	Improvement in operating standards is mostly client driven.	The company has not changed its operating policies but the systems are now formalised and also act as a tool for management to motivate the crew.	It is difficult to judge	Slightly	Yes but that could be due to the direction in which the company was already heading	Significantly

Comparing the responses to Questions G3, G4 and G5 it is quite evident that all respondents felt that there had been a general overall improvement in operating and maintenance standards since the introduction of the ISM Code but not necessarily because of its introduction. Most felt that the company was already heading in the 'right direction' prior to the introduction of the Code, including the introduction of a Planned Maintenance System.

Q.G.6 From your experience what do you believe is the most effective way of improving overall ship operating standards? Please prioritise your responses [1]...[2]...[3] where [1] is the most important. Please do not offer more than three propositions.

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	1. Greater regulation of the industry 2. Stricter enforcement of existing regulations 3. More emphasis on quality control.	1. Stricter enforcement of existing regulations. 2. More emphasis on safety training 3. More emphasis on professional training	1. More emphasis on safety training 2. More emphasis on professional training 3. More emphasis on quality control	1. More emphasis on professional training 2. More emphasis on safety training 3. Stricter enforcement of existing regulations	1. More emphasis on safety training 2. More emphasis on professional training 3. Stricter enforcement of existing regulations	1. More emphasis on safety training 2. More emphasis on quality control 3. Stricter enforcement of existing regulations

Q.G.7 How do you perceive the degree of regulation of the shipping industry?

Respondent	Area G.M.	Ops Mgr	Area HSE Mgr	Tech Director	HR Mgr	Snr Crew Coord.
Ethnic Group	1	1	1	1	1	1
Educational /Managerial Group	A	D	C	B	A	C
	About right. Do not require further increase in regulations	Sufficiently regulated	Sufficiently regulated	Sufficiently regulated	Sufficiently regulated but there are times when the regulations can be overbearing. There are too many companies employing foreign crews who have a poor command of English.	Sufficiently regulated. About right.

The Area General Manager's responses to questions QG.6 and QG.7 are contradictory. In the first response he thought greater regulation of the industry would improve safety standards but in the second he thought the industry was already sufficiently regulated and no additional regulation was required.

H. OVERALL SAFETY PERCEPTIONS

Q.H.1 What do you believe are the two most significant potential hazards to safety in the shipping industry?

Area General Manager

3. *People's competency.*
4. *Differing standards between Flag States.*

Operations Manager

3. *Commercial pressures.*
4. *Shortage of qualified personnel.*

Area Safety Manager

3. *People (behavioural).*
4. *The weather*

Technical Director

6. *Professional competency.*
7. *Lack of basic training.*

Personnel Manager

1. *Personnel are not properly qualified and trained.*
2. *Correct tools not provided to do the job properly.*

Senior Crewing Coordinator

3. *Language barrier, particularly on Safety Stand-by vessels.*
4. *Reluctance of seafarers to change. This could be redressed by more training.*

ANNEX C

COMPARATIVE ANALYSIS OF INTERVIEW RESPONSES

KEY INFORMANT INTERVIEWS

COMPARATIVE RESPONSE ANALYSIS

C.1 THE RESPONDENTS

The respondents listed below were each interviewed regarding their personal views of the company's safety philosophy and safety record, particularly with regards to the implementation and effectiveness of the ISM Code:

Company A	Company B
7. Managing Director	Area General Manager
8. Operations Manager	Operations Manager
9. Operations Superintendent	Technical Director
10. QA-HSE Manager	Area Safety Manager
11. HR Manager	Personnel Manager
12. Crewing Supervisor	Senior Crewing Coordinator

During the empirical research, Company B did not have an Operations Superintendent: the duties being undertaken by the Technical Director. Therefore, the Operations Superintendent was interviewed in Company A and the Technical Director in Company B.

The respondents were selected on the basis of two criteria:

1. All had a responsibility within the parameters of their job function for ensuring safe operation of the vessels by the people on board;
2. They represented the various tiers of management and supervision within the companies for which they worked.

Transcripts of the interview questions and the respondents' answers in tabulated format are attached as Annexes A and B.

C.2 COMPANY A RESPONDENTS

Utilising the coding system shown in Table 4 at section 10.4.3 of Chapter X, the following is an overall view of the respondents.

Respondent	Managing Director	Operations Manager	DPA	Operations Superintendent	H.R. Manager	Crewing Supervisor
Ethnic Group	1	2	1	4	2	3
Educational / Managerial Group	A	B	C	B	D	D

C.2.1 Ethnic Origins

Two (the M.D. and the DPA) were British of Anglo Saxon-Celtic origins

Two (the Operations Manager and the HR Manager) were North Indian

One (the Operations Superintendent) was Filipino

One (the Crewing Supervisor) was Sri Lankan

C.2.2 Cultural Backgrounds

There were a number of differing cultural influences bearing upon the respondents:

1. The Managing Director felt that his cultural background was North European although he regarded his country of domicile as U.K. and U.A.E.
2. The Operations Manager felt that his cultural background was Indian-Western; English was the language used in his home and he regarded his country of residence as India.
3. The DPA considered his cultural background as Western / Oriental and his country of domicile as Malaysia.

4. The Operations Superintendent considered that he was both ethnically and culturally Filipino and his home was in the Philippines.
5. The HR Manager had lived in the U.A.E. for 25 years together with his family. Such people are known locally as Non-Resident Indian or NRI
6. The Crewing Supervisor had lived in the U.A.E. for 14 years and although he said his country of domicile was the U.A.E. his family lived in Sri Lanka.

C.2.3 Commonalities

1. All had worked for the company for between one and five years
2. All were living in Dubai
3. Four of the six respondents were ex-seafarers and a fifth had worked on offshore oilrigs and production platforms. The sixth had worked as a shore based Radio Operator communicating with vessels.

C.2.4 Experience & Educational Background

1. The Managing Director, Operations Manager and Operations Superintendent were all ex-seafarers and each had Class I (Master Foreign Going) Certificates of Competency. The Managing Director also had a Diploma in Surveying from the Nautical Institute and had spent over 20 years in senior positions with a major international oil company.
2. The DPA had completed secondary school but had no tertiary education. His practical safety training and experience however, enabled him to become a member of the Institute of Occupational Safety and Health. He had also trained as a Lead Auditor (IRCA)
3. The HR Manager and the Crewing Supervisor had finished secondary school but had no formal academic or professional qualifications.

C.3 COMPANY B RESPONDENTS

Respondent	Area General Manager	Operations Manager	DPA	Technical Director	HR Manager	Senior Crewing Coordinator
Ethnic Group	1	1	1	1	1	1
Educational / Managerial Group	A	D	C	B	A	C

C.3.1 Ethnic Origins and Cultural Backgrounds

All six respondents were British and of Anglo-Saxon / Celtic origins.

C.3.2 Commonalities

1. The Area Safety Manager and the Personnel Manager had worked for the company for 4 years and 5 years respectively. The other four respondents had each worked for the company for between thirteen and nineteen years.
2. All of the respondents had successfully completed a course in "ISM Code Familiarisation & Internal Auditor Training".
3. All were living in England.
4. Two of the respondents were ex-seafarers and a further two had been closely connected with ships and shipping for most of their careers. The other two respondents became involved with shipping only when they joined the company.

C.3.3 Occupational & Educational Backgrounds

1. The Area General Manager was the son of a ship owner and after completing his education had undergone a management apprenticeship, with systematic exposure to the various aspects of ship operations, maintenance and management in various companies over a number of years before taking up a position in his father's company.
2. The Operations Manager started his career working on the fish quays and later joined the shore staff of a trawler company that moved from fishing into the offshore support boat industry.
3. The DPA (Area Safety Manager) sailed in the Catering Department of BP oil tanker company and later transferred to oil rigs and production platforms as a Camp Boss. The experience gave him a general grounding in HSE with emphasis on hygiene that stimulated his interest in other areas of HSE. He transferred from Catering to the Safety Department on offshore structures and finally came ashore into the Safety Department of Company B.
4. The Technical Director had served at sea as an Engineer on cargo ships, cruise ships and offshore supply vessels. He has a First Class Engineer's Certificate of Competency (Steam and Motor).
5. The Personnel Manager has a degree in Business Management majoring in Human Resources. Prior to joining Company B she was employed in contracts engineering.
6. The Senior Crewing Supervisor had a background in pensions' administration with the Norwich Union prior to joining the HR Department of Company B some 17 years ago.

C.4 COMPARISON OF INTERVIEWEE RESPONSES

The tabulated transcripts of the key informant interviews which are attached as Annexes A and B were analysed for comparisons, contrasts and matching patterns.

The following summary identifies salient comparisons, contrasts and emergent patterns on a topic by topic basis.

C.4.1 Company Profile and Vessel Reporting Procedures

The questions in this sector related primarily to matters of fact rather than matters of opinion and were asked primarily to assist in gaining a comprehensive overall picture of the company structure. Therefore, all respondents' answers were very closely correlated and no significant deviation was noted either across the cultural divide or between companies.

With regard to vessel reporting and maintenance requirements, everyone was agreed that:

- There were condition reports that had to be submitted by vessels to the company on a regular basis;
- There were differing frequencies for different reports;
- The reports were sent to the Operations Department from where they were distributed to designated departments;
- Vessels were inspected both regularly and also on an *ad hoc* basis, and in addition there was also a requirement for every vessel to be inspected at least once per annum.

All respondents in both companies were aware that their respective company had a Planned Maintenance System (PMS). In Company A all respondents were aware that the PMS was in the process of being changed from a paper based system to a computerised system. In Company B only the Technical Department staff appeared to be aware that the PMS comprised two parts: a ship based system covering basic maintenance and a shore based system for tracking and monitoring of the more complex maintenance.

C.4.2 Ship Manning Policies

Once again, the questions asked related to matters of fact rather than opinion and there was little in the responses to identify any cultural influenced differences between the interviewees. However, the responses did reveal that the two companies had quite distinct employment philosophies.

Company A employed predominantly Filipino seafarers and relied upon three outside crewing agencies to supply most of the seafaring personnel, although some were directly engaged. But whether supplied by an third party agency or directly engaged, all seagoing personnel were employed on short-term single-voyage contracts.

Company B on the other hand, employed predominantly British seafarers and engaged them exclusively through a single crewing agency, which was a wholly owned subsidiary of Company B Holdings Inc, the parent company of Company B. The personnel employed by Company B had annual rolling contracts of employment with the crewing agency and could therefore be considered as company employees.

The differences in employment philosophies are of some significance when consideration is being given to providing education and training for employees insofar as companies are more inclined to provide education and training for company employees than for casual labour or short-term employees unless required to do so by regulation.

C.4.3 Safety, Education & Training

Safety

Analysis of the responses to the questions regarding safety reveals little overall difference between the respondents across the cultural spectrum. Indeed, there is a great deal of similarity between the responses of the six Company B respondents and two of the Company A respondents: the HSE Manager and the Operations Superintendent. It is considered significant that all eight had received ISM familiarisation and Lead Auditor training.

The views of the other four Company A respondents were not far removed from those of the other respondents and it is noted that the Managing Director and the Operations Manager had both received Lead Auditor training and the HR Manager and Crewing Supervisor had both attended an in-house ISM Code seminar.

Education and Training

All respondents were agreed that safety training is effective although seven of the twelve respondents qualified their agreement with requirements for the training to be conducted in a manner that was motivational, provided the trainees with a sense of ownership, was on-going and had relevant content.

All twelve respondents thought that there was a connection between professional training and safety training. Whilst Company A Managing Director thought the connection was marginal the other eleven respondents thought the connection was fundamental to safety. The general consensus of opinion was summarised in the response of Company B Area Safety Manager who stated that 'Professional training should lead to competence and competence should lead to safety'.

However, despite this consensus of opinion the training offered by both companies was mainly safety training with only a minimal amount of vocational training or continuing professional development being undertaken. None of the respondents referred to Clause 6.5 of the ISM Code which requires companies to establish and maintain procedures for identifying training requirements and ensuring that the requisite training is provided.

When asked about any changes the company had made to provide for the training requirements stipulated by the revised STCW Code, the responses differed across company lines but not across cultural lines. Company A respondents all emphasised checking that seafarers had the correct, valid and current licences and certificates whilst Company B respondents all mentioned the training courses provided by the company to ensure that seafarers they employed received the requisite training. This reflects the different employment philosophies of the companies as outlined above.

Eleven of the twelve respondents thought the ISM Code would be more effective than the STCW Code on raising safety standards in shipping and the twelfth respondent thought the two codes would have equal effect.

Of the twelve respondents only two in each company were members of a professional body or learned society: the HSE/Safety Managers of both companies were members of the Institute of Occupational Safety and Health (IOSH), the Personnel Manager in Company B was a member of the Chartered Institute of Personnel and Development (CIPD) and the Managing Director of Company A was a member of both the Nautical Institute (NI) and the Honourable Company of Master Mariners.

Once again, no divisions of opinion were noted along cultural lines in this section of the interview.

C.4.4 ISM System Profile

All respondents were aware that their respective companies had developed and implemented Safety Management Systems compliant with the ISM Code well before the required date. It was also pointed out by Company A's HSE Manager that all vessels in the fleet had a valid SMC even though eleven of the vessels (i.e. less than one third of the fleet) actually required an SMC under the regulations.

In both companies the HSE/Safety Manager was responsible for arranging internal audits of the system.

The questions related essentially to matters of fact rather than matters of opinion, no culturally influenced differences in the responses were discerned nor any differences of opinion due to varying managerial perspectives.

C.4.5 Safety Climate

All respondents in Company B were quite sure that the company had a genuine safety culture and that it was well developed.

The respondents in Company A were less positive, with the Managing Director stating that the company did not in fact have a genuine safety culture.

The Managing Director of Company A and the Area General Manager of Company B both thought the prime motivation for their respective company's safety management policies was a drive by top management to improve safety performance coupled with a need to comply with regulatory requirements. By and large these views were shared by the other respondents and were reflected in their responses, there being no evidence of any cultural grouping of the views expressed.

All respondents were quite sure that most, if not all accidents and all hazardous occurrences (i.e. 'near misses') were reported. All expressed the opinion that there was no reluctance on the part of ships' staff to report accidents and hazardous occurrences because both companies promoted a no-blame culture, although the Area Safety Manager of Company B felt that ships' staff tended to perceive the company to have a different culture from that which actually existed.

The respondents indicated that both companies had a tiered level of response to accident reports dependant upon the nature and severity of the incident. It was apparent though that the accident response in both companies was very much 'top-down' driven rather than of a 'feed-back and discussion' nature as often shown in SMS schematic diagrams.

C.4.6 Perceptions of the ISM Code.

Respondents were asked whether or not the introduction of the ISM Code has had any appreciable effect on vessel safety, reduction in accidents and improvement in operating standards, and whether or not the ISM Code is achieving its purpose of providing an international standard for the safe management and operation of ships and for pollution prevention. The question elicited varying responses.

Those people closest to the vessels, i.e. those who most frequently go on board and carry out safety audits, all agreed they had seen marked improvements and that the ISM Code was achieving both its objectives and its purpose. There was no division across cultural lines. Three of the respondents however, the Managing Director of Company A, the Area General Manager of Company B and the Operations Manager of Company B, struck a dissonant note. The first felt that whilst the ISM Code was steadily achieving its objectives it had not noticeably made any headway in achieving its purpose of providing an international standard. The other two respondents both noted that the ISM Code was hampered in achieving its purpose because some flag States are not as conscientious as others in enforcing the rules.

Most respondents said they had seen a significant reduction in accidents or hazardous occurrences and an improvement in the overall condition of the vessels since the introduction of the ISM Code. However, the Managing Director of Company A noted that this had coincided with the introduction of other regulations whilst the Area General Manager, Technical Director and Personnel Manager of Company B thought that the reduction was due primarily to new policies that the company had introduced prior to the introduction of the ISM Code. There was no evident division along cultural lines amongst the respondents.

The Company A respondents reported an improvement in operating standards but the Company B respondents were less convinced that there had been any improvement in operating standards in their fleet, at least as a result of the introduction of the ISM Code. Again, there was no evident division along cultural lines amongst the respondents.

In response to the question “From your experience and in order of priority what do you believe are the three most effective ways of improving overall ship operating standards?” the general consensus was:

- a. More emphasis on professional training
- b. More emphasis on safety training and Quality Control
- c. Stricter enforcement of existing regulations.

Two respondents thought that there should be greater regulation of the industry as a whole but when asked how they perceived the degree of regulation in the shipping industry *all* respondents with the exception of Company A’s HSE Manager, thought that the industry was already either sufficiently regulated or over regulated.

C.5 OVERALL SAFETY PERCEPTIONS

Finally, the respondents were asked what they believed were the two most significant potential hazards to safety in the shipping industry. Interestingly, although couched in different terms, one theme was common to all interviewees across both the cultural and managerial divides: a greater emphasis on education and training. This can be seen from the following responses.

C.5.1 Company A

- Managing Director: *Different levels of training internationally;*
- Operations Manager: *Insufficient knowledge or commitment from Superintendents;*
- DPA: *Lack of competency;*
- Operations Superintendent: *We have to change the attitude of our seafarers and to do this we have to give them more professional training;*
- HR Manager: *Lack of safety training;*
- Crewing Supervisor: *Low minimum standard of training requirement by the flag State.*

C.5.2 Company B

- Area General Manager: *People's competence;*
- Operations Manager: *Shortage of qualified personnel;*
- Technical Director: *Professional competency and lack of basic training;*
- Personnel Manager: *Personnel not properly qualified and trained.*
- Senior Crewing Coordinator: *Reluctance of seafarers to change. This could be redressed by more training.*

ANNEX D

CALCULATING ACCIDENT STATISTICS

CALCULATING ACCIDENT STATISTICS

The following definitions and formulae are used when calculating accident statistics in line with OCIMF and OSHA guidelines:

DEFINITIONS

Incident:

An event that results in a fatality or injury to a seafarer onboard ship or whilst ashore on company business.

Lost Workday Case (LWC):

An injury that results in an individual being able to carry out his duties or return to work on a scheduled shift on the day following the injury.

Restricted Work Case (RWC):

An injury that results in an individual being unable to perform all normally assigned work functions during a scheduled shift or being assigned to another job on a temporary or permanent basis on the day following the injury.

Medical Treatment Case (MTC):

Any work related work-related loss of consciousness, injury or illness requiring more than first aid treatment by a qualified medical practitioner.

First Aid Case (FAC):

Any one-time treatment and subsequent observation or minor injuries such as bruises, scratches, cuts, burns, splinters, etc.

Permanent Total Disability (PTD):

Any work injury that incapacitates an employee permanently and results in termination of employment on medical grounds.

Permanent Partial Disability (PPD):

Any work injury that results in the complete loss, or permanent loss of use, of any member or part of the body that partially restricts or limits an employee's basis to work on a permanent basis at sea.

Exposure Hours:

Total number of hours a vessel's crew is exposed to the possibility of suffering the consequences of an incident (24 hours per person per day whilst serving on board).

FORMULAE

Utilising the above outline definitions, the following formulae are used for calculating accident statistics.

Lost Time Injuries (LTIs) are the sum of Fatalities, Permanent Total Disabilities, Permanent Partial Disabilities and Lost Workday Cases, or:

$$\text{LTIs} = \text{Fatalities} + \text{PTD} + \text{PPD} + \text{LWC}$$

Total Recordable Cases (TRCs) are the sum of all work-related fatalities, lost time injuries, restricted work injuries and medical treatment injuries, or:

$$\text{TRCs} = \text{LTIs} + \text{RWCs} + \text{MTCs}$$

Each of these indicators is turned into a frequency rate by dividing the indicator by the exposure hours and multiplying by the factor in terms of which the frequency is to be expressed. For example:

$$\text{LTIF} = \text{LTIs} \times \frac{\underline{200,000}}{\text{Exposure Hours}}$$

This will give a Lost Time Injury Frequency expressed as the number of lost time injuries per 200,000 man-hours.

Similarly:

$$\text{TRCF} = (\text{LTIs} + \text{RWCs} + \text{MTCs}) \times \frac{\underline{200,000}}{\text{Exposure Hours}}$$

This will provide a Total Recordable Case Frequency expressed as the number of total recordable cases per 200,000 man-hours.

The frequencies may be expressed as a rate per any desired unit of exposure hours, but 200,000 is commonly used in the United States and was the unit used by both Company A and Company B.

ANNEX E

QUESTIONNAIRE DISTRIBUTED TO SEAFARERS

QUESTIONNAIRE

TALAAAN NG MGA TANONG

A number of seafarers and shipping company shore-based staff in three countries are being asked to complete this questionnaire in order to provide statistical information for a research project.

Ang pagsasaliksik na ito ay nakatuon sa mga marinero/mandaragat at mga manggagawa na nakabase sa opisina ng mga kompanyang pangkalakalang pandagat sa tatlong bansang napiling tumugon sa mga katanungan. Layunin nito na makapagbigay ng impormasyong pang-istatistika tungo sa lubos na pang-unawa sa pagsasaliksik na ito.

The questionnaire is entirely confidential. You are **not** required to give your name and you are **not** required to sign the document.

Ang mga katanungan at inyong mga tugon o kasagutan ay mananatiling lihim. Malaya kayong isulat o hindi ang inyong pangalan at lagda/pirma.

You are requested simply to answer each question with your own honest opinion so that the researchers will gain a better understanding of how seafarers and shore-based staff from different countries view the world in which they live and work.

Maaari po lamang na sagutin ang bawat katanungan ayon sa inyong pansariling pananaw at matapat na opinion. Layunin ng mananaliksik ang magkaroon ng mabuting pang-unawa tungkol sa pananaw sa mundo ng mga mandaragat at manggagawa sa opisina sa ibat'ibang bansa ayon sa lugar na kanilang tinitirhan at pinagtatrabahuhan.

The questionnaire is in two parts:

Ang mga Katanungan ay nahahati sa dalawang bahagi:

Part 1 requests you to give some information about your background, such as your position on board ship or ashore, your qualifications and the length of time you have been a seafarer.

Ang mga katanungan sa unang bahagi ay patungkol sa inyong sarili tulad ng inyong katayuan sa trabaho pang-opisina o sa barko, kwalipikasyon at kung gaano katagal na kayong nagtatrabaho bilang marinero.

Part 2 comprises a number of alternative statements. In each case you are requested to select the statement that best describes how you feel.

Ang ikalawang bahagi naman ay binubuo ng mga pangungusap kung saan kayo ay pipili ng pangungusap na pinakamalapit na naglalarawan sa inyong damdamin o pansariling opinion at pananaw.

When filling out Part 2 of the questionnaire:

- Remember that there are no right or wrong answers;
- Do not spend too much time thinking about particular questions; just rely upon your first impression.

Sa inyong pagpili ng kasagutan sa ikalawang bahagi ng pagsasaliksik na ito, alalahanin ang mga sumusunod na gabay:

- *Walang Tama o Maling kasagutan na maituturing*
- *Hindi kinakailangang pagbuhusan ng mahabang panahong pag-iisip para sagutin ang mga katanungan. Pagbasihan ang inyong unang impresyon o ang unang sagot na inyong napili ayon sa inyong palagay ay sapat na.*

Your help and cooperation in completing the questionnaire is greatly appreciated.

Ang inyong tulong at kooperasyon sa pagpuno ng mga katanungan ay higit na pinapahalagahan. Maraming salamat sa inyong pagtugon.

Seán Trafford

G. Seán Trafford

PART 1 (Unang Bahagi)

1. Your position, rank or rating: _____
Posisyon, Ranggo.
2. Your age last birthday: _____
Idad nuong huling kaarawan.
3. Your nationality: _____
Lahi / Bansang Kinabibilangan
4. Number of years at sea or in ship operations: _____
Bilang ng taon na nagtrabaho sa laot o sa kaugnay na trabahong / pamamahalang pang-barko.
5. Highest qualifications achieved. Place a cross in the brackets (X) next to those items that best describe your qualifications:
Pinakamataas na katangiang natamo: Lagyan ng ekis and loob ng panaklong katabi ng inyong sagot.

Academic Qualifications (*Katangiang Pang-Akademya*)

- University Degree
- College Diploma or Certificate
- Higher School Certificate
- Lower School Certificate
- Other (please specify) _____

Professional Qualifications (*Katangiang Pampropesyonal*)

- Master / Chief Engineer unlimited
- Master / Chief Engineer restricted
- Deck / Engineer Officer Class 2
- Deck / Engineer Officer Class 3
- Mechanic / Electrician / Cook / A.B. / EDH
- Other (please specify) _____

Safety Qualifications (*Katangiang Pangkaligtasan*)

- STCW Certificates
- Lead Auditor
- Other (please specify) _____

6. Are you a member of a professional body such as the Nautical Institute or the Society of Marine Engineers and Naval Architects:
Yes / No (Circle as appropriate)
If 'Yes' please specify _____

Ikaw ba ay kasapi ng mga samahang pang-propesyonal tulad ng "Nautical Institute or the Society of Marine Engineers and Naval Architects"

Oo / Hindi (bilugan ang inyong sagot)

Kung Oo, aling samahan? _____

PART 2 (Ikalawang Bahagi)

For each set of alternative statements, put an X in the box next to the one statement that best describes how you feel. There are no right or wrong answers. It is your own views that we want.

Sa bawat bilang, lagyan ng (X) ang loob ng kahon ng inyong napiling pangungusap. Tandaan na walang Tama o Maling kasagutan kundi piliin lamang kung aling pangungusap ang pinakamalapit na naglalarawan sa inyong damdamin at pananaw.

1. People get into trouble because the law is too strict.
Ang mga tao ay nasasangkot sa gulo dahil masyadong mahigpit ang batas.

People get into trouble because the law is not strict enough.
Ang mga tao ay nasasangkot sa gulo dahil hindi masyadong mahigpit ang batas.

2. Many of the unhappy things in people's lives are partly due to bad luck.
Maraming bagay na nagdulot sa mga tao ng kalungkutan ay dahil sa kamalasan.

People's misfortune's result from the mistake's they make.
Ang kamalasan ang bunga ng mga kamaliang gawa ng tao.

3. One of the major reasons why we have wars is because people do not take enough interest in politics.
Isa sa mga pangunahing dahilan ng pagkakaroon digmaan ay sapagkat walang gaanong interes ang mga tao sa pulitika.

There will always be wars, no matter how hard people try to prevent them.
Ang Digmaan ay hindi mawawala, kahit anupang pagsusumikap ang gawin ng mga tao upang maiwasan ito.

4. In the long run, people get the respect they deserve in this world
Darating din ang araw na matatanggap din ng mga tao ang respeto at paggalang na nararapat para sa kanila sa mundong ito.

Unfortunately, a person's worth often passes unrecognized no matter how hard he tries.
Kaya lang, ang halaga / kabuluhan ng tao ay kadalasang hindi napapansin o napapahalagan kahit ano pang pagsisikap and gawin niya.

5. The idea that teachers and lecturers are unfair to students is nonsense.
Ang pananaw na ang mga guro at tagapagturo ay hindi makatarungan sa mga estudyante ay walang kabuluhan.
- Most students do not realise the extent to which their grades are influenced by accidental happenings.
Hindi nauunawaan ng karamihan sa mga estudyante na malaking bahagi ng kanilang marka sa pag-aaral ay maaring bunga ng mga di-inaasahang pangyayari.
-
6. Without the right lucky breaks, one cannot be an effective leader.
Ang isang pinuno ay hindi magiging epektibo kung walang swerteng natanggap sa tamang panahon,
- Capable people who fail to become leaders have not taken advantage of their opportunities.
Maraming mga may kakayahang tao ang hindi naging pinuno dahil sinayang nila ang mga pagkakataong dumating sa buhay.
-
7. No matter how hard you try, some people just do not like you.
Kahit ano pa mang pagsusumikap and gawin mo, may mga tao talagang ayaw sa iyo o hindi ka gusto.
- People who cannot get others to like them do not understand how to get along with other people.
Ang mga taong hindi makahikayat ng iba upang magustuhan sila ay hindi marunong makisama
-
8. Heredity plays the major role in determining your personality.
Ang iyong pinagmulan ang nagtatakda ng iyong pagkatao.
- It is your experiences in life that determine your personality.
Ang iyong mga karanasan sa buhay ang humuhubog ng iyong pagkatao.
-
9. I have often found that what is going to happen will happen.
Mangyayari kung ano ang nakatakdang mangyayari.
- Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
Ang pagdedesisyon base sa mga plano ay higit na maayos kaysa kung ipapaubaya lang sa kapalaran
-

10. If a student is well prepared, there is rarely, if ever, such a thing as an unfair test or examination.
Kung ang mag-aaral ay handa sa pagsusulit, bibihira kung sakaling man na may maituturing siyang hindi makatarungang pagsusulit.
- Exam questions are often so unrelated to course work that studying is really useless.
Ang mga katanungan sa pagsusulit ay kadalasang walang kaugnayan sa kurso kung kaya naman hindi na kailangang mag balik-aral.
-
11. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
Upang maging matagumpay kailangang magtrabaho ng maigi at magsumikap, konti lamang o maaring walang kinalaman ang swerte dito.
- Getting a good job depends mainly on being in the right place at the right time.
May malaking kaugnayan sa pagkakaroon ng mabuting trabaho ang pagiging nasa tamang lugar sa tamang oras.
-
12. The average citizen can have an influence in government decisions.
Ang mga ordinaryong mamamayan ay maaring makaimpluwensya sa desisyon ng pamahalaan.
- The few people in power run this world, and there is not much the little a guy can do about it.
Ang mundo ay pinapatakbo ng iilan lamang na makapangyarihang tao sa mundo, ang masa o ordinaryong mamamayan ay halos walang magagawa upang baguhin ang kondisyong ito.
-
13. When I make plans, I am usually almost certain that I can make them work.
Sa aking mga pagpaplano, kadalasang nakasisiguro ako na kaya kong gawin at ipatupad ito.
- It is not usually wise to plan too far ahead because many things turn out to be a matter of luck anyway.
Kadalasan, hindi na kinakailangan mag-aksaya ng panahon sa pagpaplano dahil maraming bagay o pangyayari ay bunga naman ng swerte.
-
14. There are certain people who are just no good.
May mga taong walang kwenta o silbi.
- There is some good in everybody.
Lahat ng tao ay mayroong maituturing na kabutihan o kagalingan.
-

15. In my case, getting what I want has little or nothing to do with luck.
Sa aking sitwasyon, walang kinalaman ang swerte upang makamit ko ang aking ninanais.
- Many times we might just as well decide what to do by flipping a coin.
Maraming pagkakataon na mabuting pang gamitin ang sapalaran sa barya (paghagis ng barya: nakaharap o nakatalikod?) para mabuo ang desisyon.
-
16. Who gets promotion often depends on who was lucky enough to be in the right place first.
Ang pagtaas/pag-angat ng posisyon sa trabaho ay nakabatay sa swerte kung sino ang unang nasa tamang lugar.
- Getting promotion depends upon ability; luck has little or nothing to do with it.
Ang pagtaas/pag-angat ng posisyon sa trabaho ay nakabatay sa abilidad at kahusayan ng tao, maaaring kaunti lamang o walang kinalaman dito ang swerte o kapalaran.
-
17. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.
Kung pag-uusapan ang mga pangyayari sa mundo halos lahat tayo ay biktima ng mga pwersang hindi natin maintindihan at hindi makontrol.
- By taking an active part in political and social affairs the people can control world events.
Maaaring makontrol ng mga mamamayan ang mga kaganapan sa mundo kung sila ay aktibong makikilahok sa mga gawaing pampulitika at pang-mamamayan.
-
18. Most people do not realise the extent to which their lives are controlled by accidental happenings.
Maraming tao ang hindi nakakaunawa sa kapangyarihan ng mga di-sinasadyang pangyayari sa kanilang buhay.
- There really is no such thing as luck.
Wala naman talagang maituturing na swerte.
-
19. You should always be willing to admit mistakes.
Kailangan lagi kang nakahandang umamin sa iyong mga kamalian.
- It is usually best to cover up your mistakes.
***Pinakamabuti** ang pagtakpan ang iyong mga kamalian.*
-

20. It is hard to know whether or not other people on board ship really like you.
Mahirap malaman kung talagang gusto ka ng ibang mga tao na kasama mo sa barko.
- How many friends you have on board ship depends upon how you treat your shipmates.
Ang dami ng kaibigan mo sa barko ay depende o nakabase sa kung paano mo itinuturing / tinatrato ang iyong mga kasama.
-
21. In the long run, the bad things that happen to us are balanced by the good ones.
Sa huling banda, ang masasamang pangyayari sa atin ay nababalanse ng mga mabubuting pangyayari.
- Most misfortunes are the result of lack of ability, ignorance, laziness or all three
Karamihan ng mga kasawian ay bunga ng kakulangan ng abilidad, kamangmangan, katamaran o lahat ng nabanggit.
-
22. With enough effort we can wipe out political corruption.
Kung may sapat na pagsusumikap, maaaring maalis o mawala na ang pangungurakot at korapsyon sa pulitika.
- It is difficult for people to have much control over the things politicians do in office.
Napakahirap para sa mga mamamayan ang magkaroon ng kontrol sa mga gawain ng pulitiko sa opisina.
-
23. Sometimes I cannot understand how my supervisor arrives at the conclusions he puts in my company appraisal report.
Minsan, hindi ko maunawaan kung saan nanggagaling ang opinion at pananaw na isinusulat sa pagsusuring pagganap (appraisal report) ng aking tagamahala at tagasiyasat.
- There is a direct connection between how well I do my job and the company appraisal report I get.
Mayroon direktang kaugnayan kung gaano kahusay ang aking pagtatrabaho sa ulat na natatanggap ko galing sa kompanya.
-
24. A good leader expects people to decide for themselves what they should do.
Inaasahan ng mahusay na pinuno na kayang magdesisyon ng mga mamamayan kung ano ang dapat nilang gawin.
- A good leader makes it clear to everybody what their jobs are.
Ipinaliliwanag sa lahat ng mahusay na pinuno kung ano ang trabaho ng bawat isa.
-

25. I often feel that I have little or no influence over the things that happen to me.
Kadalasan ay wala akong kinalaman sa mga nangyayari sa aking buhay.

I cannot believe that fate or chance play an important role in my life.
Hindi ako naniniwala na ang pagkakataon at kapalaran ay gumaganap ng mahalagang bahagi ng aking buhay.

26. People are lonely because they do not try to be friendly.
Maraming tao ang malungkot dahil ayaw nilang subukang makipagkaibigan.

There is not much use in trying too hard to please people; if they like you they like you.
Hindi mo na kailangang pilitin at gawin ang buong makakaya upang magustuhan ka ng mga tao; kung gusto ka nila... gusto ka nila.

27. There is too much emphasis on safety on board ships nowadays.
Masyadong pinahalagahan ang Kaligtasan sa mga barko/sasakyang pandagat sa panahon ito.

Emphasising safety on board ship helps to develop a team spirit.
Ang pagpapahalaga sa Kaligtasan sa barko/sasakyang pandagat ay nakakatulong sa pagbuo ng mahusay na pagsasamahan bilang isang buong pangkat.

28. What happens to me is my own doing.
Kung ano man ang nangyari sa akin ay dahil na rin sa aking sariling gawain.

Sometimes I feel that I do not have enough control over the direction my life is taking.
Minsan, nararamdaman ko na walang akong kinalaman o kontrol sa direksyong tinatahak ng aking buhay.

29. Usually I cannot understand why companies send out so much Safety literature to their ships: accidents will still happen.
Kadalasan hindi ko maintindihan kung bakit napakaraming babasahin tungkol sa Kaligtasan ang pinapadala ng mga kumpanya sa kanilang mga barko, gayun pa man patuloy pa ring magaganap ang mga aksidente.

In the long run seafarers are responsible for accidents on board ships and consequently for poor company accident records.
Sa huling banda, ang mga mandaragat ang mananagot at responsable sa mga aksidenteng nangyari sa kanilang barko at sa paghina at masahol na mga tala/rekord pangkaligtasan ng kanilang kumpanya.

ANNEX F

QUESTIONNAIRE EVALUATION SCALE AND RESPONSES TABULATION

QUESTIONNAIRE EVALUATION SCALE

Part 1

Rank

Q.1	Superintendent	5
	Master or C/E	4
	Other Officer	3
	Senior rating	2
	Junior Rating	1

Experience (Age + Service)

Add together the following:

Q.2	40+	3
	25 – 40	2
	18 – 25	1
Q.4	30+	3
	15 – 30	2
	0 – 15	1

Academic & Professional Attainment

Academic Qualifications

University Degree	5
College Diploma or Certificate	4
Higher School Certificate	3
Lower School Certificate	2
Other (Score above equivalent)	

Professional Qualifications

Master / Chief Engineer unlimited	5
Master / Chief Engineer restricted	4
Deck / Engineer Officer Class 2	3
Deck / Engineer Officer Class 3	2
Mechanic / Electrician / Cook / AB	1
Other (score above equivalent)	

Safety Qualifications (Add to above)

STCW Certificates	1
Lead Auditor	2
Other 1 or 2 (depending on qualification)	

Q.5 Membership of a Professional Body

No Score to be awarded. This question is not for evaluation purposes. The results are to be used in the final discussion part of the paper.

Part 2

Score one point for each of the following:

2.a, 3.b, 4.b, 5.b, 6.a, 7.a, 9.a, 10.b, 11.b, 12.b, 13.b, 15.b, 16.a, 17.a, 18.a, 20.a, 21.a, 22.b, 23.a, 25.a, 26.b, 28.b, 29.a.

A high score = External Locus of Control

A low score = Internal Locus of Control

ANNEX G

**REFERENCES,
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AND TABLE OF CASES**

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