

LANGUAGE BARRIERS AND MISCOMMUNICATION AS A CAUSE OF MARITIME ACCIDENTS



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ΤΟΥ ΣΠΟΥΔΑΣΤΗ: ΤΟΡΕΣ ΕΥΑΓΓΕΛΟΥ

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1				
2				
3				
ΤΕΛΙΚΗ ΑΞΙΟΛΟΓΗΣΗ				

Ο ΔΙΕΥΘΥΝΤΗΣ ΣΠΟΥΔΩΝ: ΤΣΟΥΛΗΣ ΝΙΚΟΛΑΟΣ

PROLOGUE

The subject of the dissertation is Language Barriers and Miscommunication as a Cause of Maritime Accidents. My onboard experience as an apprentice officer on a container vessel for thirteen months and all the problems I came across while I was put in charge of the navigational watch under the master's supervision drove me to choose this subject in order to help myself and my colleagues who will later on take responsibilities as watch keepers on board merchant vessels. Each and every one of us knows that the 1st language on board is English and having proficiency in it is a great asset for a merchant marine officer. Even though I have acquired a degree of proficiency in English I find it really hard sometimes to communicate with pilots, the crew or VTS centers effectively, a thing that made me wonder many times about the language barriers, the void in language and culture and mostly the gap in safety for all the procedures carried out on board.

In the introduction it is shown that merchant ships have become multilingual and multi ethnic in crew composition which creates many problems on board vessels but also gives the main objectives to recommend improvements in communication skills on the bridge.

Chapter 2 opens with a study of language and misunderstanding from a sociolinguistic point of view. Then it explains models by well-known scientists (anthropologists) for the great role that culture plays in seafarer's communication as a group of people marked by linguistic and cultural diversity.

Chapter 3 gives examples of accidents that involve multilingual communication lapses both under pilotage and in open seas. Ship to shore communication incidents are included along with those occurring on board.

Chapter 4 covers a survey done among ship management companies to discover to what extent cultural and language aspects influence their choice of crews. They were surveyed by questionnaire and personal interview and encouraged to give their views and experiences.

Chapter 5 deals with observations made aboard vessels under pilotage. This is an area in which misunderstandings can be particularly dangerous as the operation involves not only the ship but also those on board and ashore. It covers on board observations by a researcher and also analyses data collected from the pilots themselves.

Chapter 6 is concerned with ship to ship and ship to shore communication respectively. These subjects have been separated to allow VTS communications to be considered as a separate item.

Chapter 7 moves away from the more official and professional forms of communication to study communication at the social level. It is a study of how crewmembers talk among themselves and looks at some aspects of their social lives aboard ship. A good deal of data is taken from an extensive survey among seafarers on the matter, Mori poll that was sponsored by the ITF.

Chapter 8 considers current standards of education and training and finally I mention a list of ten strategies for overcoming language barriers, which is very useful for all.

Chapter 9 offers a final conclusion of the thesis and then follows the bibliography. The majority of the material I use comes from books or other educational material used in projects in which the main subject is miscommunication on board in essence The MarCom Project.

CONTENTS:

- 1. Introduction**
- 2. Language and Misunderstanding**
- 3. Examples of Accidents Involving Multicultural Communication Difficulties and Cultural Diversity**
- 4. The Importance of Language In Crew Selection**
- 5. Pilotage-On Board Observations by Researchers and Pilots**
- 6. External-Ship to Ship and Ship to Shore Communication**
- 7. Communication at the Social Level**
- 8. Education and Training Requirements-Ten Strategies for Overcoming Language Barriers**
- 9. Conclusion**
- 10. Bibliography**

1. Introduction

Over the past 25 years or so approximately 80% of the world's merchant ships have become multilingual and multi ethnic in crew composition. This reflects the increased globalization of the industry with deregulation under many national flags of the traditional maritime countries to flags of convenience to enable the recruitment of low cost crews on a worldwide basis.

As well as having more diversity of crew there are now fewer numbers in the crew of a merchant ship. This in itself can lead to loneliness stress and fatigue. If there are also problems of communication contributing to a lack of mutual confidences, suspicions and misunderstandings, then the opportunities for human errors leading to dangers to the ship, the people on board and the environment, are greatly increased.

As the ship is both a home and a workplace for seafarers and constitutes a self-contained unit, there are several functions and types of communication requirements to be met. There is the need for clear verbal communication between ship and shore stations in coastal waters and under port pilotage, the ability to be able to communicate between ships in areas of traffic congestion or experiencing maneuvering difficulties. Also the need for precise interaction when operating the vessel, when giving and carrying out orders under normal and emergency situations and communication between the crew for maintenance of social harmony during off duty periods and subsequently for team work.

There are many examples of communication lapses in the above categories, which have contributed to accidents and major marine catastrophes. The solutions to these have included the use of the English language word-wide in ship to shore and ship-to-ship communication when different nationalities are involved. This has been facilitated by the introduction of the Standard Maritime Vocabulary, and by the requirement for a common language to be used in ship operations under the Convention of Standards of Training, Certification and Watch keeping (STCW 1995).

The most difficult communication problems which arise are with the levels of understanding of English between ship and shore under critical conditions between ship and shore in close and congested circumstances when there is little time or space to rectify initial misunderstanding and in passing orders between different language speakers on the bridge of a vessel and during emergencies. But it is not only a problem of language. There are cultural differences in a mixed crew, which involve different meanings and emphasis given to the same words and ways of communication, which also cause friction and accidents.

Cultural differences have become particularly apposite in the high diversity of groups on board a modern vessel. There are no longer the tacit rules of behavior, which once guided the more homogeneous crews. When for example a traditionally crewed vessel was at sea, with lets say a British crew, there were ways to avoid friction. Certain topics were generally avoided in the mess room and saloon such as politics and religion. Conversations would center on safe subjects including sport, sex, music, the next port, the last ship and occasionally between friends, their home concerns.

On mixed crew vessels there may not be a community of interests in even safe subjects except within small groups, which congregate to talk in their own language.

Its main objective is to recommend improvements in communication skills on the bridge. To do this the project aims are to:

- Assess the value of a single working language, which could be used in all circumstances.
- Make a linguistic analysis of ship to ship and ship to shore communications
- Produce guidance on the use of language in emergencies and accident prevention.
- Analyze the incidence and causes of cross cultural tensions on board and their current management.
- Evaluate present standards of teaching communication skills in maritime colleges.

2. Language and Misunderstanding

Introduction

Language is inseparable from culture, and what might at first appear as a case of purely linguistic "miscommunication" is often embedded in a distinct cultural perspective. In this introduction, we shall summarize a sociolinguistic position on miscommunication and problematic talk, which might be of benefit to a study of communication breakdown among any group of people marked by linguistic and cultural diversity, such as seafarers.

The concept of miscommunication resists any simple definition, however, it remains a commonplace that reports of "things going wrong" in communication are particularly frequent in cross-cultural encounters, and their consequences can be extremely serious. There are often mismatches in the ways different communities attribute meaning to linguistic forms, or, indeed, to silence. "Even cultural beliefs about the function of talk and silence can be a major source of communication difficulties"

Generally speaking, analyses of miscommunication in intercultural settings concern themselves with the relative degree of "communicative competence" that exists in either or both participants. Communicative competence here refers to appropriate social skill, rather than as the achievement of competent relationships. It is clearly wrong to associate cross-cultural interaction with inevitable "communication breakdown". In cross-cultural and cross-code settings, for example, it may be that communicative problems that are analyzable linguistically may be deemed unimportant because: (a) they are often easily identified and remediated', (b) the deficiencies are attributable to language or language-knowledge itself (rather than to grosser incompetence or malevolent intent); and because (c) language differences may in turn be attributed to cultural difference.

Participants may have lower initial expectations of cross-cultural interaction, with the consequence that talk itself may be restricted to particular topics or modes that are mutually selected to be manageable.

Where talk, by necessity, is not "restricted to particular topics or modes that are ... manageable", we are likely to encounter some variety of problematic talk or miscommunication. It is this contingency that is most relevant to any discussion of multicultural or multinational environments. With this in mind, a broad overview of miscommunication will follow, including examples from a variety of contexts and situations, and drawing on the literatures of the social psychology of language, sociolinguistics and the ethnography of communication.

Culture shock

Encounters with cultural and linguistic systems radically different from one's own and inability to cope with the communicative and environmental conditions of life in non-native context may lead to culture shock. Some simple examples of anxiety building behavior are:

1. When to shake hands
2. What to say when meeting people
3. When and how to give tips
4. How to buy different goods
5. When to accept and when to refuse invitations
6. When to take statements seriously and when not.

Cross-cultural awareness

Hanvey (1979) describes a four-stage model of overcoming culture shock and reaching cross-cultural awareness. According to the author this can be attained only over an extended period of time and when the visitor shows respect for and participates in the host culture. Cross-cultural awareness will be denied to tourists (lack of participation due to time limitation) and colonial administrators (lack of respect).

Can negative perceptions of other people be modified in a learning situation? Robinson (1988) suggests a social learning theory approach geared at this aim. The practices of language educators and cross-cultural trainers tend to reflect the idea that prediction or anticipation of what is to come can help cushion culture shock, even if what is to come is perceived as negative differences. For example, Seeley in *Teaching Culture* (1978) asserts that cross-cultural understanding will take place as students learn what to expect in certain circumstances and why it is reasonable from the target society's point of view. Hence, even seemingly negative behaviors, such as eating snakes, being continually touched, or not keeping a promise should be better tolerated.

Robinson presents a different perspective. He suggests that predictability of a target cultural event, based on knowledge alone, may actually increase negative perceptions unless the learner has mastered the skills to cope with the event. Psychological research suggests that predictability of an event perceived as negative may cause greater anxiety than no predictability at all. That is, awareness that a bad thing is going to happen may cause greater anxiety than no prior knowledge, if the perceiver has not learned to cope with or control the event. Without the learner's confidence that I can cope with it," the learner may put up greater defenses and fight the event to avoid it altogether. Both are results of feeling inadequate to deal with the known, predicted differences.

Overcoming something negative or feared about another person or cultural event is, in a sense, like getting over a phobia. It involves behavior modification. Social learning theory offers approaches to coping with events perceived as negative which may be useful to second language and cross-cultural education.

Predictability: culture shock or culture cushion?

Experimental studies with rats and human volunteers indicate that general predictability of negatively perceived events will not make these preferred over unpredictable ones. Information about upcoming negative events can be very stressful. Knowing a bad thing is to come and not knowing what to do about it may be akin to learned helplessness". An American man in Guatemala:

You see all these people? They're all my wife's relatives. And every damn one of them has kissed me tonight. If another Guatemalan man hugs and kisses me, I'll punch him right in the face.

Helplessness is defined in terms of the uncontrollability of probable events. Foreign language students, Peace Corps volunteers, and language minorities in bilingual classrooms may experience a sense of learned helplessness in target cultural situations, real or simulated.

In a study of foreign-language students, American college students attending a six-week French summer school were examined for their feeling of anomie (a feeling of social alienation, of not belonging to a cultural group) and authoritarianism at the start and end of the course. Elementary language and advanced language level groups were included. The students, who had promised to speak only French, reverted to English towards the end.

Anomie also increased for both groups at the program's end. The researchers suggest that increases in anomie reflected increases in social dissatisfaction.

Negative Reactions:

American students of Japanese may react negatively to a breakfast of raw egg and seaweed. A negative physiological urge may be accompanied by an evaluative "ugh" (whether verbalized or not).

A British student of Italian may respond similarly to a conversation with a native speaker, which is louder, spatially closer, and more personal than what s/he is accustomed to. The behavioral reaction of the American in Guatemala cited earlier included a desire to physically punch the next greeter.

Positive reinterpretation:

Seek empathy with the members of the local culture.

Look for positive outcomes of the situation.

Come to the new culture prepared with extensive knowledge of its customs, communication patterns, at least rudimentary knowledge of the language (books, video films, meet people from the country you want to visit before you go there, talk to others who have already been to the place).

Take a course in intercultural communication (role play).

As early as in 1960, Hall and Whyte (1960) warned against the confusion between the lay conceptions of culture and more in-depth interpretations. For example, the way people dress, the beliefs they hold and the customs they practice can be misinterpreted and misleading in assessing situations in cross-cultural contact:

Uniformity in dress need not guarantee uniformity in action.

Knowledge of beliefs may be insufficient to comprehend someone's actions, as the connection between beliefs and actions is seldom obvious.

Customs provide more guidance, providing we do not limit ourselves to the esoteric and also search for the pattern of behavior into which a given custom fits. The anthropologist, in dealing with customary behavior, is not content with identifying individual items. To her, these items are not miscellaneous. They have meaning only as they are fitted together into patterns.

Intercultural Miscommunication

In assessing a cross cultural situation it is not enough to discover the ways of how people act when they are among themselves, but also how they act in relation to outsiders. The link between two cultures is provided by acts of communication between their members. If communication is effective, then understanding grows with collaborative action. If communication is faulty, then no book of knowledge of culture can assure effective action. This is not to devalue the knowledge provided by anthropologists. It is only to suggest that the point of implementation of the knowledge must be in the communication process. Let us therefore examine the process of intercultural communication. Two aims are important here: Broaden knowledge of ourselves by revealing some of our own unconscious communicative acts.

Clear away hereto for almost insurmountable obstacles to understanding in the cross-cultural process.

We also need to go beyond verbal communication. Culture affects communication in various ways. It determines the time and timing of interpersonal events, the places where it is appropriate to discuss particular topics, the physical distance separating one speaker from another, and the tone of voice that is appropriate to the subject matter. Culture, in this sense, delineates the amount and type of physical contact, if any, which convention permits or

demands, and the intensity of emotion, which goes with it. Culture includes the relationship of what is said to what is meant - as when "no" means "maybe" and "tomorrow" means "never". Culture too, determines whether a given matter - say, a business contract - should be initially discussed between two persons or hacked out in a day-long conference which includes four or five senior officials from each side.

With regard to the display of emotions, the Anglo-American tradition is that of preserving one's calm. Typically, a North American is taught by his culture to suppress his feelings. In the Middle East it is otherwise. Where the open display of emotion is normative, the modulated, controlled Anglo-American type is likely to be regarded with suspicion - he must be hiding something, practicing to deceive. Conversely, exuberance and overt emotionality is likely to disturb the Anglo-American, cause him to writhe inwardly with embarrassment - for isn't this childish behavior? And aren't things getting rather out of hand?

How loudly one should talk? According to Hall and Whyte (1960), in the Levant and Middle East, men attain a decibel level that would be considered objectionable in Northern Europe or the United States. Loudness connotes strength and sincerity in Eastern Mediterranean cultures. A soft tone implies weakness or deviousness.

In Northern Europe and the US physical contact is discouraged, particularly between adult males. The most common physical contact is the handshake and, compared to Europeans, Americans use it sparingly. However, in Latin America the handshake is the most detached and impersonal form of greeting or farewell. Somewhat more friendly is the left hand placed on another man's shoulder during a handshake. Definitely more intimate and warm is the "double abrazo" in which two men embrace by placing their arms around each other's shoulders.

Apart from these ritualized forms of touching, there are other forms, which are especially difficult to accept by Anglo-Americans in Latin America: e.g., hand on one's arm during conversation. To the North American this is edging toward what in his culture is an uncomfortable something - possibly sexual, which inhibits his own communication.

Punctuality is perceived differently in North America and Latin America: a 45 minute delay in coming to a business meeting is not an insult in Latin America, but a 5 minute delay in North America is.

Business talks in the U.S, participants will try to get to the point and find an agreement. In business talks in Latin America and Greece the length of conversation manifests involvement and "good faith". In America ignoring the detail manifests "good faith": "Let's agree on the main points. The details will take care of themselves. "

A U.S. Businessman received this invitation from an Indian businessman: "Won't you and your family come and see us? Come anytime." Several weeks later, the Indian repeated the invitation in the same words. Each time the American replied that he would certainly like to drop in - but he never did. The reason is obvious in terms of the U. S. culture. Here "come any time" is just an expression of friendliness. You are not really expected to show up unless your host proposes a specific time. In India, on the contrary, the words are meant literally - that the host is putting himself at the disposal of his guest and really expects him to come. It is the essence of politeness to leave it to the guest to set a time at his convenience. If the guest never comes, the Indian naturally assumes that he does not want to come.

3. Examples of Accidents Involving Multilingual Communication Difficulties and Cultural Diversity

Introduction

Having considered the sociolinguistic characteristics of language and misunderstanding in the last chapter this chapter gives details of shipping accidents in which those misunderstandings have taken place presented according to the circumstances in which they occurred i.e.:

1. On board maneuvering of the vessel under pilotage
2. External communication ship to shore and ship to ship
3. Inability to read instructions
4. The cultural dimension
5. In emergency situations

On Board Maneuvering Under Pilotage

This is one of the most critical areas when it comes to clarity of communication. During a pilotage operation there is often no time and no sea room in which to rectify an error, which has arisen due to misunderstandings of engine or helm orders or if tug orders or other information are not clearly understood.

Several reports have emphasized that safety is compromised where pilots are unable to communicate effectively with the crew. Such problems lead to increased pressure on the pilot as well as a reduction in the bridge officer's effectiveness. For example from 1975 to 1996 there were at least 24 incidents in Canadian pilotage waters in which problems with language and communication led directly to an incident occurring.

Recent witnesses to the US House of Representatives sub-committee on Coastguard and Maritime transportation who have suggested that English language difficulties are posing problems for US pilots have already highlighted the issue. The types of problems rose "poor or non existent English speaking capability of master and bridge crews on foreign flag ships" and "situations where a captain cannot communicate effectively with the helmsman or other crew members on the bridge".

Pilots very often perform their pilotage in their own mother tongue. This means that the radio communication to shore based parties is established in a language unintelligible to the master or officer in charge. Therefore, the master or officer very often has no choice but to follow the recommendations. This can be dangerous because the pilot does not know the maneuvering characteristics of the vessel the way that the ships own staff do. This circumstance has already caused accidents, e.g. the collision of the Polish ship Stanyslaw Kulcinsky with the Kattwykbridge on the river Elbe in 1991 when German pilots under shore based radar assistance during fog, were speaking in German only, a language not understood by the Polish master. The recommendations in English for the maneuvers were given too late. The master can only gain his own impression of the situation if communication on his bridge is established in a language that he understands. In this case English would have been the language most useful to him.

Misunderstandings of instructions can often place a vessel in a dangerous position. The following incidents highlight the fact that situations that may at first be under control can easily develop into high stress scenarios with an accident the final outcome.

Ship grounding during berthing

The ship was a small coasting vessel with a crew of five, German being the predominant language, but the Master speaking English. During berthing although the stern rope messenger was sent ashore the pilot was not made aware of the fact. With only the head rope apparently taking the strain there was a danger of breaking loose so the pilot ordered the ship to be let go so that it could drift. While the vessel was drifting further difficulties were encountered in maneuvering, the result being that it grounded.

The pilot stated, "I believe that poor communication was the real difficulty, many orders given by me were undertaken after several attempts, if at all. Had I been made aware of the stern rope messenger being ashore at my first pass, I would have ordered the ship to be pulled alongside with the capstan. With a lack of a common language, and suggestions being turned into orders and vice-versa, things were made much more difficult".

Misinterpreting local instructions and dialects

Although two people may be speaking the same language, a local dialect or saying may be misunderstood or misinterpreted by someone who is not familiar with it. The following incident highlights such a situation, with a resultant accident that could have been avoided.

In this incident two ships collided in the River Barrow (Eire). A 1,500-grt-cargo vessel was outward bound from New Ross while a motor tanker, in ballast around 2,000-grt was inward bound to the same port. The outward-bound vessel had two pilots on board, the inward bound vessel one. The incident occurred in good visibility on a bend in the river.

Initially the inward bound ship had been under the control of the pilot. As the two vessels approached each other however the Master retook the wheel and requested the pilot to use the radiotelephone as he could not understand the local dialect or the local expressions being used by the cargo vessel pilot. The pilot told the cargo vessel pilot that he was going to keep to the port side of the river coming up, a starboard to starboard passing. The master was unaware of this arrangement and would have been opposed to such a maneuver if he had known about it. No instruction was given by the pilot to Master to affect a starboard-to-starboard passing.

Communication breakdown had therefore occurred between the Master and the pilots of both vessels, the opposing vessel because he could not understand the local dialect, his own vessel because no clarification had been given to him and he had not sought clarification of the pilot's intentions. The ships as a result collided.

The Wealthy River – 1996

The WEALTHY RIVER, a Chinese ship, was under pilotage in a dredged channel outside the entrance jetties at Charleston Harbor, South Carolina, and approaching the Pilots disembarkation position. The American pilot indicated, as a matter of courtesy that the pilot boat was alongside to port. The Chinese captain, who spoke very little English, misinterpreted this as a command to turn to hard to port, and ordered the helmsman to do so. The vessel, which had been in the center of the channel, swung to port and proceeded towards the north edge of the channel. Before the situation could be corrected the ship had left the dredged channel and grounded almost immediately.

The passage had been taking place in the dark. The Pilot had been unable to see the helmsman turn the wheel to port and had been unable to understand the conversation between master and helmsman.

On 22nd July 1980 a Panamanian bulk carrier, the SEADANIEL, was inward bound in the Mississippi River Gulf Outlet (MRGO), while a German containership, the TESTBANK, was outward bound, both vessels with Pilots onboard. The channel that the two vessels were navigating was narrow and required them to pass quite close together. A crew of 33 of which the master and radio officer were British nationals and the crew was Chinese manned the SEADANIEL. The TESTBANK was manned by a crew of mixed nationals, but predominantly German.

Pilotage in the MRGO was compulsory for the foreign vessels involved, being undertaken by two pilot's associations, the Associated Branch Pilots (ABP) and the Crescent River Port Pilots Association (CRPA). The ABP conduct pilotage from the sea to 33 miles from the entrance and the CRPA then relieve the ABP and pilot the vessels to New Orleans. This was the pattern followed during this incident. When the pilots were changing over they discussed various aspects of the ships' characteristics but as the ABP Pilot had not had any difficulty communicating with the foreign crew he did not discuss the language differences with the CRPA pilot.

The passage of the SEADANTELE continued without incident until the two vessels approached each other. As the ships were approaching, the orders given by the pilot on the SEADANTELE were not followed as accurately as he would have liked. This created a situation that resulted in the pilot raising his voice and the Chinese helmsman becoming upset and failing to understand the instruction given.

As the vessels approached each other the SEADANTELE took an unexpected turn to port due to an erroneous rudder response to the pilot's starboard rudder order. This resulted in a collision with the TESTBANK, raking her down the port side. The probable cause of the incorrect maneuver was the application of port rudder by the helmsman of the SEADANIEL when the pilot had ordered starboard rudder.

The Bright Field – 1996

A miscommunication between the Pilot and the Master of the BRIGHT FIELD may also have precipitated a collision between the vessel and a quayside shopping center on the New Orleans River walk.

When the Pilot first boarded the vessel it appeared that the Master could understand him fully. Everything continued normally until a problem occurred with the mechanics of the vessel and when the Pilot queried the Master as to what the problem was he received no reply. As they approached the quay the order for full astern prior to the impact occurring, was not carried out, however with the little control that remained the Pilot managed to avoid a number of docked vessels.

The initial investigation into the accident focused on a number of issues including that of whether language barriers between the American River Pilot and the Chinese crew affected responses. The Pilot suggested that the Chinese master spoke only a 'kind of broken English' and that he had not received any response to his commands to put the engine full astern, away from the riverbank.



M/V Bright Field After The Collision With the Riverside Shopping Mall

Four Canadian pilotage incidents

During 1990 there were two incidents where ineffective communication between the Pilot and the Master had serious consequences. In July 1990 the ENERCHEM FUSION ran aground, due to problems in confirming the Master's intentions of taking over the conduct of the vessel from the Pilot. The vessel was carrying 8,000 tones of petroleum products and although a serious pollution incident was avoided the vessel was declared a constructive total loss. Similar problems in communicating intentions between the Master and Pilot resulted in the grounding of the LAKE ANINA, a Norwegian chemical tanker.

During 1991 two further incidents resulted from failures in the communication of intentions between master and pilot. The IRVING NORDIC grounded in the St. Lawrence River suffering structural damage, the lack of effective information exchange between Master and Pilot contributing to the accident. The Yugoslavian MALFNSKA also ran aground because although both Pilot and Master had calculated the vessel's position neither had consulted with the other and the Master did not know the Pilots intentions.

Ship and Shore Communication

Vessel Traffic Services (VTS) are being used in waterways worldwide as a means of diminishing operational and environmental risk in maritime transportation. Their functions include:

- Vessel traffic management, by an active and passive traffic organization service.

- Visual and electronic aids to navigation
- Crisis management for search and rescue and pollution
- Information services including publications, radio broadcasts, navtext, satellite acquisition of safety and traffic data for commercial and military purposes and port state control implementation surveillance.

VTS Centers monitor the traffic in many highly frequented areas. They also give instructions and advice in critical situations. But VTS operators are also human beings and mistakes may occur in their analysis. It has to be taken into consideration that a VTS operator only has a restricted view of the situation. He can only follow the movements of the participating vessels on the radar screen. He does not know, for instance, the characteristics of the ships. Therefore it is difficult for him to give exact advice to avoid dangerous situations. Communication problems and neglect of radio calling procedures make the situation even worse. Due to communication misinterpretations accidents occur as the following examples show.

Insufficient Details from VTS

In May 1995 the German motor vessel „Aphrodite" collided with the Maltese motor vessel „Anglia" in the entrance to the port of Rostock (Germany). One of the reasons was that the VTS-operator did not inform the vessels involved sufficiently well about the traffic situation in the narrow entrance, it remains unclear whether this was due to a lack of English skills or for other reasons.

Lack of English Skills

On board a ship with a multilingual crew a common working language has to be established. In most cases this is the English language but often not all members of the crew have the necessary command of this language. There have only restricted language skills of that generally accepted working language. Multilingual crews frequently consist of seafarers with very different language standards, which prevent them from creating a common on board language. Often there are different words for one term and even this can cause misunderstandings.

The English language has been the language of seafaring since the late 1960s. In international conventions, (e.g. STCW) basic standards have been laid down but not accurately specified. However compared to STCW 78, the revision STCW 95 is clearer though not yet specific.

Many examples have been documented, e.g. the accident on the „Ever Obtain". This Chinese vessel had engine trouble in the Red Sea. In order to obtain tug assistance Stavanger Radio was called via Inmarsat. The Stavanger Rescue Co-ordination Centre was unable to understand the English spoken by the officer on board the „Ever Obtain. Only after the ship contacted its headquarters in Taipei, could assistance be rendered via the company.

Lack of understanding with shore station via pilots

Pilots often perform their pilotage in their own mother tongue. This means that the radio communication to shore-based parties is established in a language, which may be unintelligible to the master or officer in charge. Therefore, the officer or master has no choice but to follow the pilot's recommendations. This is dangerous because the pilot does not know the maneuvering characteristics of the vessel compared with the officers and master. This circumstance has caused accidents, e.g. the collision of the Polish MV „Stanyslaw Kulcinsky" with the Kattwykbrücke on the river Elbe in 1991, when German pilots under shore based

radar assistance during foggy weather were talking in German only - a language not understood by the Polish master. The subsequent recommendations in English for the maneuvers were given too late. In this, as in other instances, the master or officer in charge could not obtain their own impression of the situation, as the radio communication with shore-based parties was not intelligible to them.

Communication hampered by panicking radio-operator

An officer or radio-operator in panic can also cause external communication problems. When the Polish Ro-Ro Ferry „Jan Heweliusz" capsized in 1993 near the isle of Ruegen the watch officer at first gave a wrong position to the rescue center, probably due to panic.

Similarly when the officers of Polish motor vessel „Boleslaw Krzywousty" was ablaze and under heavy rocket fire from the Eritrean Coast of the Red Sea on 05th January 1990. The officers failed to radio their correct position although being repeatedly asked to do so by responding coast radio stations and vessels. The position they gave was not geographically possible and long delays resulted. (A voice record of this extraordinary event is kept at Wismar University-Germany, Dept. of Maritime Studies Warnemuende, and Maritime Communications Section).

Disregard of specific instructions

Failure to act on the advice of vessel traffic controllers, in addition to a disregard for international collision prevention regulations, can in certain circumstances have catastrophic results. The following incident involved both factors, the result being the loss of a vessel and widespread pollution of an area of outstanding natural beauty.

Tuo Hai and Tenyo Maru – 1991

The central fact in this incident was that the TUO HAI sailed through a large concentration of fishing vessels operating in Canadian Exclusive Economic Zone waters and ignored repeated directives from vessel traffic controllers to change course. The visibility conditions were poor and the actions of the TUO HAI violated international navigation rules.

The TUO HAI collided with the TENYO MARU, a stern trawling fish factory ship carrying more than 450,000 gallons of bunker and diesel fuel, with the result that the TENYO MARU sank and 120,000 gallons of intermediate fuel oil were released together with 53,000 gallons of diesel oil. Oil continued to leak from the wreckage of the vessel for up to a year after the incident.

The report of the accident by the Transport Safety Board of Canada blamed the inability of the crew of the TUO HAI for failing to understand the Vessel Traffic Service instructions in English and that neither vessel was using the appropriate collision avoidance procedures in dense fog.

Seiko -1993

The initial problems were that the SEIKO had a non-English speaking Master, who was not in possession of up to date charts of the area. The problem for the Dover Coastguard was that, during heavy weather, they had to try and talk the ship into an anchorage off the south coast of England. Initially the Master altered course directly for the specified anchorage co-ordinates without taking into account the shallows between the SEIKO, and the anchorage.

Considerable difficulty was experienced in passing the correct course to him, and the ships' owners were also utilized via a link call through North Foreland radio to achieve an effective contact. Ultimately the coastguard had to talk the vessel away from the coast and towards anchorage with the Wandelaar pilots.

Etilico – 1994

The central fact in this case was that a Spanish chemical tanker, the ETILICO, was not obeying the Collision Regulations as it passed through the Dover Straits and became involved in a close quarters situation with the OOCL BRAVERY. The Watch keeping officer did not understand even basic maritime phrases such as "what is your position". A short while later another close quarters situation occurred with an unidentified vessel, the estimated pass being between 100 and 400 meters. When the Master later came on the radio and found that he was in the wrong traffic lane the vessel changed lanes and almost collided with a major channel buoy.

Ship-to-Ship Communication Accidents

Ship to ship communications is open to many different types of errors involving a number of factors. Communication between ships in restricted waters is usually done for navigational purposes and so a certain degree of technical language knowledge may be required in order for the communication to be successfully achieved.

Inner ship communications may be dependent on ships having the ability to recognize one another. All too often the call "ship on my port side" is heard on traffic channels indicating that one vessel is trying to communicate with a specific vessel the name of which cannot be ascertained. Even if communication is correctly established then follows the problem of the vessels understanding each other.

Some examples of ship-to-ship communication accidents are shown below:

MT Butt and Fishing Vessel

In July 1993 the German motor-tanker „Butt,, collided with a Dutch fishing vessel near the approach to Ijmuiden. The fishing vessel was on the way to the fishing ground and had therefore set no additional fishing signals. The fishing vessel had to give way to the motor-tanker. Although the visibility was good the watch keeper on the fishing vessel did not see the tanker. The watch-officer on board the tanker tried to call the fishing vessel several times on VHF channel 16 without a reply. After the collision it was found out that the fishing vessel did not use channel 16 and therefore maneuvering agreements could not be made.

MV Achat and MV Oslo in collision, Oslofjord 1987

The German Achat collided with the Norwegian Oslo in Oslofjord in July 1987. The Oslo carried out a maneuver without giving notice to the Achat. The collision occurred despite the fact that a call or signal could have averted the casualty.

In April 1985 the German motor vessel „Sangerhausen" collided with the Yugoslavian motor vessel „Grobnik" on the river Elbe close to the entrance to the Kiel-Canal. This accident was caused by a mistake made by the pilots. The pilot on motor-vessel „Sangerhausen" made

some maneuver agreements with the supposed „Grobnik" without checking if he had contacted the right vessel. He had mistakenly spoken to another vessel close behind the „Grobnik,„. When he later on altered his course the collision happened.

Maneuver co-ordination with other vessel not regarded necessary

It is conspicuous that during the development of a collision very often no effort was made to ask the opponent about his intentions. The possibility of direct maneuver agreements is often not regarded useful, even when the officers on participating vessels speak the same mother tongue. Maneuver agreements seldom take place. The reason why can only be presumed. Of course, it has to be taken into consideration that in high-frequented areas with restricted visibility it could be difficult to safely identify the collision opponent. Another reason is psychic barriers existing to contact an „invisible,„ communication partner. Inexperienced officers therefore often shun calling unidentified vessels. Furthermore lack of language skills and adverse experiences may also prevent officers from contacting unidentified vessels.

Unfortunately, many watch officers do not sufficiently know their own ship and its maneuvering characteristics. It may also happen that misjudgments occur when too small passage distances are accepted or the rate of turn is overestimated. Therefore the reason that a direct contact on radio to avoid a collision in due time was not made can base on poor language skills or lack of knowledge and experience with the ship as well.

In March 1996 the German motor vessel „Breitenburg" collided with the Russian motor vessel „Vrissi" close to Cape Bon in the Mediterranean Sea. Although the visibility was excellent and the traffic not that heavy the collision occurred. The Russian vessel normally should have given way to the „Breitenburg" and the watch officer trusted this rule. The Russian officer did not follow these regulations, which caused the accident. By means of communicating shortly through VHF a simple maneuver agreement could have been made in order to avoid the critical situation.

Neglect of radio calling procedures

To be successful with direct maneuver agreements, it is essential that radio communication take place according to international rules. In this connection an unambiguous identification of the communicating partners should be a must. How necessary this is, will be demonstrated by the following examples:

In April 1985 the German motor vessel „Sangerhausen" collided with the Yugoslavian motor vessel „Grobnik" on the river Elbe close to the entrance to the Kiel-Canal. This accident was caused by a mistake made by the pilots. The pilot on motor-vessel „Sangerhausen" made some maneuver agreements with the supposed „Grobnik" without checking if he had contacted the right vessel. He had mistakenly spoken to another vessel close behind the „Grobnik,„. When he later on altered his course the collision happened.

A similar accident took place in April 1987 in the port of Wyk (Germany) between the German passenger vessels „Adler VII" and „Nordfriesland". Here, the agreements were made directly from ship to ship without pilot's participation.

Written Instructions and Skills

Language Barriers or difficulties linked to inadequate training can create situations, which result in serious injuries being incurred by seafarers. The norm today at sea is multi-national

crewing of vessels. The ship will be built in one country and owned in another. Subsequent sales and purchases along with shifts in registration can result in problems of documentation and written instructions held aboard. Manuals and maintenance histories will be passed from owner to owner and may not be presented any language of those currently operating the ship. This situation has contributed to accidents both at sea and in port.

The sinking of the Honduras registered Alte Weser in the Great Belt, May 2nd 1995

The Honduras registered vessel „Alte Weser" was sailing with a German master, a Lithuanian chief officer and a Polish crew. The Lithuanian officer could not speak English fluently. He did not understand the technical instructions for the operation of the navigation equipment of the vessel. That was one reason why he grounded the vessel in the Great Belt. The resultant sinking of the ship caused the death of the master.

MV „Anjola" - Grounding near Juist Island (German Bight) - October 29th 1996

The Antigua and Barbuda registered vessel „Anjola" grounded near Juist Island in stormy seas due to an engine break down. The Polish master and the Polish chief engineer could not read the German engine instructions from the German shipyard, dated from the time when the vessel was sailing under German flag. English manuals were not available. Due to misinterpretation the engine could not be restarted and the vessel began to drift and grounded.

MV „Westwind" - Grounding at Alands Islands (Finland) - March 12th 1995

The Antigua and Barbuda registered vessel „Westwind" was manned with a German master and a Polish crew. The crew was unable to understand the English language. Therefore the Chief officer translated all instructions into Polish.

In the inquiry into the grounding it was found out that the chart in use was not up to date. The German shipping company provided the vessel with German and English sea charts. The Polish chief officer carried out the corrections for the German sea charts because he was unable to understand German. His corrections from German caused several errors on the chart including the characteristics of the lights, which caused the grounding.

One case reported in Lloyd's List, concerned a ship forced to seek salvage assistance in the North Atlantic. This was not because any critical situation had arisen but simply because "the ship's crew could not work the equipment, were unable to read the manuals and could not communicate with each other.

Kay ax - 1995 (In Port)

The KAY AX was a 23, 277-dwt Panamanian registered bulk carrier with a crew of 17, the Master being South Korean, the rest of the crew comprising of Indonesian, South Korean and Chinese. Day to day communication on the ship was conducted mainly in English together with gestures and sign language. The senior officers used their native language, Korean, to communicate between themselves.

The accident occurred in Portland, Victoria, Australia when an Australian MSA inspector was on board the KAY AX to conduct grain loading and Port State Control inspections. The

surveyor requested, as part of the inspection, the lowering of the port lifeboat to the deck position and its return to its embarkation position at the davit head. In this position the surveyor asked for the lifeboat engine to run ahead and astern. During this operation the lifeboat became detached and fell first onto the deck and subsequently 20 meters in to the sea. The Korean master, Indonesian Second Mate, Korean oiler and Chinese ordinary seaman were in the lifeboat at the time of the incident and all were injured, the second mate sustaining serious head and spine injuries.

It was concluded that the crew who had entered the lifeboat initially (not the Master) were insufficiently practiced in using the on-load release gear. While attempting to do so the on-load release mechanism was activated because the safety pin that would have prevented the release of the lifeboat's quadrant was not in position and the release system was in the armed condition.

The languages used in the instruction manual and on the notices inside the boat were inappropriate for the ships' crew, being only in Japanese and English. They were therefore unable to read them properly or communicate with each other. Difficulties in communication between the crewmembers contributed to the accident.

MV Unitas - Death of an AB in main hatch in Mostyn, July 10th 1994

The German vessel Unitas was manned with German officers and Kiribati crew. The crew had not received work safety instructions in English and had insufficient information in English concerning the dangerous cargo. It was due to this that a crewmember entered a hatch although it was dangerous and forbidden. He was asphyxiated in the hatch and lost his life along with the chief officer who had gone in to save him.

Cultural Factors

The problems of misunderstanding due to differences in the interpretation of words and expressions between people of different cultures have contributed directly to accidents and indirectly in other ways.

The following are examples:

Insufficient verbal co-ordination between master and officers, officers and ratings

The second officer of a German chemical tanker manned with German officers and a Filipino crew gave orders to prepare the cargo handling equipment for loading chemicals. For this procedure it was necessary to open some valves. The instructions were detailed and clear. After he had given the orders the officer asked a crewman, whether he had understood and knew what to do. The seafarer gave an affirmative reply. Later he opened the wrong valves and was injured by mechanical parts moved by compressed air. The analysis of the accident showed that the man had not understood what he was instructed to do. It was more of a cultural problem for him to admit that he did not know what to do or to ask for a demonstration, this was aggravated by a lack of English skills.

The collision on MV „Anjola" referred to earlier can also be attributed mostly to a cultural problem. The Filipino chief officer thought that his German master would take over the command automatically once he came onto the bridge. This was not the masters' custom or intention. The chief officer did not ask the master if he was to continue with navigation and he did not inform him about a dangerous situation, as a result the ship collided with another

vessel. This accident was not caused by lack of language skills but partially due to cultural and custom differences. For the master it was quite clear that the officer of the watch would continue with navigation as long as he gave no other orders. It is noted that the „EVIO-Standard Marine Communication Phrases" expects the master in a case like this to inform the officer of the watch with the phrase: „I now take over the command." For the watch officer, on the other hand, it seemed to have been implied that the master by being there, would take over the command. Cultural barriers avoided a clearing question to clarify the situation.

MV „Alexandria" MV „Xin Hua 7" - collision near Pusan (Korea) - June 30th 1995

The Liberian flag vessel „Alexandria" approached Pusan. She had to give way to the Chinese vessel „Xin Hua 7". The Filipino chief officer did not continue with navigation when the German master entered the bridge although they did not talk to each other. The chief officer thought that the master would automatically take over command and did not alter the course. He also did not inform the master about the critical situation. This was the reason why the collision happened.

Under Emergencies Operation of the vessel

In emergency situations involving the operation of a vessel it is important that crewmembers are able to communicate quickly and effectively, information is vital to resolving such situations. The types of situations that might arise include fire and flood, and the following cases illustrate the problems that can occur.

Scandinavian Star (a) – 1988

The SCANDINAVIAN STAR has been involved in two incidents involving fire on board. In the first incident in March 1988 the ship was on the Cozumel, Mexico to St Petersburg leg of a cruise. Approximately four hours into the voyage a fire started in the engine room, caused by an oil leak. The motorman who was Honduran observed the fire and then reported to the watch engineer who was Filipino. The two men did not share a common language and consequently they had to communicate by hand signals.

While, in this case the language communication problem did not lead to any loss of life the signs that problems might occur existed. However, one of the recommendations of the National Transportation Safety Board of the USA was that SeaEscape (the Ship owner) should 'require that the officers and crew of passenger ships are able to communicate with each other and with a majority of the passengers'.

Lines of Communication

Should an accident occur there might be problems in resolving the situation if language or communication difficulties exist between the various parties involved. Thus problems in the line of communication will be of concern.

Ever Obtain – 1993

The EVER OBTAIN, a 30,254-dwt ship built in 1983 suffered an engine room flood and loss of power during a voyage from Kaohsiung to Jeddah, which ultimately resulted in it having to be towed to Suez for engine repairs. The principal issue arising from this incident was the breakdown in communication, despite the fact that the EVER OBTAIN had the latest Inmarsat approved satellite communication equipment on board.

When the EVER OBTAIN reported the incident to the Stavanger Rescue Coordinating Centre (RCC) they were "unable to understand the level of English spoken by the Radio Officer on board the ship". After the initial distress call had been received Stavanger RCC then tried to contact the EVER OBTAIN by Inmarsat and Telex but both methods were unsuccessful. The ship had to contact its own company headquarters in Taipei to request assistance, which was initially provided by a US Navy missile destroyer, prior to the arrival of a Greek salvage tug.

Sea Empress 1996

The initial incident that led to the Sea Empress becoming grounded in Milford Haven was not due to communication failure. Concerns have however been raised as to the post accident events, one of which was apparently communication failure in the salvage operation.

Communication between the salvor's liaison officer and the Master of the DE YUE was not a problem, although the media interpreted the situation as such at the time. Although the Master had no understanding of English some of the senior officers had sufficient knowledge of English for the correct procedures and requests to be followed. The reason the DE YUE was not utilized was not due to language problems but rather to differences in opinion as to how the tug should have been used.

A problem did however occur in respect of the effectiveness of communication between the co-salvors and the other parties legitimately involved in the salvage operation. This is best explained by the official enquiry report, which says:

"The salvors were well used to managing their own groups of staff and had effective communications within these groups. However, communications to others on board were, due to the numbers involved, somewhat less effective. This is no serious reflection on the workings of the salvors but it did result in many persons on board feeling unsure of who was in charge. Recognizing that each [supernumerary] had a counterpart ashore to whom he reported either in the form of an individual or an organization, any deficiency in communications on board the casualty was amplified, possibly many times over....".

Failure to communicate with passengers verbally

When passengers are involved in a Maritime incident it is likely that there will be a range of languages being spoken. It is therefore important that the crew can clearly direct them in whatever action is required in order that injury and potential loss of life are minimized.

St. Malo

An accident involving the High Speed Ferry, the ST. MALO, was principally down to navigational problems with the craft being taken through an area outside of the prescribed channel. Once the accident had occurred however there were some reported language problems with an entirely French crew trying to evacuate a largely British and German passenger complement.

Scandinavian Star (b) -1990

The SCANDINAVIAN STAR had left Oslo for Fredrikshaven in an unfinished state of repair, with work still being carried out on board and many of the exits blocked. Due to a hurried preparation period prior to sailing many of the crew had not undertaken fire or lifeboat drill and many did not know their emergency number or duties.

Shortly after sailing an arsonist started three fires, the latter of which spread rapidly. Due to lack of preparation and lack of leadership from the ships' officers there was a failure to appraise the extent of the fire or number of people evacuated. Little attempt was made to deal with the fire and the crew generally acted individually rather than in a coordinated fashion.

Further, communication problems existed between the crew and between crew and passengers and emergency evacuation procedures were not passed in a language that the passengers could understand. This was despite the fact that the ferry was running on a regular Scandinavian route. Thus passengers were only aware of the panic and confusion and not the underlying reasons and they were unaware of where the fires were, information that was essential for a safe evacuation. The crew had been hired on understanding that they spoke English but clearly did not and this failure was a significant factor in the high death toll of 158.

Failure to communicate with passengers in written form

Communication can also take place in written form and where passengers are involved it is important that any information necessary for their safety should be written in a language that they could understand, particularly if the crew does not speak their language.

Tallink – 1995

The TALLINK, a ro-ro ferry ran aground off the island of Suomenlinna near Helsinki shortly after leaving for Tallinn. While 1100 people were evacuated with only one passenger slightly injured a number of them complained that they could not understand the evacuation procedures that were given only in Estonian.

Post accident problems

Incidents that may originally have originated due to unforeseen circumstances can be exacerbated if there is a failure in communication between those whose responsibility it is to try and resolve the problem. The following example clearly highlights what can occur where language problems exist.

Matilda Bay -1997

The MATILDA BAY had been crossing the Great Australian Bight on a passage from Melbourne to Fremantle. The Chief Officer was Malaysian, the rest of the officers were British and the ratings were from the Philippines.

A repair team had been working forward trying to secure a detached booby hatch lid in heavy seas when a sea came over the fore-castle head and knocked the team over and out of sight of

the bridge. The Chief Officer who was leading the work team was pushed under the windlass and severely injured, while the other team members were pushed onto the windlass but not injured.

A Filipino lookout had seen the sea come over and when the water cleared was unable to see the team members. He ran into the wheelhouse to report that a man had gone overboard but the watch keeper was unable to understand what was being said. There was considerable confusion as to how many men, if any, had gone overboard and the ship was turned around to search for them before it was realized that all of the team members were still on board. The confusion lasted about 15 minutes and during this period the Chief Officer lay injured under the windlass. When the problem was eventually resolved he was taken to the sick bay but died of his injuries.

The chief officer had not informed the bridge of his intentions and none of the three men in the team were in contact with the bridge by radio. This in itself contributed to the accident as the master could have taken a safer course of action to allow the repairs to be undertaken. A further contributing factor to the confusion after the accident was the language difficulties, and this delayed the treatment to the Chief Officer.

Conclusions

Many of the incidents shown above indicate that the watch keepers did not have a clear understanding of a common language.

Watch keeping officers are required to have a knowledge of written and spoken English adequate to be able to understand charts, nautical publications, meteorological information and messages concerning the ships' safety and operation. Their knowledge should also be adequate to communicate with other ships and coast stations and multilingual crew, and use IMO Standard Maritime Communication Phrases.

Following the implementation of STCW 95 a vessel should not be able to sail without the navigating and senior officers having an adequate knowledge of the English language in order to perform certain tasks and communicate with other vessels.

Further, under the STCW 95 regulations, the English language requirements not only apply to navigation watch keepers but also to engineer watch keepers who are required to demonstrate an ability to interpret engineering publications written in English. Clearly a ship operating with a crew that cannot undertake basic tasks not only contravenes STCW 95 regulations but also numerous other international safety at sea regulations.

Nowadays, it is usual for large oil and chemical companies to charter the better part of the tonnage required to carry their cargoes. These vessels are chartered from shipping companies outside the oil interests. To evaluate the quality of ship and crew, vetting inspections are performed. These inspections are based on guidelines established by consultative organizations such as OCIMF in London. The guidelines also include the evaluation of communication between crewmembers. The oil companies collect the vetting reports in different systems, such as Ship Inspection Report Exchange (SIRE) from BP in order to exchange information about ships.

Coastguards

Some Coastguards also keep records on events regarding communication lapses. For instance, Dover Coastguard collects reports about events in the Straits of Dover that cause obstructions to navigation. Examples are listed in the annexes to Lord Donaldson's Inquiry „Safer Ships cleaner Seas". Unfortunately, sufficient material from this source was also not available for this report. An analysis of the recorded events could be very promising.

The increased use of people from a much wider range of countries than in the past suggests that there are going to be many situations where crewmembers will be derived from several countries and will thus have communication difficulties between themselves. Many instances exist anecdotally of such crews, for example a cruise vessel having a crew consisting of 24 nationalities, cargo ships having 8 to 10 nationalities and one of a ship with a total crew of eleven, speaking seven different languages.

Where a lack of communication plays a role in a maritime accident it is often difficult to ascertain its importance as a factor, as very often it may not be reported. It is also very likely that the number of unreported incidents will far exceed those that are reported. However, where seafarers from a variety of countries are employed the hazards inherent in ship operations are magnified if those working together cannot communicate with each other.

As an example, in an analysis of 273 accidents conducted by the Marine Casualty Branch of the Canadian Coast Guard, of vessels in Canadian Pilotage Waters under the conduct of a Pilot, it was found that 200 involved human factors and of those 20 involved a lack of communication. Therefore 73% of all accidents in the study involved human factors and 7.5% some form of communication lapse. 10% of accidents involving human factors were directly related to communication problems. Further, it has been suggested that problems created by the failure of crewmembers to speak or understand English results in an incident occurring every one or two days at the ports of Long Beach and Los Angeles.

Problems that arise in the ability to communicate between officers and between officers and crew will be reflected in the ability to operate a vessel both effectively and safely. Communication could also be a problem when crewmembers are from a different culture to the officers. This may lead to situations where the cultural response may be entirely different to the one expected leading to misunderstanding and inappropriate action being taken.

The types of problems highlighted above can lead to the 'proper management' of the vessel being compromised. This can result in a suite of different problems arising, which are analyzed in the following section.

However it can be taken for granted that the number of vessels with multilingual crews will continue to increase and will be the rule in the future. Therefore it is necessary to create methods and ways enabling different nationalities on board ships to communicate for the benefit of safety. One of the starting points may be a statistical acquisition of communication deficiencies as reflected in accidents which can be employed to purposefully initiate various measures, first of all in the field of maritime education and training. A statistical approach to this end, which has not been undertaken so far, is introduced in this report and the databases offered permit an unlimited input of data.

Creation of a database to collect information on collisions

For the purposes of this report, collision reports published from 1991 to 1997 by the Bundesoberseeamt, the supreme maritime court in Germany, have been investigated. These reports are from collisions that have taken place in German territorial waters or in which German ships were involved. The selection of accidents can be considered as representative given the fact that many accidents occurred on ships in the German Bight but not flying the German flag. To investigate these reports a database has been created.

Five main causes for every accident have been established and the same accident may appear in more than one category. By this procedure it should be ensured that the different categories are entered into statistics according to their weight. Traditionally, concomitant circumstances are only named in an accident investigation. Although these circumstances have influence on the development of an accident, they are normally not entered into statistics. The „five category method“, however, allows for concomitant conditions to be included into statistics.

Analysis of the data obtained

The idea that human beings with their individual capabilities cause more collisions than technical failures do has clearly been confirmed by this analysis. 96 % of the accidents described were caused by the human factor:

38 % errors in situation assessment 17 % physic / psychic failing 5 % improper operation of instruments 40 % communicatively relevant factors

Of the communication related factors, 12 % can be attributed to on-board communication and 88 % to external communication. This trend is quite understandable considering that collisions are regularly caused by deficiencies in external communication.

Nevertheless, the trend shows that in many collisions that happened under pilotage, the master or officer did not have enough information to get his/her own impression of the situation. The pilots normally made arrangements with shore-based parties or other pilots in German, so that the master was not able obtain enough information to foresee the extent of danger.

External communication is far more likely to be the cause of a collision. It can also be divided into several categories illustrated by corresponding examples. The distribution is as follows:

15 % insufficient co-ordination with shore based parties' 20 % technical malfunction 14 % neglect of radio calling procedures

47 % maneuver agreements with other vessels not regarded as necessary 3 % lack of English skills 1 % miscellaneous

It is striking that a great percentage (47 %), falls into the category „maneuvering agreements with other vessel not regarded as necessary". Critics could note that this is a very subjective evaluation, but the analysis of an accident always contains subjective factors. To reduce this criticism, only those accidents are included which have been categorized as having communication relevant factors in which it was determined that communication problems had taken place or in which the collision could have been avoided through adequate communication. In many cases the maritime court itself mentioned an interrelation between collision and communication. A vessel cannot be blamed for not establishing direct contact with another in order to overcome a hazardous situation. In situations like these, the only reproach made is that not all means were made use of to determine an imminent danger of a collision.

Relations between communication problem categories

When analyzing the communication relevant factors, the question arises as to whether there is a relationship between the different categories and if so to what degree. The aim is to find out, whether a deficiency in one category automatically affects the other communication categories. It must be mentioned that the key category in on-board as well as in external communication is a lack of language skills.

Especially in relation to collisions it can be assumed that poor English skills affect several categories at the same time. Poor English skills have a direct effect on the categories.

On - board Communication Deficiencies

It is true to state that without sufficient English skills it is hardly possible to establish clear co-ordination agreements. Even if this problem is not apparent during the daily routine it will emerge with the outbreak of a critical situation. In these situations communication is liable to fail completely. In the other two categories the direct relationship is not that clear. A lack of English skills can play a role in the category Insufficient verbal co-ordination between master

and officers / officers and ratings". But other factors, such as ethnic problems, can also play an important part. This has been made clear by the example of the MV „Anjola". The same goes for the category „lack of understanding with the pilot". Here it must also be taken into consideration that not all information available to the pilot is necessarily passed on to the master.

The category „communication hampered by panicking radio operator" is a subcategory to „lack of English skills". The categories „neglect of radio calling procedures", „maneuver agreements with other vessel not regarded necessary" and insufficient co-ordination with shore based parties" are influenced by „lack of English skills" as well as by „technical malfunction".

Other Accidents

To identify communication lapses in accidents others than collisions only from reports in publications is very difficult. Therefore it is impracticable with the unreliable data available to quantify the volume of communication problems and their results in maritime accidents others than collisions or near-miss events. This is due to insufficient attention paid to that factor in accident investigation in the past. The situation seems to change for the better since national and international maritime authorities, IMO included, have learnt from recent accident investigations that communication problems play a far greater part in shipping than assumed.

4. The Importance of Language in Crew Selection

Most crews of merchant ships are now multinational and culturally diverse. While shipping companies apparently give some thought to the rationale by which seafarers of different nationalities are mixed this varies among companies and depends not only on the supply of seafarers but a wide range of other factors.

This chapter is based on a survey, which was undertaken to assess the rationale behind mixed crewing decisions and to identify how potential problems were recognized and addressed. The survey was undertaken in two phases, the first being a postal questionnaire and the second interviews with senior personnel of some of the responding companies.

The survey was firstly aimed at obtaining information on crew nationalities employed, reasons for employing those nationalities, areas where communication problems occurred and the relationship, if any, of those problems to specific nationalities and combinations. The survey also considered the shipping company crewing policy and any changes, which had been initiated during the last twenty years and the effect that those changes may have had on communication problems. From these a range of opinions and policies of those responsible for employing seafarers can be gained.

The seafarers themselves get an opportunity to give their own views on some of the aspects of this survey. By talking to chaplains in seamen's missions around the world they are able to paint the picture from another viewpoint.

The issue of safety of navigation of ships, which are manned by multicultural and multilingual crews, has been increasingly highlighted in the past few years. Some prominent accidents at sea have fuelled the discussion on this issue. Various maritime workers' unions in different countries have added strength to the volume of these discussions. A stage has now been reached where the issue of multicultural and multilingual crews is broadly seen with some anxiety as regards the safety of the ship, the environment and the people, both on board the ship concerned and on shore, who may be effected. There is some concern that, with the wider availability of seafarers from countries around the world at costs much lower than those incurred by employing "western" or "own" crews, safety is being compromised. Part of this concern is the level of expertise that these seafarers bring to the ships they sail on. But the part that this study focuses on is the possible compromise of safety through problems in communications between and among multicultural and multilingual crew.

Communication is about conveying meaning, rather than the correct or grammatical use of a language. The quality of life and efficiency of work on board ships are sustained by communications; even if very little needs to be said in the course of performing routine tasks. Successful conveying of information, making correct decisions and conveying those decisions to those concerned, monitoring of events, interaction with the concerned interests and persons, all depend upon communications, as do mutual appreciation and evaluation. But language, it must be stressed, is fundamental to communication, social and professional interaction, and understanding of intention through the medium of speech.

The requirement that those on board ships can communicate well with each other, and with relevant authorities ashore is extremely important. There has been a vast amount of anecdotal evidence, which suggests that the situation on board can vary from congenial and efficient on the one hand, to dire on the other.

It must be understood that crews on ships live and work within a social sphere. Not only is it important to be able to work together in safety but also it is equally important, perhaps even more so, to be able to live together in harmony. Social tensions created by myriad factors, including culture and language, get magnified in the small and restricted environment of a ship. The crew, in their increasingly reduced numbers, form, on a ship, the society that must not only exist in harmony (this is desirable) but work and perform their duties safely,

efficiently and in compliance with fairly extensive regulation (this is necessary) - all this on very diverse ships, employed in very diverse trades and manned by diverse crews.

While some sections of the media have focused on the perceived dangers to safety brought about by multicultural and multilingual crews, there has been no objective study to substantiate or refute this perception. The present study addresses this shortcoming to some extent. This particular section sets out to obtain the perspective of ship managers towards multicultural and multilingual crews. It seeks to arrive at the rationale behind the practice of using "mixed" crews, as they are frequently known. With that aim, a survey was designed to seek the views of shipping companies.

Background

In spite of the broad mix of nationalities, cultures and linguistic diversity seen among crews, there does appear to be some rationale in the ingredients of the mix. Several well-managed shipping companies are selective, to some extent, of whom they employ on their ships from the large and varied supply of seafarers available across the world. There is a certain amount of experimentation with manning with. Learning from these experiments is rapid because mistakes, in this industry, are costly. There is, therefore, a pattern to the demand and requirements of a shipping company selecting from the supply available. Some companies have policies of mixing certain groups of people on their ships. Others have views on mixes of nationalities that they consider are incompatible. Recent years have, for example, seen a fairly widespread experimentation with crews from the ex-Soviet bloc countries. These crews have no track record in shipping in the modern context, outside their own national flags. Shipping managers employing them has very quickly identified their strengths and weaknesses.

In the selection process, there does appear to be an element of suitability to specific trades in addition to the social aspect of the crew living together. An example is the widespread use of Italians on cruise ships. Reasons for this may be aptitude, historic or other. That lies outside the scope of this study. The point is that the selection of crew goes beyond the mere cost function. It includes other factors like trade, abilities, social mix, owners' / charterer's requirements, language abilities, flag of ship, etc. The combination of all these factors arrives at something greater than just cost. Shipping company managers, like all other prudent managers, are seeking constantly to reduce costs of manning their ships but they are not single minded in this pursuit. Many other factors figure in the making of the final choice. This survey seeks to identify some of these factors and get some understanding of the rationale behind having multicultural and multilingual crews. In addition, it seeks to obtain an understanding of some of the problems associated with having such crews on ships, from the shipping companies' perspective.

It may be worth reiterating that ships are miniature societies, the congenial functioning of which depends, to a large extent, on the level of communications existing within them. This includes not only communications associated with the professional / commercial functioning of the ship but the broader and deeper levels of communications that transform this society into a cohesive and efficient team.

There is some discussion on the topic of controlling the manning of ships and having crews, only, that have a certain level of fluency in the use of certain languages. English is often the considered language. The antithesis of this point of view is that as the level of regulation increases, the level of efficiency decreases. This has been seen in the cases of heavily controlled societies in different parts of the world. Shipping, in its on-board operations, is already a heavily regulated industry.

The reality remains that crews of diverse cultural and lingual backgrounds man ships and there must be some reason(s) for this situation to prevail.

The Survey

This survey was designed to get an understanding of the rationale exercised by shipping companies in their decision to entrust the care of their ships (and the cargo they carry) to an often-polyglot crew. Further, the survey sought to identify the problems, if any, that the companies came across in the use of such crews, and the ways through which these problems were addressed and controlled.

The survey was divided into two sections. The first took the form of a postal questionnaire, which was sent to 38 shipping companies. Addresses of these companies were obtained from the Fair play Shipping Directory, 1996. The other section of the survey comprised meetings with managers of shipping companies. These meetings were intended to take the form of semi-structured interviews aimed at getting a broader and deeper understanding of the thinking of managers that could be obtained through a postal questionnaire. A summary of the results of the interviews follows the summary of the responses to the postal questionnaire. The response rate for the survey was 60.5%. One company returned the questionnaire with no response but with the explanation that their senior management had "declined to take part in the project."

The nationalities of the personnel employed on ships by the companies surveyed are shown below to give an idea of the national mix.

For **senior officers**, the nationalities listed were:

Bangladesh, British, Bulgarians, Canadian, Croatian, Egyptians, Filipino, German, Greek, Indian, Italian, Latvian, New Zealanders, Norwegian, Pakistanis, Persian Gulf nationals, Polish, Russian, St. Helenian, Spanish, Swedish, Syrian, Ukrainian, USA.

For **other officers**, the nationalities listed were:

Australian, Bangladesh, British Commonwealth, British, Canadian, Croatian, Filipino, Greek, Indian, Irish, Italian, Latvian, New Zealander, Norwegian, Persian Gulf nationals, Polish, Russian, South African, Sri Lanka, St. Helenian, Swedish, Syrian, Ukrainian, West European, USA.

For **ratings**, the nationalities listed were:

Bangladesh, British, Bulgarians, Cameroonian, Cape Verdian, Caribbean, Croatian, Fijian, Filipino, Indian, Irish, Italian, Latvian, Moroccan, New Zealander, Pakistanis, Polish, Portuguese, Russian, Sierra Leonean, Spanish, St. Helenian, Swedish, Ukrainian, West European, USA.

Factors that led the surveyed companies to the decision to employ the various nationalities are shown in the following tables:

For Senior Officers:

Percentage of respondents	Reason
59.0	Tradition
45.5	Language
31.2	Cost
77.3	Abilities / training
27.3	Right mix
31.2	Trade
13.6	Charterer's requirements
27.2	Other: (1) Owner's requirements (2) Shortage of traditional staff

For Other Officers:

Percentage of respondents	Reason
45.5	Tradition
50.0	Language
45.5	Cost
68.2	Abilities / training
31.2	Right mix
31.2	Trade
4.5	Charterer's requirements
18.2	Other: (1) Owner's requirements (2) Shortage of traditional staff

For Ratings:

Percentage of respondents	Reason
31.2	Tradition
36.4	Language
68.2	Cost
50.0	Abilities / training
27.3	Right mix
27.3	Trade
9.0	Charterer's requirements
18.8	Other: (1) Availability (2) Age profile (3) Owner's requirements (4) Came with vessels

The results over all of the companies were consistent. Considering the significant differences it is seen that "tradition" as a reason for employing senior officers is highest and for ratings is lowest. The same trend is seen for "abilities and training".

"Cost" sees an opposite pattern. It is the highest factor of consideration for the employment of ratings and the least important for the employment of senior officers.

After "cost" the most often cited reason for the employment of ratings was abilities and training. For both senior and other officers, this was the predominant reason.

"Language" remains a strong reason for the selection of manning of all three categories: 45.5% for senior officers, 50% for other officers, and 36.4% for ratings.

The factors "right mix" and "trade" remain moderately, and nearly equally important for all three categories of personnel, being cited in approximately 30% of the cases as reasons for selection of specific nationalities or cultures.

The companies surveyed were asked to identify areas in which communication problems occurred and returns were as follows:

Percentage of respondents	Areas of problems in communication
9.4	Both cultural and linguistic
13.6	Cultural
36.4	Linguistic
40.6	Did not answer

Asked further whether these problems were linked to specific groups:

Percentage of respondents	Reasons for problems
9.0	Cultural
13.6	National
18.2	Other: (1) Shyness through lack of confidence. (2) Suspicion of other and fear of losing job. (3) Language. (4) Understanding of cultural values.

Asked that, if there had been a change in the crewing policy, was this because of work output, change of flag, politics, language abilities, costs, and trade. The option of "other" was given, which the respondents were invited to specify.

No one selected "language".

Percentage of respondents	Reasons for change in crewing policy
13.6	Work output
36.4	Change of flag
4.5	Politics
45.5	Costs
18.2	Trade
27.3	Other: (1) New tonnage

	emanated from East Europe; this brought crews from this area, whose costs are below all others. (2) Non-availability of traditional manning.
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Question 12 asked if the respondents felt that, in their experience, there were mixes of nationalities that were not compatible on ships.

The responses were:

Percentage of respondents	Response
22.7	Did not respond
36.4	Yes
41.0	No

Respondents were asked to list these incompatible nationalities:

Chinese and Filipino.
Indians and Arabs.
Croats and Yugoslavs.
Indians and Filipinos.
Bulgarians and other nationalities.
Indians and Italians.
Japanese and Filipino.
Japanese and Indian.
Korean and Filipino.

Comments were invited from those taking part in the survey on the subject of multicultural and multilingual crews on ships and the following section gives a selection of the comments received:

- [With multicultural and multilingual crews] trying to understand each other's cultural differences was a problem. Once everyone understood each other, they linked into a close team. The team went into an intensive course for safety training and proved very adept at learning, with the help of videos and exercises ... Especially with Filipinos, shy at using their English, I have found Scrabble at night very beneficial. They also seem to enjoy simple quizzes, which brings out even the shyest.

Latvian crews are a different problem. They sometimes have worrying drinking habits and a lack of English. In some countries this has caused concern with correcting charts, etc. Our Latvian crew is mainly on gas tankers, which they operate fairly satisfactorily.

We have found over the years that Italian officers are successful on passenger ships. On some vessels, chartered to German interests, we have had to put German Masters on board, with Filipino crew, and in some cases hotel staff being Portuguese. I have noticed a certain evolution of different nationalities gaining a mutual respect for each other and their different cultures, culminating in increasingly happier ships. The combination of their different ideas is interesting and they complement each other.

-Pre-employment interviews should remove linguistic problems. Cultural problems are mainly due to ignorance. Re-employment removes 90% of these.

British officers are able to work with most nationalities. With ratings where English is not the mother tongue, they must have an adequate understanding of English.

There is saving with foreign manning but not sufficient (monetarily) to counter the disadvantages like:

Language

Ability

Redundancy of existing crew

Tradition

Customers like to see European crew

Overall hassle and cost for us, a small family owned company.

We try to have a maximum of 2 nationalities on board ... It is vital that any cultural differences are known before officers and crew are put on board.

This subject has not been a problem with this company.

We have permanent staff, as much as possible. Communication problems are, consequently, low. In emergencies, natural English speakers can be equally adversely affected. On-going training applies to both groups.

We maintain clear and unambiguous work instructions and support and value cultural diversity. However, we are not comfortable with more than 3 nationalities on one ship. Certain mixes of nationalities would not be recommended.

No problem with mix of nationalities if rules and regulations are clear and apply equally to everybody on board, coupled with good recruitment and selection procedures to select staff ... encourage and promote social activities on board helps to overcome impact of multicultural crews. ... It is best to have at least one junior officer and one junior engineer from the same nationality [as the crew] so as to act as liaison officers between ratings and senior officers or command.

-Given time, effort and willingness, the majority of difficulties can be overcome. The wish to succeed must come from all parties. English is (perhaps from lack of alternatives) the language of trade, commerce and, hence, the sea. We should concentrate on teaching the English language as a communications medium.

These comments give a valuable insight into how cultural mixes work. It also indicates that the multilingual and multicultural aspect of crewing is taken into consideration when choosing the 'right crew' for a ship. Experience can be invaluable in this field of management because that experience should eventually lead to a more content and therefore more efficient crew.



La Pinta Yacht Multilingual Crew

5. Pilotage - On Board Observations by Researchers and Pilots.

Pilotage - On Board Observations by Researchers

Introduction

Pilotage is an area in which clarity of communication is vital. It is the point of a vessel's voyage at which the ship is closest to the shore and therefore most at risk. Consequently it is an important area when studying communication problems. It is the interface between ship and shore where there is cultural interaction and seafarers are most likely to encounter languages other than that which they use as a working media aboard their ship. A pilotage operation often allows no time and no sea room in which to rectify an error, which has arisen due to misunderstandings of engine or helm orders or if tug orders and responses or other information are not clearly understood.

We know from documentary evidence that safety is jeopardized where pilots are unable to communicate effectively with the crews of the vessels that they are piloting, leading to further stress on the pilot and a reduction in the bridge officer's effectiveness.

In order to obtain a better understanding of the communication problems, which arise on board a vessel under pilotage, a number of observations were made by a SIRC researcher on vessels of different kinds in four ports. By using ports in various parts of the world a good spread of data could be obtained, as the national languages used were different as were the local and onboard accents. These aspects have to be overcome amongst seafarers in the context of a professional bond between a pilot and the master and crew of a vessel, which he is piloting. Each has to have trust in the other and each relies on the other's integrity and efforts to communicate under critical conditions.

Data Gathering

This study of pilot-bridge team communication had to proceed on an observational basis only instead of observation and voice/visual recording methods originally envisaged. Professional and ethical reason precluded the latter method of data collection. Accompanying the pilot when he boarded and observing the operation as an independent party therefore carried out research.

In the ports, which allowed observers to accompany the pilot, English was the main but not exclusive working language. In order to obtain the most accurate data possible, observations were made by day and night and on different sizes of vessel most with a multi national crew mix. Varied types of weather were encountered during the observations and this gave the project a very broad spectrum of conditions to analyze. Poor visibility or extreme weather conditions all combined to render the operations diverse and the consequent stress levels produced on the bridge teams.

The cases presented are from 'field' notes and cover typical communication problems found throughout pilotage operations. The accounts are divided into the main categories of problems observed and are presented case by case under each category. In each case the type of ship and the nationality mix of crews are given.

Orders given in a raised voice

Characteristics

The first case indicates a communication problem that occurred frequently. This is, when an order is initially misunderstood, (either through language difficulties or other factors) and the repeat order is given in a louder voice or even a shout. A man who has not comprehended the first communication is unlikely to understand the second due to the agitation in the voice of the order giver that results from being misunderstood the first time. That agitation would tend to further blur the meaning that the voice wished to convey. This occurred in the second case also although that is mainly concerned with the use of different terms.

Ship Type	General Cargo Vessel
Flag	Antigua
Master	German
Officers	Filipino
R/O	Russian
Crew	Filipino
Pilot	Indian

The master communicated with the pilot, officers and crew in good English. The pilot spoke English to the master and Hindi to the tugs and to the mooring gangs. The master generally had to repeat most of his orders to the Filipino officers fore and aft. This he did in a shout, which reduced the clarity of the communication even further. He accused them of not listening to their radios but it was clearly the standard of the recipients English that was the problem.

Orders Using Different Terms for the same Actions

Ship Type	Bunkering tanker
Flag	Panama
Master	Greek
C/E	Greek
Officers	Indian and Bangladeshi
Crew	Indian and Bangladeshi

All communications were in English but there was no consistency in communication terms between the master and the officers and crew. For example the master used the term, "Tie the rope" to the Indian officer who was mooring the vessel forward but later he used the term "Make fast" to the same man to carry out the same operation on another rope. This lack of standardization caused hesitation.

At no time were either the Standard Marine Navigation Vocabulary (SMNV) or the Standard Marine Communication Phrases (SMCP) used on board. Orders that were not understood the first time were generally shouted the second time. There was no misunderstanding between the pilot and the master as the latter spoke English well. Any danger that may have presented itself during the operation was in the delay of communicating orders through having to repeat them and using different terms for the same action.

Use of English words incorporated into another language

The most notable use of English words in other languages was observed on ships where Indonesian was the ship's working language. In the following cases a number of English words were used during the operations. Initially the observer thought that these may have been words that had been picked up elsewhere but the master of the first vessel explained that these were words that he had been taught during his training. There were no specific words for these aspects in his own language but the words that he had been taught had not been taught as 'English', rather they had been taught as 'nautical terms' meaning that they would be the same when incorporated in any language.

Foreign teachers of maritime English confirmed this feature of teaching during the International Maritime Lecturers Association conference in Malmo in June 1997. Teachers said that they did not have specific words in their own languages for words such as "scupper" so they adopted the English word. However the students accepted the words not as English but as an extension of their own language.

"In position" and "gangway" are words that were observed as used between ratings on deck and shore mooring gangs as a standard means of communication that both required doing their jobs. Words found on the bridge were usually concerned with engine movements or operational orders, i.e. "make fast" or "let go". The word "machine" was often used when giving engine orders but this word is similar in English, German, Italian and French.

Pidgin English was inevitably used a great deal but the lack of grammar that this produces does not seem to affect the success of the communication method.

Ship Types	Passenger Vessels
Flag	Indonesian
Masters	Indonesian
Officers	Indonesian
Crews	Indonesian
Pilot	Indonesian
Tugs	Indonesian

Mooring Gangs - Indonesian

The pilot and the master communicated in Indonesian and the pilot and the master communicated with the officers in Indonesian. Although all on board were Indonesian with the exception of the observer, some words of English were noted. The words "Stop machine" in English were used to stop the engines and although

Indonesian was being used on the bridge the words "spring" and "In position" was used in English. This indicates the international nature of a number of maritime words and phrases.

The pilot claimed that words such as those noted above were in everyday use on Indonesian ships and they were not considered to be English terms as such but nautical terms.

The master controlled the vessel himself and the pilot controlled the tugs and mooring gang. He gave all helm and engine orders in Indonesian. (The pilot was difficult to understand when he gave orders because he had a cigarette holder in his mouth for most of the operation.) At one point the pilot, when speaking to the tug in Indonesian, used the words "make fast" in English. It was difficult to gauge the actual level of the master's English, as he did not use it at all throughout the operation.

On board a similar vessel the captain's English was good though he and the pilot communicated in Indonesian. While speaking to the mate forward in Indonesian the master

used the words "single up" in English. Later the word "gangway" was used in an Indonesian language sentence.

On the third vessel in this section the master used Indonesian to the helmsman and to the mates fore and aft. The pilot used the word "haria" to the master to pass on to the mate forward when lowering lines to the mooring boat although they were communicating in Indonesian at the time. This is accepted as a Hindi word but is used worldwide aboard ships of many nations. This was a small vessel engaged in inner island trade where any language other than Indonesian would be unnecessary.

The Role of onboard Translation

It is most important that someone is available on the bridge to translate the pilot's orders to the helmsman or the officer of the watch if they are unable to understand him. The master will usually do this but he, like the pilot is very busy during a pilotage operation and may not be immediately available to act as a translator. If the pilot is left alone with a seafarer who is unable to understand his orders or intentions then the vessel and the operation are put at risk. The two cases are examples of failure to properly translate orders.

Ship Type	General Cargo Vessel
Flag	Russian
Master	Russian
Officers	Russian
Crew	Russian
Pilot	British

Communication between the pilot and the master was in broken English. The master communicated with his officers and the helmsman in Russian. The pilot gave helm orders in Russian. The vessel was to anchor using the starboard anchor and was in the channel at half speed.

The pilot had briefed the master on the operation upon boarding 30 minutes earlier. On the approach to the anchorage the pilot asked the master if the anchor party were standing by forward. The master understood the pilot and turned to the chief officer who was controlling the anchor party from the bridge. Before he was able to communicate with the chief officer the latter gave the order by radio to let go the anchor.

Although the master had understood the pilot's meaning the chief officer had only partly understood it and interpreted it as an order to let go the anchor which order he relayed to the forecandle before the master had communicated the correct meaning to him. It was too late to countermand the order and the vessel was still moving too fast for the anchor to be dropped. Only an emergency application of the engines astern prevented the anchor cable from parting and the vessel was fortunate not to ground as she swung in the narrow fairway.

Ship Type	General Cargo Vessel
Flag	Greek
Master	Greek
Officers	Greek
Crew	Greek and Indian
Pilot	British

The master and pilot communicated well in English and the master communicated with the helmsman in Greek. The vessel was approaching her anchorage with only the pilot, master and helmsman on the bridge and the master was out on the bridge wing talking to the forecastle head with a bullhorn during the final turn.

The pilot, who was alone in the wheelhouse with the helmsman, gave orders to steady the vessel on her anchoring course but the helmsman was unable to understand him. The pilot called the master who did not hear him because communications with the anchor party forward were proving difficult. The pilot then used the telegraph to put the engines to dead slow ahead and took over the wheel from the helmsman until the captain re-entered the wheelhouse. The pilot could then hand back the wheel to the helmsman and concentrate on anchoring the vessel. The lack of communication between the pilot and the helmsman could have put the ship in danger had any emergency arisen.

Unnecessary Speech

This was a problem observed mainly among the pilots themselves. Often when an order was given, a short explanation of why it was given was added. This was obviously useful to the master and his officers but it sometimes caused confusion when there was a language difficulty. In the case that follows the pilot had added the words "just to bring her back a bit" to explain why he had given the order "dead slow astern".

The latter explanation was given in a slightly lower voice and was less clearly spoken. The pilot did this deliberately in order to indicate that it was not intended as part of the order. Had the master been a native English speaker he might have caught the meaning of this intonation but as he was not, he thought that it was part of the order. He probably became quite confused at this point, which could have been dangerous.

This and other similar cases observed indicate that there is a need, during pilotage operations, to clearly distinguish between orders and explanatory comments. This could be done either by separating the two with a decent interval of time or prefacing by 'I am doing this because ' or by a completely different tone of voice. The differing native tongues of both communicators should be considered carefully when giving a "commentary" (thinking aloud) of one's intentions. It is important that this sort of information is exchanged between the master and the pilot but it should be separated from the orders given by some means that both understand.

Ship Type	VLCC
Flag	Malta
Master	Greek
C/E	Greek
C/O	Greek
Officers	Filipino
Crew	Filipino + 2 Bulgarians
Pilot	British

All communication was in English. The master spoke to the Filipino helmsman in English. The master was on his mobile phone for most of the time speaking in Greek, which led to slow communications as a number of orders, had to be repeated to him.

This was a very large ship with four tugs in attendance and the master should have been devoting his full attention to the ship and not to his phone. There were a number of supernumeraries and others on the bridge during a difficult maneuver and this further distracted from the job in hand.

The pilot then gave the order "dead slow astern" and added "just to bring her back a bit". The latter confused the captain and the order had to be repeated. This time the pilot did not add the second remark because he realized that the master had at first mistaken it as part of the original order. This was a good illustration of where the use of the Standard Marine Communication Phrases would have left no doubt as to the pilots meaning.

Courtesy

The cases cited below illustrate how even the use of courtesies between operators can lead to misunderstandings. While courtesy is desirable in dealings between pilots and masters and masters and their officers, it can be out of place in an operational situation. In the first case the pilot had added the word "please" to his helm order and the helmsman seemed to have understood it as a part of the order. The answer that he gave did not make sense and indicated a misunderstanding of the order given. The helmsman would not have been expecting the pilot to have added the word to a helm order and there lay the route to the misunderstanding. The next case was not dissimilar and although it did not lead to any confusion, it carried the situation on longer than was necessary. The pilot might well be expected to use the word "thank you" to indicate that he had heard the helmsman repeat back the last helm order, as the helmsman was required to do. However there was no need for the helmsman to say anything more and the words "you're welcome" were unnecessary and could a), have been misunderstood by the pilot who would not have been expecting them and b), have been spoken over the next helm order which could well have closely followed the first.

Ship Type	General Cargo Vessel
Flag	Isle of Man
Master	British
Mate	South African
2/0	Canadian
3/0	Russian
Crew	Bangladesh
C/E	British
Pilot	British

All communications were in English. The master gave orders to the Bangladeshi helmsman in English. At one point the pilot gave an order to the helmsman "223 please" and the helmsman answered the pilot "22 please", the pilot then corrected the helmsman "223". This is a good example of the necessity of making helm orders clear.

Ship Type	Product carrier (tanker)
Flag	NIS
Master	Norwegian
Officers	Norwegian
Crew	Filipino
Pilot	British

All communications on the bridge were in English. The Norwegian master communicated with the Norwegian officers fore and aft in English in order to keep the pilot informed. At one point in the operation the pilot gave the helmsman the order "Starboard 10". The helmsman

repeated the order back to the pilot "Starboard 10". The pilot then said to the helmsman "Thank you" and the helmsman answered, "You're welcome". After this had happened twice the pilot stopped thanking the helmsman.

The pilot may acknowledge the answering of an order by saying "thank you" but there is no further need for the helmsman to then say anything else. This again brings up the point made in the first case whereby courtesy perhaps has no place in bridge communications.

Use of own language in a situation where others "need to know"

This section considers the subject of translation from three different points of view although only two are detailed. The first case is an illustration of a communication that should have been translated for the benefit of the pilot and the safety of the ship. A pilot would normally be kept aware of the situation regarding the way in which the vessel was handling but in this case the helmsman, being unable to communicate with the pilot in his language regarding the response of the vessel to the helm, communicated instead with the master.

This was perfectly acceptable but the master would then be expected to communicate the helmsman's concerns to the pilot. He did not do this so the pilot was unaware that the next helm order that he gave would not have the desired effect. This led to a delay in the operation while the pilot brought the vessel back to the desired heading. It could have led to a dangerous situation had the circumstances been critical. If there is a communication problem between the crew and the pilot then the master must ensure that the pilot is kept up to date with any situation that will affect the ship's handling.

The next case is also one in which one party was not kept informed of what the other was doing. Had the master of the vessel been able to understand the communications that passed between port control and the pilot it is probable that he would have refused port control's request to bring his ship closer in to the channel. His charts showed him the distance between the pilot station and the pilot's boarding area and it would have been a simple calculation to work out that the pilot would have been unable to reach the vessel before she entered the channel and compulsory pilotage waters.

As the communication took place in a language that he did not understand, he was denied the opportunity to make his own decisions and had to rely on the port control officer for information.

In a third case not detailed here, the master took over the handling of the ship himself and in his own language, the pilot was unable to understand why the vessel was handling the way she was. If the master was not satisfied with the way in which the pilot was conducting the operation it was up to him to confront the pilot and make his concerns clear.

The master and the pilot could then have discussed the situation and probably come to some agreement. However the master chose to give his own orders in his own language allowing the pilot to believe that he was following the pilot's orders by repeating them back to him.

The danger here was that although the master was entitled to handle his own vessel, the pilot, because she was not reacting as he expected, was using his tugs to counteract the master's orders. The master should have realized this because with the vessel reacting to two different inputs, she was effectively out of control.

Ship Type	River type coastal tanker
Flag	Liberian
Master	Indian
Officers	Russian and Indian
Crew	Bangladesh, Indian, Kuwaiti

The Master stated that the language used on board consisted of a 'bit' of everything but was mainly Hindi and English. At one point in the operation there was an incident that could have had serious consequences in a bigger and less maneuverable vessel.

The pilot, through the master, to steady the vessel on her course, gave the helmsman who was Indian an order. Due to the slow speed of the ship, that order required the wheel to be put hard a port to maintain the heading. The helmsman informed the master of this in Hindi but the master did not pass this on in English to the pilot. Thus, when the pilot wanted to steer the ship further over to port and thinking that the wheel was more or less in the amidships position, he ordered 10 degrees of port helm to do so. This was considerably less than the helmsman was already using to steady the vessel on her course and subsequently when the helmsman obeyed the order he reduced the amount of helm to port and the vessel started to swing to starboard.

In this case there was plenty of room to starboard and no other traffic was in the vicinity, the pilot therefore was able to use both the wheel and engines to bring the vessel back on course. However had the master translated to the pilot, the helmsman's remark that the ship was no longer steering, the pilot would have increased the speed to improve the steering and would not have had to take action to avoid the vessel swinging into the channel and away from the direction in which he intended her to go.

The pilot it should be noted had been unable to observe the angle of the rudder from his position on the port side of the wheelhouse because he needed to be in that position in order to judge the approach to the berth. He had to rely on the helmsman and the captain to keep him informed of how the vessel was steering.

Most orders given on the bridge of this ship by the pilot and the master had in fact to be repeated due to the lack of understanding of English and while the pilot spoke to the master in English, the master spoke to the Indian mate forward in Hindi and the Russian mate aft in heavily accented English. English was used between the Indian master and the Russian officers on the bridge.

The master used English to Port Control and Hindi to the helmsman at all times. Almost no orders were repeated back from the helmsman or from the Russian officer manning the telegraph. This seems to have been due to their lack of confidence in using English. The master spoke to the mooring foreman (a Sikh) in Hindi during the mooring operations as did the Indian officer forward.

The mooring foreman made hand signals to the pilot to position the vessel but then the vessel had an enclosed bridge so apart from radio contact, a voice option would not have been available.

Ship Type	Product Tanker
Flag	British
Master	British
Officers	British
Crew	Indian
Pilot	African

These observations were not done on board but carried out from listening to radio communications on port control's working frequency. The master was on the bridge of his ship, had requested a pilot and was awaiting him in the roads outside the port. The pilot spoke to his port control on the working channel (which the ship was able to monitor) in his own language. He informed port control that he was delayed but would board the pilot boat at a certain time.

Shortly afterwards the port control called the ship in English and brought it closer in to the pilot boarding ground in readiness for embarking the pilot. The master asked what time he might expect the pilot but port control was unable to give him an exact boarding time. The pilot again called port control in his own language and told him that he expected to arrive at the boat in the next few minutes. At this, the port control called the ship right into the channel entrance to pick up the pilot.

Once the ship had entered the channel however, port control realized that the pilot had underestimated his time to the pilot boat and was not yet aboard it. Port control then asked the master to turn his ship around but the master said that he was unable to do so because he was inside the channel entrance and was committed to making the entry. The master subsequently entered the port without a pilot and anchored his ship in the fairway as soon as it was safe to do so.

Had the communication between the pilot and the port control officer been in English as the port's regulations required, because he was monitoring the pilot's working frequency, the master would have known that the pilot would be unable to board him before he had entered the channel. This was because he was aware of the distances involved between his vessel and the position at which the pilot intended to board the pilot boat.

Voice Intonation

Communication can also be about how language is perceived through the tone of voice used. A question is generally understood to be such no matter what language is used and whether or not the language is recognized. The case below illustrates this well.

Ship Type	Container vessel
Flag	Liberian
Master	Korean
Officers	Korean
Crew	Korean
Pilot	British

The vessel was alongside the berth and tying up fore and aft. The master and the pilot were on the starboard bridge wing observing the mooring operation when the second officer who was aft came over the radio with a query. The master turned to the pilot who answered the query before it had been translated.

The master was surprised that the pilot had understood the second officer and asked him how it was that he understood Korean. The pilot answered that it was the intonation of the officer's voice that had led him to understand the question. That, linked with the pilot's familiarity with the problems that that particular berth raised, had allowed him to understand the question.

This was an interesting aspect of communication in that it involved voice intonation rather than vocabulary. If a problem occurs regularly at the same place it is a useful pointer to where difficulties lie.

Interruptions

In two of the cases observed, the master spent a major part of the pilotage operation on his mobile phone. In the first the master was engaged in a conversation with his owners throughout the operation. While this might be a confirmation of his confidence in the pilot's abilities, it meant that he was not on hand to act should there be any communication problems

between the pilot and the vessel's officers. Although this was unlikely in that particular case, the master was not making himself available should it become necessary.

In a second case the master was again on his mobile phone to an agent or his owner. This was a very large ship in a fairly tight maneuvering situation and the master was passing on the pilot's orders while speaking into his phone. It was on this vessel also that there was a fair amount of distraction due to the number of supernumeraries in the wheelhouse. While not strictly a communication problem it may still have had an effect on the operation. Only the first case is detailed below.

Ship Type	Container Ship
Flag	Marshall Islands
Master	German
Mate	American
C/E	British
2/E	British
All Others	Filipino
Pilot	British
Mooring Gang	Indian
Tug crews	Filipino

The master was on his mobile phone for most of the pilotage seemingly to his head office that had called shortly after the pilot boarded the vessel. This interfered with communication between the pilot and the master and between the master and the American chief officer, who was on the wheel and the telegraph, there had been a Filipino helmsman on the wheel during the early part of the pilotage but he was sent forward to supplement the mooring party there.

The communication problems here were not of a multilingual nature but were by virtue of an inappropriately timed phone call, which the master would have done well to delay until a more appropriate time. Thus all communications were clear and there was little opportunity for misunderstandings.

There were only two men forward for mooring despite the size of the vessel but communications between the bridge and the Filipino mates fore and aft were clear and precise. Communications between the pilot, the tugs and the mooring gang were in English and were clear and without any problems.

The vessel was a fairly new containership on a regular liner run and the level of communication was up to that expected of a vessel of her type. This type of vessel runs to a tight schedule and cannot afford to lose time at any port of call. It would be expected that a reasonably high standard of crew would be found on such a vessel.

Non-Verbal Signals

This type of communication is restricted to those cases where the use of language breaks down almost completely often on smaller ships. Although it is not a recommended method of making oneself understood it can be effective if all else fails. No matter what languages are spoken aboard, hand signals often come into use. There are accepted signals for mooring operations that are used and understood worldwide. For example:

Crossed forearms -make fast, a vertical movement of arms by the side of the body with palms facing up - let go, vertical movement of arms in front of the body with palms down - slack away, one arm rotated above the head - heave away.

In one of the cases shown below even hand signals proved difficult to use and the pilot was forced to take over the handling of the ship himself. She was fairly small and did not need the help of tugs but it still put the pilot in an awkward position if he should have to leave the wheel to get a different viewpoint of the berthing situation. Another case was however, an illustration of how a pilotage operation can be carried out without a word being said. The pilot was only able to point at the telegraph for the engine speed that he wanted. This was despite the fact that the telegraph was marked in the Russian alphabet. Fortunately ship's telegraphs worldwide are marked in the same graduations.

The third case is very similar but whereas in the last case the pilot was able to give his helm orders in Russian, in this case the orders had to be given by pointing at the helm indicator in order to obtain the amount of helm required. The vessel's course was steadied by moving two arms in parallel along the ship's heading at that time. The last case shows the much more common use of non-verbal signals between ship and shore and on board the vessel itself.

In all of the above cases, diagrams were only used as a means of clarification and not as a means of communication. It is often easier to explain to a ship's master what position the pilot is going to berth his ship in, by means of drawing a simple diagram. The arrangement of the ship's ropes for mooring can often be far better shown as an illustration rather than described verbally.

Whistle signals are still fairly commonly used both at sea and during pilotage. Although it is no longer usual for a pilot to use a whistle to control tugs there are still parts of the world where it is still common practice. The tug may answer on the tug master's whistle or the tug's own whistle and it is a means of communication that requires no modern technology or language ability. A set of signals can be laid down that will be understood no matter what the mother tongue of the user.

Ship Type	Deep sea tuna boat
Flag	Korean
Master	Korean
Officers	Korean
Crew	Korean
Pilot	British

Almost no English at all was spoken on board. The pilot, being unable to communicate his orders, decided that the safest thing to do was to take the wheel and telegraph himself. This meant that his view of the operation was restricted making the pilotage more difficult but this was more than compensated by the fact that the vessel was being navigated as he intended. Mooring the vessel was done mostly by hand signals between the pilot and the officers and crew. As the boat was to be berthed alongside a fellow fishing vessel, no communication with a shore mooring gang was necessary.

Ship Type	Trawler
Flag	Russian
Master	Russian
Officers	Russian and Ukrainian
Crew	Russian
Pilot	British

The pilot and the chief officer were able to communicate in English though the captain did not speak English at all. Helm orders were given to the helmsman by the pilot in Russian and

repeated by the master but engine orders had to be given by pointing to the desired speed on the engine room telegraph.

A second pilot boarded another Russian trawler astern of the first with the intention of berthing the two vessels side by side. He found that nobody aboard spoke any English at all. The vessel was berthed very slowly by getting the pilot of the first ship, which was already moored, to shout translations of helm orders across the closing gap between the trawlers.

Conclusions

Although the data was gathered from a small population it was reasonably representative of the industry as a whole and the potential danger areas in communication.

It was observed that most of the senior Russian officers had a good grasp of the English language for operational purposes but that did not extend to the more junior members of the crews. Also notable was the lack of a communication language among grades seafarers from the Far East. This is well indicated by the two cases, which show Korean seafarers on a larger container ship who could communicate well enough with the pilots and shore authorities, and Korean fishermen on an ocean going fishing vessel who were unable to communicate at all except by sign language.

The raising of the voice to repeat an order that has already been misunderstood is common and counterproductive. In that case the shouted repeat caused only confusion, delaying and endangering the mooring operation. There seemed a strong tendency to mistake a lack of understanding as a lack of effort or intelligence.

In interpretation of orders a direct link between the pilot and the helmsman is vital. If that link is broken by the temporary absence of a translator or by the translator failing to pass on a communication from one to the other then the operation is put at risk. The two shipmasters mentioned in the case studies that spent most of the pilotage operation on their mobile phones were doing just that. Whereas in one of the cases the helmsman spoke English well enough and was close by in the wheelhouse, in the other the man on the wheel was not a native English speaker and was, due to the size of the vessel, a considerable distance from the pilot. This was a difficult operation requiring four tugs to berth the vessel and the pilot needed all the help that he could get on the bridge.

The answer to many of the communication problems cited in the cases is simply clarity of speech. A slower use of speech when communicating with someone whose mother tongue is different is essential, as is the recognition that a problem can exist. All too often the speech of the other is taken for granted by the master or the pilot during an operation. Each must learn to appreciate the problems that the other may have.

The use of the Standard Marine Navigation Vocabulary and its replacement the Standard Marine Communication Phrases, was not found on the bridge of ships under pilotage and much of the communication used during the operation was still left to chance understanding. The majority of mariners do still not appreciate the advantages that SMCP can offer and until they come into common use, misunderstandings will continue to occur. Seafarers do not have to speak different languages for misunderstandings to occur, it only needs different accents in the same language to cause confusion.

It is at the interface between ship and shore, i.e. port control, pilotage and mooring operations that most misunderstandings occur. Port control and coastguard stations still have considerable problems communicating simple phrases to vessels at sea and although that concerns another part of the study, it overlaps into the field of communication aboard.

The communication problems referred to are found on both sides of the operation. The case studies show that more care is sometimes needed among the pilots themselves when dealing with other cultures. A pilot may experience five or six ships a day and he may encounter five

or six different nationalities during that day. He must therefore look critically at his own performance during the pilotage operation and ensure that he meets the crewmembers halfway in the communication problem.

A pilot's job is to have local knowledge of his area. He must understand that those relying on his services do not have that familiarity and he should be aware of this when dealing with them. It is all too easy to become irritable with those who cannot fully grasp what is required because of communication problems and an awareness of this is a first step towards better bridge communication.

It was particularly noticeable that any pilot save some typical seafaring terms used no standard phrases at any time. However as many standard phrases have their roots in these terms it should not be difficult for them to become routinely used. The number of instances shown in the case studies where non-English speakers use these terms in English indicates that there is already a familiarity with many.

This series of observations showed that there are still many areas where communication under pilotage can be improved. Translation is an all important element of that communication because despite improved training for some, there will always be crewmen on board who will be unable to communicate effectively with pilots of different nationalities.

There is a need for a wider dissemination of the uses and convenience of standardized phrasing. It appears that many at sea still do not realize their potential for improved understanding and safety. Pilots in particular rarely used them but would benefit from them aboard a great number of the ships that they dealt with. It is perhaps the responsibility of pilotage authorities to encourage standard language use for it is they who are obliged to deal with the problem daily.

This section shows that there is room for improvement on both sides of the pilotage operations. The ships themselves need to prepare more carefully for approach to a port by ensuring that the best bridge team they can assemble is available for pilotage. The pilots need a better understanding of how the speed and clarity of their communication can affect the overall outcome of the operation.

Pilotage - On Board Observations by Pilots

Previously provided examples of communication problems witnessed by a researcher (who was also a qualified mariner) on board. This section provides some results from a large number of co-operating pilots on their experiences on a ship-by-ship basis.

This section shows again how diverse the spread of languages is in the shipping industry today, and uses a case study to illustrate examples of the mix that a pilot may face upon boarding a vessel. The data was collected for over 4500 ships in 19 ports. Much of it has yet to be analyzed, we present therefore, one case study only.

The Case Study

The case study considered here compares 770 ships entering one German port. The pilot on each vessel completed a pro forma allowing the analysis below.

In summary form the data from the German case study shows

1. 345 out of the 727 vessels (for which an official ship language was noted) declared English as the official ship language.

2. 770 Vessels - Captains came from 49 different countries
Most common were:

German	146	Swedish	41	Croatian	18
Russian	73	Polish	53	Korean	18
British	60	Danish	30	Finnish	15
Dutch	60	Filipino	22	All	<15
Norwegian	59	Greek	19	Others	

3. The first language of communication between the Pilot and the Captain was:

In English	In German	Also in:	
620	131	Russian	1
		Spanish	1
		Italian	1

First language of communication was not specified for 15 vessels

4. A second language of communication between the Pilot and Captain was specified on 9 vessels.

These languages were:

German (3), English (2), Dutch (2), Russian (1), Greek (1)

The number of languages used by the bridge team was specified on 697 ships.

More than one language was used on the bridge on 370 (53%) of these 697 ships.

English was the first language used to communicate between the captain and pilot on the majority of vessels (620), which arrived at the port, whilst German was used on a further 131 ships. The other languages used were Irish, Russian, Italian and Spanish (one vessel each). No language was specified on the remaining 15 questionnaires.

A second language of communication was specified for only nine vessels. These languages were German (3 vessels), English (2 vessels), Dutch (2 vessels), and Russian and Greek (one vessel each).

The nationalities of the captains are given separately according to whether English, or German, was the principal language of communication used with the pilot. Where German was the language of communication, the captain was usually German (on 85% of vessels). The remaining captains who spoke in German were Dutch (13), Danish (3), Polish (2), and Norwegian and Croatian (one each). Among the 620 vessels, upon which communication between the master and pilot was in English, the nationality of these captains was much more heterogeneous. They came from at least 49 different countries.

Similarly, there is a much greater homogeneity among the flags flying over those vessels upon which German was the language of communication. There were only 13 different flags among the 131 vessels, whilst the German national flag accounted for 57 (44%) of these. Where English was the language of communication, the flags were distributed across 69 countries.

Nationality of the Captain by Language of communication between the Captain and Pilot (column percentages in brackets)

Vessels upon which the language of communication used between the pilot and captain was:

Nationality of the Captain	English	German
German	32 (5%)	111 (85%)
Russian	68 (11%)	
British	59 (10%)	
Norwegian	57 (9%)	1 (1%)
Dutch	46 (7%)	13 (10%)
Swedish	41 (7%)	
Polish	32 (5%)	2 (2%)
Indian	29 (5%)	
Danish	29 (5%)	3 (3%)
Filipino	22 (4%)	
Greek	19 (3%)	
Korean	18 (3%)	
Croatian	17 (3%)	1 (1%)
Finnish	15 (2%)	
Estonian	13 (2%)	
Chinese	11 (2%)	
Italian	10 (2%)	
Other nationalities	102 (16%)	
Total	620 (100%)	131 (100%)

Flag of the Vessel by Language of communication between the Captain and Pilot (column percentages in brackets)

Vessels upon which the language of communication used between the pilot and captain was:

Flag	English	German
Norway	53 (9%)	2 (2%)
Panama	44 (7%)	3 (3%)
The Netherlands	38 (6%)	13 (10%)
Sweden	38 (6%)	
Russia	37 (6%)	
Cyprus	37 (6%)	15 (12%)
Bahamas	33 (5%)	
British	26 (4%)	
Liberia	24 (4%)	6 (5%)
Malta	23 (4%)	8 (6%)
Antigua and Barbuda	23 (4%)	18 (14%)
Germany	15 (2%)	57 (44%)
Finland	12 (2%)	
Isle of Man	12 (2%)	1 (1%)
Korea	12 (2%)	
Singapore	11 (2%)	1 (1%)
Estonia	10 (2%)	
Other Nationalities	172 (28%)	7 (5%)
Total	620 (100%)	131 (100%)

On those vessels where German was the first language of communication used between the pilot and the captain, perhaps surprisingly, there tended to be more languages used by the bridge team (compared to those vessels where English was used to communicate). This difference is evident below, and is statistically significant ($p < 0.05$). Clearly, where German was the language of communication, the bridge team used more than one language on 68% of these vessels. This compares with 50% of vessels where English was the language used between the captain and pilot.

Number of Languages Used by the Bridge Team by Language of Communication Between the Captain and Pilot (column percentages in brackets)

Vessels upon which the language of communication used between the pilot and captain was:

Number of languages used by the bridge team	English	German
One	285 (50%)	38 (32%)
Two	266 (47%)	73 (61%)
Three	19 (3%)	8 (7%)
Four	1 (0%)	
Total	571	119

Some degree of explanation for this perhaps surprising finding above that more languages tended to be spoken on the bridge of those vessels where the captain and pilot communicated in German, may be found in Table 4 below. It is evident that a majority (57%) of vessels, upon which the communication was in English, were crewed by officers who were of the same nationality. This nationality was most often Russian (61 vessels), followed by Swedish (35), British (31) and Dutch (28). Among those vessels where communication was in German, however, only 28% were crewed by officers who came from the same country. These countries were Germany (23 ships), The Netherlands (10), Denmark (2) and Russia (one).

Nationality of the Officers by Language of communication between the Captain and Pilot (column percentages in brackets)

Vessels upon which the language of communication used between the pilot and captain was:

Nationality of the Officers	English	German
Single nationality among captain and all other officers	358 (58%)	36 (28%)
Of which nationalities were:		
German		23 (18%)
Russian	61 (10%)	1 (1%)
Swedish	35 (6%)	

British	31 (5%)	
Polish	19 (3%)	
Filipino	16 (3%)	
Dutch	28 (5%)	10 (8%)
Danish	16 (3%)	2 (2%)
Norwegian	19 (3%)	
Croatian	11 (2%)	
Finnish	11 (2%)	
Indian	12 (2%)	
Korean	14 (2%)	
Other single nationalities	85 (14%)	
Total Vessels	620	131

Furthermore, this evidence of a greater heterogeneity among the nationalities of officers, upon those ships where communication was in German, is further supported as follows. There were an average number of 1.79 different nationalities of officers on these ships, compared to 1.48 different officer nationalities, upon the vessels where communication was in English. This difference was statistically significant ($p < 0.001$).

Among the eighty-six vessels where communication was in German, and where the captain and officers were not all from the same country, the different combinations of nationalities are summarized in Table. Thirteen different nationalities, and twenty different officer crewing mixes are represented among the officers on board the 76 vessels for which the crewing composition returns were complete.

Flags of the Vessels, upon which the Pilot used Sign Language to Communicate with the Captain, Watch Officer or Helmsman

Flag of Convenience		Non-FOC	
Antigua and Barbuda	9	Russia	13
Bahamas	8	Norway	6
Panama	7	The Netherlands	5
Cyprus	6	Denmark	4
Malta	5	Greece	3
Liberia	3	Germany	3
Singapore	2	Estonia	2
Belize	1	Lithuania	2
St. Vincent	1	Turkey	2
Hong Kong	1	South Korea	2
		Italy	1
		Belgium	1
		Tunisia	1
		United Arab Emirates	1
		France	1
		Finland	1
		Ireland	1
		Japan	1
		Great Britain	1
		Bulgaria	1

		Sweden	1
		Algeria	1
		Jamaica	1
		Nigeria	1
Total	43		56

Of the 101 vessels upon which sign language was used to communicate, the pilots indicated the number of languages used by the bridge team for 95 of these ships. Of these 95, the bridge team on one vessel used four languages only. The bridge team used three languages on 9 ships, two languages were used on a further 41 vessels, whilst one language only was used on the remaining 44 ships.

In other words, the bridge team on these 95 vessels used an average of 1.65 languages. This was slightly higher than for those vessels where no sign language was used; on these ships, an average of 1.56 languages were used by the bridge team. This difference in the average number of languages used by the bridge team was statistically significant ($p < 0.05$).

Number of languages used by the Bridge Team by Whether or not Sign Language was used to Communicate between the Pilot, and the Master, Watch Officer or the Helmsman

Number of Languages used by the bridge team	Vessels upon which Sign Language as used	Vessels upon which Sign Language was not used
One	44	264
Two	41	279
Three	9	18
Four	1	
Total	95	561
Average Number of Languages Used by the Bridge Team	1.65	1.56

The total number of crewing nationalities on board is given separately in Table below, for those vessels upon which sign language was used, and for those vessels upon which sign language was not used. Perhaps, surprisingly, the average number of crewing nationalities was slightly lower on those vessels where sign language was used (1.71) than on the ships where it was not used (1.99). This difference, however, was not statistically significant.

Number of Different Crewing Nationalities on board by whether or not Sign Language was used to Communicate between the Pilot, and the Captain, Watch Officer or the Helmsman

Total number of Different Nationalities on board	Vessels upon which sign language was used	Vessels upon which no sign language was used
One Crewing nationality	47	198
Two	24	193
Three	8	75
Four	5	25

Five	0	8
Six	1	7
Seven	0	2
Eight	0	1
Total	85	509
Average number of crewing nationalities on board	1.71	1.99

Diagrams used to Communicate between the Master and the Pilot

There were 59 vessels, upon which the pilot used diagrams to communicate with the master. The flags of these vessels are summarized in. 24 of the 59 vessels were flying flags of convenience, whilst 33 were nationally flagged, with 2 flags unknown.

Flags of the Vessel upon which the Pilot used Diagrams to Communicate with the Captain

Flag of Convenience Vessels		Non-FOC Vessels	
Antigua and Barbuda	6	Russia	5
Malta	4	Denmark	5
Bahamas	4	The Netherlands	3
Liberia	2	Greece	3
Singapore	2	Germany	2
NIS	1	Norway	2
St. Vincent	1	Turkey	2
Netherlands Antilles	1	Portugal	1
Belize	1	Estonia	1
Hong Kong	1	Finland	1
Panama	1	Croatia	1
		Italy	1
		India	1
		Great Britain	1
		Algeria	1
		Jamaica	1
2 Flags Unknown		Korea	1
		Latvia	1
Total Vessels	24		33

Of these vessels upon which diagrams were used to communicate, three languages were used by the bridge team on 5 ships, two languages were used on the bridge on a further 17 vessels, whilst only one language was used on 36 ships. The bridge team on these vessels where diagrams were used to communicate used an average of 1.47 languages. This was slightly lower than for those vessels where diagrams were not used to communicate between the master and the pilot. On these ships, the bridge team used an average of 1.59 languages. This difference was statistically significant ($p < 0.05$).

Conclusions

Clearly the English language is used as the first language of communication between the pilot and the captain in the majority of cases. The study being carried out in a German port means that the second most common language used was almost inevitably going to be German. The fact that the local language would be seen to dominate others after English would be true of any port that took part in the study.

The use of sign language for communication was analyzed in a number of cases and it was found that the more sign language was used the fewer the languages were used on the bridge. Although as mentioned earlier the average number of crewing nationalities was lower on those vessels where sign language was used, the difference was not said to be statistically significant. However sign language need not be used only on mixed crew ships. Homogenous crews will use sign language to communicate over distance to avoid unnecessary use of communication aids.

Traditionally crews have used a number of different signs to indicate the state of an operation or to convey orders. Different signs are used for mooring anchoring and berthing operations. Both the pilot and the master may use signs during a pilotage operation but this is only one of the forms of communication that will be available to them.

Studying the language of the Bridge team, most of the ships had two or three languages. This could mean that when the German pilot was speaking in German to the German Captain it may not be comprehensible to the officers on the bridge and this would be a potential safety hazard. However it was recorded that the German pilot on 32 ships spoke English to the German Captain, for this reason.

The implications are that a diversity of languages on the bridge could be a danger when the pilot and Captain are talking their mother tongue, or it could be an asset since if there are four languages in use, the chances are that someone on the bridge will understand the pilot. This is an aspect that will be further researched but the implications are that in critical pilotage conditions a common language is essential.

Chapter 6 now goes on to study external communication i.e. ship to ship and ship to shore communication. External communication is a different form of communication altogether.

6. External - Ship to Ship and Ship to Shore communication.

Ship-to-Ship communication

In the previous chapters communication is primarily taking place on a face-to-face basis. However the English language is largely used in radio communications and it is in this area that misunderstandings become even more dangerous. It needs to be recalled that the Collision Regulations were devised long before radio was in common use and they did not require the knowledge of any language other than the navigator's own to be effective. They were internationally adopted and although every watch keeper learned them in his own language, he was aware of the action that the watch keeper on an approaching ship would take to avoid a collision. However with a poorer standard of training evident at sea today it is becoming more common for an officer to call up the approaching ship on radio to discuss any maneuvers that he may wish to make. This is where knowledge of the English language is essential and where a poor grasp of it can be dangerous.

A well-trained officer will obey the Regulations for the avoidance of collision and will not need to communicate with an approaching vessel unless it is absolutely necessary to do so. A serving shipmaster stated recently that he forbade his officers to use the VHF radio to call other ships for collision avoidance unless they were in confined waters and were uncertain of the other's intentions. As the hailed vessel will often be unidentified there is no way to be certain that the vessel that one wishes to communicate with is the one that answers. The words "vessel on my port bow" are meaningless if there are a number of ships in the vicinity of the caller and the radio has a range of 50 or 60 miles. All of these are precarious practices before language is brought into the equation. If the Collision Regulations are now replaced by two seafarers speaking to each other in a tongue that is either's first, then a dangerous situation can develop.

IMO maritime English standards: SMNV and SMCP

Communication ship to ship and ship to shore has undergone a number of attempts at standardization but the IMO has produced two specific methods i.e. the Standard Marine Navigational Vocabulary (SMNV) that was superseded by the Standard Marine Communication Phrases (SMCP). A brief background to these communication methods follows in order to show what standards need to be met.

Standard Marine Communication Phrases (SMCP)

The Maritime Safety Committee (MSC) examined at its sixty-eighth session (28 May - 6 June 1997) the "IMO Standard Marine Communication Phrases (SMCP)" prepared by the Sub-Committee on Safety of Navigation, inviting Members and Organizations to conduct trials concerning the use of the SMCP.

In the same circular letter (MSC/Circ 974, dated 10 June 1997) the IMO Maritime Safety Committee further suggests that trials "should be conducted on board ships, by maritime training institutes, by search and rescue organizations, by hydrographic offices, by VTS, by pilots and port authorities and by others involved in maritime communications who may be expected to use the SMCP in the future."

In the Introduction two precise objectives of SMCP have been set forth:

"To assist in the greater safety of navigation and of the contact of ship, -To standardize the language used in communication for navigation at sea, in port-approaches, in waterways, harbors and on board vessels."

As in the case of all the previous standards, the Sub-Committee has also issued a note of caution to the effect that SMCP is not intended:

-To supplant or contradict the International Regulations for Preventing Collisions at Sea, 1972

-Special local rules or recommendations made by the IMO concerning ships' routing - the International Code of Signals, nor to - supplant normal radiotelephone practice as set out in the ITU Regulations.

The degree of caution is, perhaps, not as necessary as it may seem, since neither SMNV nor SMCP are in contradiction with the above conventions and regulations. On the contrary, they are both compatible and complementary.

In addition, it is firmly stated in the Introduction that the SMCP meet:

1. SOLAS Convention, 1974, as revised, regarding verbal communications, and
2. The requirements of the STCW Convention, 1978, as revised, in particular:

Knowledge, understanding and the competence to use the SMCP as required for officers in charge of a navigational watch on vessels of 500 gross tonnage or more.

No direct reference, however, is made to 1995 STCW Code which has been adopted in the meantime, though it can be stated that language standards set out in SMCP also meet the latest communication requirements of the STCW Convention.

As an acceptable safety language (i.e. a restricted variety of the English language), these standards are recommended to be used, as far as possible, in preference to other wording of similar meaning.

Finally, it should be noted that the SMCP have been recommended, if not imposed, to become part of (obligatory) instruction in maritime education and training (cf. IMO model courses).

Observation

It has been difficult to obtain data on ship-to-ship communication although some was inevitably included in the ship to shore section and in that section concerning accidents due to communication lapses. Few recordings are available of ship-to-ship communication but some examples obtained are set out below. A number of these are shown as an outcome rather than a transcription but the results are of interest to the project. Also included are some cases of ship to aircraft communication, which are equally relevant when considering ship-to-ship contacts.

When considering both ship to ship and ship to shore communication there is a need to study the technological advances that have taken place affecting the equipment used for this type of communication. The coming of new radio communication technology, especially digital and satellite systems, has led to the establishment of a Global Maritime Distress and Safety System, which overcomes the problems of range and radio watch keeping, while at the same time leading an increasing number of shipping companies to dispense with the services of the dedicated radio officer, whose role is increasingly carried out by navigating officers.

For a variety of reasons, arising from technical, operational and manning shortcomings, the introduction of the GMDSS, with its completion date due on 1 February 1999, has not been smooth, with the greatest problems manifested as false alarms. However, some of these false alarms and many other shortcomings can be attributed, either directly or indirectly, to inadequate English skills on the part of the officers involved in GMDSS operations. These inadequacies have arisen from the increased use of maritime personnel from nations with limited provision of general English courses at school and nautical college levels.

Such problems have been recognized by several international organizations, including the International Maritime Organization, and by individual ship owners and managers and new training standards, which include English proficiency, have been promulgated. However, by their very nature, these standards are couched in general and largely abstract terms, and must be translated into more concrete and specific proposals for use in pre-sea and in-service courses, as well as for the assessment of competence by national authorities.

Examples of Non Communication

There is evidence that the crews of many ships either cannot or will not communicate by radio at all, in any language although the first two examples shown below seem more political:

When a serious fire broke out on the Turkish vessel *AKOVA* near the Greek island of Skyros, no distress signal or request for assistance was transmitted, as the crew did not wish to communicate with Greeks. The fire was so bad as to be visible from the shore, where the alarm was raised.

This report was followed by two similar incidents. In the first, the Turkish general cargo ship *BARBAROS OKI AY* ran aground off Kos, and the master refused Greek assistance. Next, the bulk carrier *HASAN BEY* initially refused Greek assistance after she lost power following a fire in the engine room.

The US Coast Guard reported that the crew of a vessel wanting to evacuate an injured man simply activated a manually operated EPIRB, rather than make a radio call. Two aircraft responded, neither suitable for the task, at a total cost of \$90,000.

Another USCG officer has found that many operators seem to treat DSC and Inmarsat-C equipment as if they were manually operated EPIRBs, in that, after sending an automatic or semi-automatic distress alert, they do not respond to calls from RCCs over DSC and Inmarsat-C.

An official at the Australian Maritime Incident Investigation Unit reports many instances of 'near misses' when fishing vessels have been nearly struck by large trading vessels, both at night and in daylight, where the fishing vessel has called the ship on VHF and been unable to elicit a reply. The majorities of the ships concerned were under the flag of non-English speaking nations and consider that in many cases the bridge watch keeper may have been unable to understand the fishermen's radio calls.

The use of telex in radio communication offers a less threatening medium to those whose grasp of English is insecure, but it may also lead to reluctance to communicate by R/T. In the context of the GMDSS, it is particularly important to note that those operators who rely on Inmarsat-C telex for distress alerting may be at a great disadvantage when R/T is required, especially in bridge-to-bridge and on-scene communications, discussed below. It is alarming that eight out of often candidates who failed GOC examinations do so because they are not able to verbalize distress, urgency or safety messages in English or to verbally respond to those calls.

Non Standard Bridge-to-Bridge Communication

Some operators are all too ready to talk, but sometimes their ignorance of the Standard Marine Navigation Vocabulary can lead to confusion or even disaster. TSB (Canadian Transport Safety Board) (1992) reported on the collision between the Japanese bulk carrier *SHINWA MARU* and the Canadian ferry *QUEEN OF ALBERNI*. The *SHINWA MARU* initiated the first radio contact between the two vessels at 0806 and, about two minutes later,

the vessels collided. Highlights of the communication between the vessels included the following:

Time	Station	Text
08:06:22	SM	You can see me out here...?
08:06:27	QA	We know you are there, ... wish us to slow down or may we cross your bow?
08:06:32	SM	I'm only doing about 5 knots but I'm coming up to full so you go ahead, it's your pleasure there.
08:06:39	QA	OK, we'll slow down ...
08:06:46	SM	Well, you can go ahead of me if you want but I'm picking upspeed here / it will be quite a while before I'm up to speed but, like I say, I'm working her up.
08:07:15	QA	We'll keep our eye on you and stay clear of you.
08:07:40	SM	You seem to be coming right at me
08:07:58	QA	...We're stopping SHINWA MARU
08:08:37	SM	You just smacked into us.

The phrasing of this exchange bears little or no resemblance to the SMNV. Among the many possible substitutions are:

- C WHAT ARE YOUR INTENTIONS for 'you can see me out here'?
- C MY PRESENT SPEED IS 5 KNOTS for 'I'm only doing about 5 knots'
- C I AM REDUCING SPEED for 'OK, we'll slow down

However, strict adherence to the SMNV in the absence of common sense cannot prevent collisions.

Difficulties in SAR Communications

While distress alerts, including the ship's position, can be and are transmitted automatically without the need for any command of English, as shown above, SAR and on-scene operations demand good two way communication. The following verbatim transcript is extracted from a recording of a NATO / Partnership for Peace exercise in the Baltic. Although the phraseology (especially of numbers) was not always standard, careful repetition and a shared understanding of procedures meant that, overall, the communication was successful, despite poor reception for both parties. In this case, also, the participants were combat fleet personnel, SAR specialists, with frequent experience of SAR exercises carried out using English in radio communication, although neither was a native speaker of English.

1. This is Rescue Gdynia this is Rescue Gdynia / if you need it / if you need it / hello / please say me please say me / this is rescue Gdynia / over
2. This is November Alfa Romeo / affirmative / I do require your helicopter at once on scene / over
3. You I understand you require you my helicopter on scene / I send helicopter / I am sending helicopter now / he will be on scene in fifteen minutes over
4. This is November Alfa Romeo / roger / out

1. This is Lima Echo Charlie / interrogative / are you ready for my sitrep / are you ready for my sitrep / over
2. Go ahead with your sitrep / go ahead with your sitrep / but say it very slowly / there is a lot of jam / there is a lot of jam / you are very weak / over
3. Sea temperature eleven (*sic*) degrees / sea temperature eleven Degrees / ambient temperature thirteen (*sic*) degrees / ambient temperature thirteen degrees

(Beata Pierzynski, Polish Naval Academy - personal communication.)

Among the departures from the SMNV in this transcript are: □

C 'affirmative' for YES

C 'interrogative' for QUESTION (with no other message markers used)

C 'helo' for HELICOPTER

C 'eleven' / 'thirteen' for ONE ONE / ONE THREE (or rather, in the rarely-used official version: UNAONE UNAONE / UNAONE TERRATHREE)

Difficulties in On-Scene Communications

The Royal National Lifeboat Institute in the United Kingdom reported eleven incidents involving language difficulties for 1994-97, among them the following involving GMDSS compliant vessels:

Douglas, 18 May 94 - large fishing vessel, sick crewman. Although there were language difficulties, the vessel had indicated that they had a sick person on board... The MRSC were now also calling in an interpreter...'

Weymouth, 17 Dec 94 - large motor vessel, dragging anchor; 'One crew member placed aboard casualty to assist communication (language difficulties).'

Valentia, 29 Dec 94 - large fishing vessel, sick crewman; 'communication with master of MV *DOLORES CADRECHE* was very difficult as nobody on board could speak English... (He) did not seem to be able to follow instructions given and was heading to a very dangerous area... Lack of communication on this service could have created a very serious situation.'

Ballycotton, 23 Feb 95 - large fishing vessel, fire; 'The trawler was drifting ... and due to language difficulties, communication with the crew was very difficult.'

Humber, 21 May 97 - large motor vessel, sick crewman; 'Coastguard unsure of problem with patient owing to language problems with ship.'

Fishguard, 20 Nov 97 - large fishing vessel, fouled propeller; 'Language difficulties were creating some confusion.'

SAR helicopter crews report that their main concern is with the ability of the casualty crew to comprehend instructions, especially in relation to the correct use of the 'high line' (referred to as 'hoist cable' in the SMCP), which is dropped from the helicopter to the deck. (A special section of the SMCP, Part IE, 5 (5.1), has been exclusively reserved to cover communication in helicopter operations of the kind mentioned.). In cases where two-way communication is likely to be important, a long-range aircraft, such as a Nimrod, can accompany the helicopter with an interpreter on board. Communication between helicopter and casualty is then relayed via the aircraft. (Flt.Sgt. Paul Trethewey, winchman, 'A Flight, 22 Squadron RAF SAR - personal communication.)

A Department of Trade investigation into the death of the chief officer of a oil rig supply vessel on 11 November 1986 found that there were communication problems between the operations manager of the rig, a Swede 'with only broken English in a broad Scandinavian accent who was panicking', and the supply vessel, which hampered attempts to direct life

lines to the casualty in the water. (DoT 1987) On the other hand, newsworthy marine accidents can give rise to inaccurate reports of on-scene communication difficulties. Thus Lord Donaldson has commented that, in the case of the *SEA EMPRESS*, 'there could be no more vivid demonstration of the need for a common maritime language than the spectacle of a huge Chinese salvage tug which could not be used because none of the crew spoke English.' (Donaldson 1996).

The official report took pains to scotch this popular myth:

It is worth clarifying also the much-publicized role of the interpreter from a local Chinese restaurant. The Master of DE YUE demonstrated no knowledge of the English language but some of his senior officers spoke reasonable English therefore there was no real problem of communication between the salvors' liaison officer and the crew. However, the questioning by the Master of some of the actions required of him and the resultant discussions with the liaison officer, when relayed to those ashore, was interpreted by them as a language problem, whereupon the services of a Cantonese speaking person to act as interpreter were obtained. Although this person did pass messages to DE YUE in Cantonese, which were understood by the Master, the real problem was not a difference in language but a difference of views on the operation of his vessel. (MAIB 1997)

Ships to shore communications are covered next and good deals of the problems are the same as those experienced in ship-to-ship communication. The two forms of communication are similar in many ways but with the exception that at least one of the parties to the communication may be more professionally trained in another language.

External - Ship to Shore Communications

Ship to shore communication is frequent when a vessel is at sea however it becomes most important when a vessel is in coastal waters or is approaching a port of call. The ship will have to call an agent, port authority and pilot in order to arrange her entrance and stay in port and all of these communications are an important part of her safety and efficient operation.

Messages and warnings will probably be in a language that is the mother tongue of neither the ship nor the country that she is communicating with and standardization is therefore an important part of that contact.

A great deal of ship to shore communication is done through Vessel Traffic Service (VTS) schemes. It is therefore from these schemes that a good deal of the data for this section of the report is taken to try to establish the current standards of communication.

Evaluation of Current Practice (VTS "German Bight Traffic", 1997/1998)

Results of "Radio Check Tests" made by GBT in 1993

There is a compulsory Reporting System established within the maritime VTS areas in Germany. Furthermore, according to the National Traffic Regulations, vessels must keep a permanent listening watch on the appropriate VHF (Very High Frequency) frequencies of the respectively competent VTS Centre in the area of which they are proceeding.

The VTS Centers conduct continuous radar surveillance on shipping traffic and contact vessels as soon as the VTS Operator observes the occurrence of a critical situation. The regular and effective conduct of this service supposes, above all, the readiness to communicate among all of the traffic participants.

The fact that a certain number of vessels entering the VTS area of "German Bight Traffic" or being already plotted by the electronic tracking system could not - or not within a reasonable time - be contacted via VHF produced a state contradictory to the enhancement of the safe and easy flow of traffic. These conditions had led in 1993 to the necessity to conduct inquiries in this context.

The main conclusions of the 1993 inquiry had shown, in proportion to the number of trials utilized and recorded, that:

- 71 % of the vessels responded at once upon first VHF call
- 17 % of the vessels reacted - under aspects of effective traffic management procedures within an acceptable time, mostly upon repeated calls
- 12 % of the vessels did not - or not properly, react on VHF calls by VTS

Considering that the latter 12 % represent, in general, individual cases, which were distributed contingently within the period of trials, they do not automatically create dangerous situations. But, notwithstanding, there was a need to improve knowledge of VTS procedures including the due conduct of VHF communication. The need for intensified use of a standardized language in international shipping was ascertained yet again.

These determinations areas relevant in 1998 as they were in 1993.

Presumed reasons for insufficient communications (as far as detectable) were:

1. No listening watch was kept on VHF CH 16 and/or the appropriate VTS frequencies
2. The VHF set on board was not switched back after completing communication on other frequencies; (e. g. with pilot cutter, tugs etc.)
3. The bridge of the vessel was not manned with sufficiently qualified personnel
4. There was a lack of proficiency in (English) language

Practicability of SMCP

The inner German Bight VTS area is a dedicated transit area for international shipping traffic bound for the Jade, Weser and Elbe including the Kiel Canal, and back - as well as between ports within this region. Consequently, the findings in 1997/1998 achieved by investigations into VTS communications in the area of VTS "German Bight Traffic" may be representative also for other VTS areas outside Germany, because the percentage of passing vessels not flying the German flag amounts to about 80 %.

The most significant result of the current trials is the general assessment that, on principle, the English version of SMCP is useful and practicable for the communication between a VTS and vessels under various flags even though there are certain limitations in this context at present.

Duration of Particular Communications

The quality of communication procedures between VTS and traffic participants and the duration of each radio contact may be subject to various effects, namely:

- Knowledge of language (English/or German)
- Type of communication (External Communications, Message Markers etc.)
- Prevailing conditions (traffic, fairway, weather, current etc.)

Results

In many cases standardized communication had to be replaced by "free language", i.e. sentence structures adapted to the situation and the time concerned.

The reasons for such deviations regarding the application of SMCP are predominantly explained by the shipboard lack of knowledge about the proper usage of both SMCP and SMNV.

It has to be stated emphatically here that insufficient linguistic and/or professional qualification is not necessarily any longer a characteristic of ships under certain flags -but rather traceable to sub-standard competence of communication partners on board. All the more it is deemed necessary to intensify efforts to make SMCP usage part of nautical education.

Another result of the current findings, data collection for which will be continued until the end of 1999 - are the facts that:

-There is an increasing number of non German navigators on board vessels flying the German flag who prefer, depending on their national origin, the usage of English for conversations on VHF and,

-Alternatively many communication partners on board vessels under international flags have sufficient command of the German language (Austrians and Swiss, but also Dutchmen, Belgians, Scandinavians, Poles, Baits etc.)

Because of this, there is not necessarily any longer, a relationship between a vessel's flag and the language capacity of its bridge personnel.

With regard to the national origin of the shipboard communicators in relation to the appropriate reaction periods (i.e. time from first call addressed to the vessel concerned until confirmation that the message is properly understood) certain facts, which have been reported by VTS Operators before, proved again to be true.

Verbal Data Transmission and Existing Problems during Normal Operation

-The general data of a vessel intended to be transmitted to the VTS when the current edition of the seaway regulation gives navigating in national waters. According to the announcement of the WSD Nord part V - Baltic - section 12.5, for Rostock fairways there is an obligation for vessels to report as follows:

-Vessels with a length of more than 30 meters-vessels carrying dangerous goods -non gas free tankers -nuclear powered vessels.

It should be pointed out here that the limitation of the obligation to report with regard to traffic observation and to ensure traffic safety is not free from problems. The frequently occurrence of leisure shipping traffic may contribute to the appearance of dangerous approaches in high traffic density situations.

Whereas information is only given to the VTS by vessels obliged to report a selective data-transmission to ensure collision avoidance, this is only possible in a limited way if non-reporting vessels are involved in such traffic situations.

Vessels obliged to report have to transmit a sailing plan before reaching the port of Rostock. A summary of the specified content and times required by this plan is given:

Time and position of the message	Content of the message
-1 hour before passing the mole	a) Name, call sign and kind of the vessel
-Shortly before leaving	b) Position
-Shortly before changing the berth	c) Length, breadth, draught
	d) Leaving and destination port
	e) Details about dangerous cargo
	f) Declaration of deficiencies, defects etc.
	g) Owner or authorized person.

Requirement and content of a "Sailing Plan"

In addition to that sailing plan, vessels obliged to report have to give position reports, also. A summary of the required content and times of these position reports is given:

Position/Time	Content
-After piloting and continuing the voyage	a) Name and call sign
-At passage of TN 1 / 2	b) Position
(Entrance of the Seekanal)	c) Speed
-At passage of the moles	d) time of passage
-Entering/leaving the turning point	
-At passage of berth 60 (Warnowpier)	
-Leaving of the fairway	
-At berthing/unberthing maneuvers	
-At entering/leaving the roads	

Content of and events initiating position reports in the VTS area

By recorded communication it is shown, that rarely is full information given as required by the SeeSchStrO. Own observations and statements of the VTS staff confirm that sailing plans especially are not given completely. Therefore the VTS operators have to ask for the data in most cases, repeatedly. A spot check carried out by analyzing the VHF communication of the Warnemiinde fairway shows that the draught is not been reported in appr. 80 % of cases but have to be requested additionally. That means additional strain on the VHF (FM) channel. Mainly these problems occur with vessels not familiar with the fairway. There are similar statements from the VTS area "German Bight". A possible reason for incomplete reports might be seen in the multiple transmissions of certain data to different addressees.

This finding is backed up by a report from the Centre for Language and Communication Research covering a visit to Dover VTS in the United Kingdom. The reporting of vessels is listed and labeled under the MAREP scheme. Under this method, the name of the ship is recorded, along with its affiliation, its position, its current speed, and port of departure and port of destination, its maximum draught and its cargo. A ship will also report whether or not it is in ballast or gas free.

The MAREP scheme as well as the method of reporting is covered by an 'M notice', that is, it follows a recommendation from the IMO that ship reports are made in that particular format. In other words, the IMO has attempted to impose some kind of uniformity on the labeling and reporting of ships' movements. However, as the operators in Dover emphasized, this is not the way things actually work out.

They claimed that it was practically non-existent for a ship to call them and give them the information in that format, they would have to ask the ship what course it was on, at what speed and what cargo it was carrying, they would have to ask him where the vessel was from, where it was bound.

As additional problems of the verbal data-transmission, uncertainty in communication and the inadequate use of prescribed standard expressions were noted. It seems that SMCP is fallen back upon only very rarely. On the one hand that might be explained by the fact that partially more information is exchanged than necessary when performing an efficient communication. Alternatively standard expressions can prove to be inappropriate even when basic communication problems occur. E.g. a considerable deviation from the standard phrases has to be used when requesting the breadth of the vessel, if the phrases "breadth" or "width" of the ship is not understood on board the ship.

Based on observations in the VTS area "German Bight" it has to be stated that additionally, the operators following the verbal communication make a first classification of the vessels. In case of problems in understanding each other these vessels are observed more closely for safety reasons (due to the possible danger of collision with other vessels) and the vessels might be addressed earlier and more risky than usual, if necessary. The same circumstance applies in principle to the discipline of reporting and readiness of audio reception of the vessels in the area. If there is any deviation found by the operators in that case, these targets will be observed in a different way to other vessels in that area, i.e. they are regarded as potential source of danger. This behavior of the operators is based probably on experience that vessels having problems in communication often have problems in safe navigation of the area and approaching other vessels. Non-readiness for audio communication or problems in communication, are considered as a first sign of a problem. Using the call sign formerly could formerly make such a classification, but due to the increasing internationalization of the crews this is not possible any longer. One result of a performed analysis for the VTS "German Bight" area was, that there were 12 % of non-responsive vessels and 17% of the vessels responded only after several minutes of calls.

Similar statistics do not exist for the Warnemiinde area. In contrast to the lack of response and readiness for audio communication it was found that the ferries calling here give their information announcement two hours in advance of reaching the Seekanal (Sea Channel) via VHF (FM). The transmission of the sailing plan is carried out as soon as radio contact is available. According to the statements of the operators the ferries to keep to their timetable and in order to avoid loss of time by having to wait to do this.

The VHF communication between the VTS and the ferries shows that there is a certain bond of trust between the operator and the ship's officer built up due to the necessity to keep to the timetable. The deviation of the prescribed standards may be justified probably with that bond of trust.

From this short analysis the following main problem areas connected to verbal data-transmission are seen to be:

1. Difficulties in communication during verbal data-transmission
2. Increased demands on the VHF channel through additional or repeated request of data.
3. Delayed, insufficient or non-availability of necessary data because of inadequate readiness for radio communication.

Verbal Data-Transmission and Existing Problems during Conflict Situations

Within this report conflict situations are situations where the possibility of an occurrence of personal or material damage exists (situations with danger of collision or grounding, the blocking of a channel etc.).

In case of a conflict situation there is increased necessity of exact parameters of positioning and movement (especially heading, course and speed but also rate of turn) both on board and, if occurring in VTS areas, ashore, too. The vessel will determine these parameters or the shore based VTS mainly by the use of radar. Assuming an encounter situation with vessels on crossing courses and conditions of good visibility to judge whether there is a risk or danger of collision, it is of fundamental relevance for all, whether the vessel which is obliged to give way according to the rules 15 and 16 COLREGS follows this rule or not.

In case this vessel does not react, then it is necessary to know whether or not the other vessel will perform the maneuver of the stand-on vessel according to rule 17 COLREGS in time and in an appropriate manner. The ship's name of a vessel involved in a dangerous close quarters situation can only be recognized on board at a late stage. So only an indirect address ("Ship in position..." or "Ship on my starboard side...") is possible, whereas direct contact in order to arrange evasive maneuvers might be made possibly too late.

Actual vs. Standard Maritime Communications

In this section some features of actual maritime communications will be discussed as compared with the recommended variety of standard communications, notably communications in the written and spoken medium of English. Seafarers are fully aware of the fact that the language they communicate in differs greatly (a) with usage or situation and (b) depending on the users or participants in the exchange.

Officers are aware of the fact that they tend to use one type of vocabulary and units of structure and style for communicating in, for instance, discussing technical matters of the operation and control of navigating or engineering equipment or instruction manuals and another in, for example, trying to agree with another ship on the actions to be taken in order to avoid collision (e.g. communicating in close-quarters situations, during berthing or an anchoring maneuver, etc.).

On the other hand, different social positions of the participants in communication or various degrees of responsibility of persons deployed on different levels of duties either in international navigational safety authorities or in the various sectors of the shipping industry, call for the availability in the speaker's communicative competence of appropriate linguistic forms. These are often referred to as registers, (cf. Crystal-Davy 1969, Beaugrande-Dressler 1981, Akmajian et al. 1995) to suit the purpose of expressing different roles in communications, (cf. The striking differences in the use of forms of address and clichéd or formulaic expressions in making contacts with a VTS station, port control, pilot station, naval or police forces, against the much less formalized style of voice exchanges with, say, one's company's permanent agents, etc.).

Recordings of VHF or MF communications, VTS, coast station or port control tapes, etc., might serve as the principal source for identifying and describing individual and prevailing linguistic forms (particularly on the discourse and text level) suitable or suited to different situations at sea and in port. Unfortunately, these are not legally permitted and no valid research can be based on such recordings, though projects of the kind have been and are being undertaken in various parts of the world (cf. the SEASPEAK project). However, much field research will be needed in the future, carried out with the permission and under the control of EVIO and other international authorities or agencies, in order to obtain a better insight into the nature of the spoken variety of true maritime communications. This would allow linguistic and methodological conclusions on the different types pertinent to the safety of navigation

and, subsequently, for future education and training of seafarers in maritime English and communications.

These differences can be shown here as being topic or subject matter related and as attributed to the influence of pragmatic elements of discourse (intention, illocutionary force, connotation, i.e. not only what is being said but also what effect a certain sentence, question, threat etc. is supposed to make on the participants in an exchange). It seems that differences in use of the vocabulary (both standardizing and non-standardizing, Riggs 1989) are much easier to identify, classify and describe. Therefore, appropriateness on the lexical level, i.e. choice of a suitable word, collocation or phrase, is much more likely to be mastered even by relatively less language-competent seafarers than learning elements of discourse or pragmatics appropriate to the various types of maritime situations. This is the basic weak point of the restricted languages recommended for maritime communication, e.g. SMNV, SMCP, and many textbooks in maritime communications.

Another problem is the degree of normality of recommended, i.e. 'restricted' languages of maritime communications (e.g. SMV, SMCP) versus the actual or real ones as applied in everyday practice. No standard language, of course, fully meets the 'normality' principle to the extent that it reads like a normal conversation or text. At least as far as voice communications are concerned.

One of the serious claims that this report tries to make is that the higher the process of standardization of maritime communications, both concerning the standards referring to safety and those not marked for safety (business, personal exchanges, etc.), the farther the language of such communications will be from the normal language of both technical staff (officers and crew) and other members of the maritime speech community.

The effect of this claim is that the linguistic form of standard maritime communications (vocabulary, structures, cohesive discourse elements, elements expressing communicative functions, etc.) sometimes differs to a considerable extent from the cognitive structure of human thought and linguistic performance, thus rendering the instantaneous application of the rules of such a language on board difficult. Sometimes they are strongly affected by interference from normal, i.e. common language exchanges. In fact, when dealing with the same topic, the recommended language variety of maritime communications can differ greatly from what the EFL speaker perceives as normal or ordinary, or could be biased by the interference of smoothly running conversations the user has learnt or has been long exposed to.

Therefore, the minimum language standards recommended in SMNV or SMCP could have a negative effect on the linguistic competence of the more advanced speakers of English as a language for specific purposes rather than on those whose linguistic competence and performance is low or poor. However it has been the frequently stated intention of the IMO to aim these phrases at those whose English is poorest and not to reduce the general standard. This does not mean that those whose standard is higher should not reduce that standard when necessary to make themselves better understood. It would be easier for the higher standard speakers to bring down their level than the lower to raise theirs.

In conclusion it should be emphasized that the differences discussed above must be neither overestimated nor underestimated, thus reducing the linguistic evaluation of these differences to those that are communicatively significant and linguistically important.

However it has to be said that authors of the phrases and the Chairman of the IMO Working Group who is himself an applied linguist and noted expert on maritime English, did not have a free hand when developing the SNCP. They were bound to comply strictly with the instructions and terms of reference provided by the IMO i.e. to develop on the basis of SMNV and Seaspeak, an IMO 'language'. This was to be after the model of the IMO language, which already existed (MSC Doc. 60/19/10, Feb 1992.) The phrase book approach (as in the SMNV)

was to be maintained which would build on a minimum level of English and the phrases drafted in a simplified version of maritime English. (NAVDoc. 39/31/16, Sept 1993).

Recorded Ship to Shore Communication

Mentioned above is a visit to a British VTS station at Dover, which, along with a similar station across the water at Cap Gris Nez monitors the traffic in the Straits of Dover. During the visit the researchers were able to obtain some recordings of ship to shore communications and three of them are laid out below. Each is followed by a brief analysis.

Key

CG =Dover Coastguard M =Ship

Ml: miles just past the Ryker buoy

CG: this is Dover coastguard roger sir and you're bound for err Agadir is that correct sir?

Ml: that is right

CG: roger sir and your last port of call over?

Ml: my last port of call was ((name of port))

CG: err roger sir and you're a fish factory ship and err can you tell me the ship's deepest draught and the ship's cargo sir?

Ml: err we are a fishing ship and no load on board and the maximum draught is fifty four meters

CG: err this is Dover coastguard roger sir and err could you give me your position now sir err have you just come around the mm foxtrot three buoy I think I have an echo there which is approximately five cables from the light vessel is that your ship sir?

Ml: err longit err position at this moment is fifty one degrees err twenty four point four minutes and one degree fifty six ((that's right))

CG: this is Dover coastguard sir I think your course is two one three at twelve knots over

Ml: two one three yes twelve knots that's right

CG: alpha three Lima x-ray six this Dover coastguard thank you very much indeed sir I do see you on radar good watch to you

Ml: thank you very much and good bye

In this interaction the normal order of reporting is not followed at all. The ship's position is first given in relation to a buoy and the coastguard then comes in with the ship's port of destination. The last port of call is requested after the port of destination has been given. Again, this inverts the standard sequencing. Dover Coastguard then gives another piece of 'information' to the ship: "you're a factory ship", which Ml actually contradicts: "err we are a fishing ship". The Coastguard does not only inform Ml about his own status, but continues without a break into the question about maximum draught and ship's cargo. This raises the question of why he is asking for this (or any) information in this order since thus far he has been iterating details to the ship about (a) its destination, and (b) the kind of ship it is. Dover appears to be following no particular agenda at all, but giving out information (which Ml contradicts) and asking questions alternately:

CG: err roger sir and you're a fish factory ship and err can you tell me the ship's deepest draught and the ship's cargo sir?

Ml: err we are a fishing ship and no load on board and the maximum draught is fifty four meters

Dover Coastguard forms the question about draught and cargo as a personalized request rather than as a WH- question: ("can you tell me. . . ?" Rather than "what is."). Again, this is a

variation on the standard request procedure. It can be argued that the 'correct' answer to "can you tell me?" is "yes I can", and one which second-language learners of English frequently produce. . Again it will be noted that the coastguard officer prefers the use of "deepest draught" to "maximum draught".

MI's response deals first with the labeling of the vessel ("fishing ship" instead of "fish factory ship") before moving onto the questions of maximum draught and cargo, to which he replies in the opposite order to that in which they were asked.

There is "no load on board" and the maximum draught (MI showing a preference for the standardized terminology) is (an incredible) fifty-four meters.

The coastguard, who goes on to try and establish the ship's position, an item that normally appears at the beginning of the MAREP schedule, ignores this last detail. After making an informed guess at MI's position, which MI in turn ignores, MI in turn gives his position according to routine procedure. Coastguard then again informs MI of something, instead of requesting it, this time his course and speed, both of which MI confirms as being correct. The interaction closes with standard formulae (offering of thanks and leave-taking).

This is an unusual interaction because of the manner in which the coastguard takes the lead in relaying information to MI about itself. Apart from the information about what kind of vessel MI actually was, coastguard's information was accurate. Coastguard did not correct or question MI's claim that his maximum draught was 54 meters. It must be assumed that this was either misheard or else the coastguard allowed that MI had made a mistake and did not think it was necessary to question him, especially since the ship was cargo-free at the time.

Key

GN = CROSS Gris-Nez

M = Ship (numbered to differentiate vessels)

GN: seven miles port side distance zero point two miles currently over

M2: seven miles ah port side distance zero point two miles I'm a vessel on your port side please come

GN: zero six zero six

M2: zero six

(Second ship calls in but message untranscribable due to static)

M2: six five

M2: this is six five to re-establish six five

M2: calling channel ((load)) channel six five

GN: all ships entering Dover point this is great Atlantic for information ((c'est)) your call please attention seventy nine seven nine pas de Calais ici Atlantic pour son bulletin d'information veuillez passer canal soixante dix neuf sept neuf

M2: err just passing err Goodwin beacon err (bell rings) a vessel on my starboard bow (.) course one nine four the speed about seventeen point six knots this is the ship on your port err side (static) on my starboard bow on my starboard beam course two seven one (.) range about two point two err speed about seventeen point nine knots (.) it's the ship on your port beam and

GN: do you ((read me)) over?

M2: yes I read you

GN: can you repeat your question please? (Communication with this ship terminated here)

This transmission is clearly one in which the principal speaker (M2) is attempting to make contact with another vessel (ship-to-ship) at the same time that Gris-Nez is in communication

with him. Moreover, the contact is complicated by a third element, a ship calling in (possibly in response to M2 rather than Gris-Nez).

Between lines Gris-Nez appears to be making a general announcement in, first English, then French. There appears to be a small amount of French language leakage in the English version, though this is by no means certain. M2's long turn is in fact a piece of ship-to-ship communication, directed at a vessel that M2 be in the process of overtaking. M2 produces a variation on the familiar theme of "ship on your port side". We are reminded of the Dover operator complaining of the frequency of this kind of call. He becomes more explicit with the utterance "it's the ship on your port beam", but is interrupted by Gris-Nez, who is attempting to re-establish a communication with M2 which (we assume) began before the present extract appears on tape.

As a piece of dialogue, this extract lacks any kind of teleological focus, even of the simple kind usually produced in ship-to-shore interactions, and is therefore resistant to analysis. One of the features of a restricted code, of the kind used in the majority of radio transmissions, is that they lack conjunctive relations (the linking of one passage to the next through such notions as contrast, result and time) at the same time as including an abundance of semantic redundancy. This often lends a sense of structural dislocation, or in linguistic terms, a lack of cohesion (Halliday and Hasan, 1976). For any sequence of interaction to be cohesive, the utterances of which it is composed need to display some kind of mutual dependence. It needs to be established that they are not occurring at random. The interpretation of discrete features within the text is dependent upon their co-existence with other textual features. When these are absent, the result is a lack of textual cohesion such as occurs in this interaction.

GN: good morning sir what is err your ship name please?

M3: Zelman good morning my ship's name is ((Skulttvrs Tomski)) I spell it sierra kummel uniform Lima Tata tango vodka Romeo sierra tango Oscar mike sierra India (.) all right?

GN: err what was your last port of call please?

M3: my last port of call is Port Boulevard Ecuador

GN: okay what is your destination please?

M3: my destination port is Saint Petersburg Russia

GN: okay what is your maximum draught please?

M3: my maximum draught is set at five meters

GN: okay what is your cargo on board and quantity please?

M3: I have on board banana cargo and err a quantity three thousand six hundred and twenty nine tonnes

GN: what is your present position please?

M3: my present position now is err five zero degrees thirty minutes north zero zero five point nine minutes east

GN: confirmation of your course and speed please?

M3: my present course is five two-point degrees and speed one six point two knots

GN: you're in err the south of bel Bassurelle buoy

M3: repeat please?

GN: you're in the south of Bassurelle buoy

M3: excuse me I don't understand repeat please?

GN: give me your position from Bassurelle buoy please?

M3: ah okay one minute please (5 sees) is this Gris-Nez traffic chariie six?

GN: this is traffic I with you

M3: my present position from Bassurelle buoy three one one point three degrees distance two point eight nautical miles

GN: okay thank you very much for your call and co-operation back on channel sixteen seventy nine err good watch and good trip err bye err
Gris-Nez traffic out

This interaction proceeds without noticeable problems until, Gris-Nez demands confirmation that M3 is "in.. The south of. . Bassurelle buoy". This is not formed as a question, or does the intonation suggest a question, but is presented as a statement of fact, or a declarative. In speech act theory (Austin, 1962), utterances have two kinds of meaning: (a) the propositional meaning, that is, the basic literal meaning of the utterance which is conveyed by the particular words and structures which the utterance contains, and (b) the illocutionary meaning, which is the effect the utterance has on the listener.

A speech act is an utterance, which contains both propositional meaning and illocutionary force. However, a speech act might be performed indirectly (otherwise known as an indirect speech act) and one way of accomplishing this is to form a question as a declarative statement. One of the problems with this kind of maneuver, however, is that the illocutionary force of the utterance becomes lost in the course of transmission. In the example here, the information being given to M3 is redundant as information since Griz-Nez is only seeking confirmation at this point. What he needs to do is form a direct question that M3 can respond to. Clearly, if he has understood at all, M3 is at a loss as to what to 'do' with the information Griz-Nez is giving him.

When Gris-Nez makes a request regarding M3's position in relation to Bassurelle buoy the problem is immediately repaired. M3 signals understanding ("okay one minute please"), confirms that his interlocutor is who he thinks it is, and proceeds to give the information that Gris-Nez wants.

Ship to Ship and Ship to Shore Summary and Conclusions

Part of this report has been to examine the ways in which typical ship-to-shore communication takes place within the context of VTS navigation monitored by the United Kingdom, France and Germany.

It has been noted that the language used in the interactions between coastal authorities and ships' officers broadly follows the communicative code first established in SMNV, now supplanted by SMCP, and corresponding closely with the guidelines for practice set out in the SEASPEAK manual. Where there are discrepancies between these codes and actual practice they tend to be minor ones. They can, on occasion be put down to simple error or absentmindedness (such as when speakers use the term 'nought' instead of 'zero', or fail to self-correct in the prescribed manner). However, since this section did not set out to deal with emergency or accident situations, but rather 'typical ship-to-shore communications', such minor slips cannot be deemed problematic in any way.

The changes that have come about in the maritime industry have found their most overt expression in the spread of multicultural crewing and the communication issues raised in an environment staffed by people from diverse language and cultural traditions. Many, indeed most of these people speak English, and yet the kind of English that they speak varies greatly. The purpose of a publication such as SMCP is to impose a uniformity upon that English, to make of it a simplified code that will be accessible to and understood by, all seafarers.

There are bound to be instances within such a project where, for instance, semantic content and pragmatic force are at odds with each other, or where the kind of English used will prove problematic for a speaker from a particular linguistic background. On the whole though, these are surmountable snags, which should not detract from the validity of the overall scheme.

As far as typical ship-to-shore communications are concerned, there was little encountered in the systems observed that gave cause for alarm. Certain individuals expressed concern about the English language capacities of some non-native and even native speaker seafarers with whom they made contact. But one of the basic lessons of sociolinguistics is that it is an impossible task to impose linguistic uniformity on any population, let alone one as diverse as seafarers. Reservations were voiced about the English language abilities of some operators also, but again, unless there is actual regularization of English language standards among those employed in the maritime industry, there seems little that can be done to rectify this. Although English is generally regarded as the international language of the sea, it is not officially so, and regularization therefore remains an unresolved issue.

On the whole, the codes employed for communication purposes in ship-to-shore transmissions are coherent, intelligible and useable. The further development of the SMCP will, it can be hoped, ensure and enhance that coherence, intelligibility and usability.

7. Communication at the Social Level

As the ship is both a workplace and a temporary home to seafarers there is a requirement for both operational and social communication. The part, which the latter plays in the efficiency and safety of the vessel, has never been researched in significant depth. It can be argued on a prior basis that the ability to engage in off duty social interaction through a common language is important for cementing confidences and for facilitating teamwork in the operations of the ship, and particularly during emergencies. Conversely, difficulties in levels of understanding in multi national and culturally diverse groups in the crew may lead to suspicion, friction, the re-enforcing of negative stereotypes and a mutual lack of confidence in abilities.

This short chapter considers some of the evidence of the importance of off duty communication based on data extracted from seafarers through a survey carried out by Mori for the ITF using questionnaires and interviews. Much more in depth research on board ship is necessary to formulate and test hypotheses in this area. However, there are some interesting results from the limited approach, which was possible in the present project.

The chapter gives a further aspect of seafarers' thoughts as to their life at sea in the second section. Missions to seafarers' chaplains offered to give a valuable insight into life at sea today by conducting interviews with seafarers visiting their missions in ports around the world. Some of the results have been produced in this section.

The Mori Survey of Seafarers

The team had the opportunity to add items to a questionnaire being conducted by the Mori organization for the ITF. The survey involved 6311 seafarers on vessels under 95 flags of registry, and took the form of recording the views of crews on how well they understood one another. Also recorded was the perception of seafarers on a number of lifestyle items on board the vessels.

Analysis of Mori Data

The Mori organization received over 6311 completed questionnaires from ships of 95 countries of registry. The figures of interest were in three categories.

1) The views of seafarers of language problems on the ships, under categories

- i) No language problem
- ii) Sometimes a language problem
- iii) Often a language problem

2) Satisfaction by seafarers with different aspects of life on board, under the □ lifestyle category headings;

- i) Working hours
- ii) Work load
- iii) Stress levels
- iv) Manning levels
- v) Time for sleep/rest
- vi) Shore leave
- vii) Tour lengths

- viii) Recreational facilities on board
- ix) Travel to/from the ship
- x) On board medical care
- xi) Contact with home/family
- xii) Accommodation
- xiii) Food
- xiv) Pay
- xv) Job security
- xvi) Provision of training
- xvii) Opportunities for promotion
- xviii) Morale generally
- xix) Support/help with problems

3) Problems encountered in past years

- i) Unfair treatment because of race/nationality
- ii) Unfair treatment because of religion
- iii) Physical abuse from officers
- iv) Physical abuse from others
- v) Mental abuse from anyone
- vi) Threats against family at home
- vii) Attempts to stop trade union membership
- viii) Warnings not to contact the trade union body

Language Problems

The number of seafarers who often had language difficulties was 233 and those who sometimes had language difficulties was 1399. Those with no difficulties numbered 4695.

When the perception of seafarers of life on the ship is compared with levels of language difficulties an interesting pattern emerges. Those who often had language difficulties are the least satisfied with every one of the 19 aspects of life on the ship. Those who sometimes had language problems are more satisfied than those who often had difficulties with language but significantly less satisfied across all 19 aspects than the seafarers who reported no language problems.

Similarly, for those who reported problems encountered in the last year the seafarers who had language difficulties reported encountering a greater percentage of problems in the last year than those who had no language difficulties.

1) Summary of Interviews with Seafarers in Respect of Language

In a number of ports worldwide chaplains of various missions to seafarers volunteered to help the study by offering to interview the seafarers that used their mission facilities. All seafarers no matter what their nationality or religion are welcomed into the missions and the chaplains do a great deal of good work among them. Seafarers feel able to talk freely with the chaplains and trust them, which brings out a very open honesty in their answers to questions about their lives in general.

In the following section of this chapter, provides a breakdown of the responses to interviews undertaken with a selection of seafarers and details the answers given in respect of the languages spoken by seafarers and the languages that are used by them when working on board a ship. 58 people were questioned and there were 24 nationalities represented. 56 of the

seafarers participating in the survey indicated that they spoke English, while only 2 did not use English at all. 15 use English as their national language and for the remaining 43 English is a second language. 40 of the seafarers specified the language, which was used on board their ship. No shipboard language was recorded for the remaining 18. Of the 43 that did not have English as their natural language 20 seafarers used English during their daily seafaring activities while 14 did not use English at all. Of the 15 seafarers whose national language was English 6 worked on ships where the shipboard language was recorded as being English. No shipboard language was recorded for the other 9 seafarers. None of these 15 seafarers worked on non-English speaking ships.

Of the 2 seafarers who spoke no English one worked on a German-speaking vessel, this being his national language, for the other no language was recorded.

As already mentioned 40 of the seafarers participating in the survey specified the language that they used at sea. 39 of these seafarers indicated that they spoke English, while only 1 did not use English at all. 6 use English as their national language and for the remaining 34 English is a second language. Of the 34 that did not have English as their natural language 20 seafarers used English during their daily seafaring activities while 14 did not use English at all. All 6 of the seafarers whose national language was English worked on ships where the shipboard language was recorded as being English, none worked on non-English speaking ships.

Of the 20 that used English during their day-to-day seafaring work but were not of a nationality where English was the first language 13 different nationalities are represented. The most strongly represented nationality was the Philippines with 6 seafarers, being 50% of the Filipino seafarers recorded in the survey.

Of the 14 that did not use English at all a range of languages were recorded. The commonest were German and Tagalog at 3 each. However, all of the seafarers in this category spoke the language that was used on the vessel on which they were employed.

What is clear from the results of this sample, even though it is small is that English is clearly the commonest language in use at sea.

Conclusions

Much more research is needed to account for the correlations evident in this data, but it does suggest that difficulties in communication affects the perception of life on board the ship. Those without language problems had a more positive view of life on board and also reported encountering lower levels of discrimination, unfair treatment and other problems over the past year.

Those who had the most language difficulties had lower perceptions of all aspects of life on board ranging from working hours to basic human rights. Perhaps what is being measured in these correlations are high levels of stress, which arise from the inability to understand and communicate. In which case the factor of language on board goes well beyond the requirements of technical competence.

Summary of Responses to Chaplains Interviews with Seafarers in Respect of Language on board Ship

Nationality	What languages do you speak?	And the language you would normally use on Ship?
Australia	English, Dutch.	English

	I don't speak German but I can understand it and I can make clear in German, so when a German person only speaks German I can speak a little bit of German to them to make myself clear. And in French its a little bit less and that's it.	
Bulgaria	Bulgarian, Polish, Russian, English	Polish
Cuba	Spanish, Portuguese, Italian, English	English
England	English sometimes and a little German.	
England	English. A few words of various languages, enough to be polite and to order beer up to 5 in 10 different languages and you learn of course, obviously wherever, if you go to laces regularly you learn something of the language even just to say hello, good morning, goodnight, por favor. I can order up to 5 beers in Japanese. Japanese is actually the one language I learnt most of in my earlier life at sea, phonetically its an easier language to learn, surprisingly it is....	<i>...Have you ever had any difficulties in passing commands on any ships,... ?</i> Not really, most of the ships I am on now most of their officers are sort of European I suppose, Croats and Bulgarians and they have generally very good English skills, the crew are Kurabass which is an ex-English colony so their English language skills are generally quite good
England	English, I've got a scouse passport which if this fellow....	
England	English. When you go abroad you can always get by, it doesn't matter where you are. So I only speak English but I can get by.	English
England	English and a bit of	

	[French]	
England	English	We get on well with the officers who are all English. We all speak the same language and work with French.
Nationality	What languages do you speak?	And the language you would normally use on Ship?
England	English	
England	English, a little bit of French	
England	English	English
England	English	English
England	English only I can get by in basics. A basic to seamen is asking for beer and cigarettes. And the odd phrase or two in German.	
England	English and a smattering of French	
England	English. The odd words, how to ask for a beer in different countries, like Russian.	
Estonia	German	German
Estonia	English, German, Estonian	English, German
France	French, English	
France	French, English	French
Germany	German, English and some Greek. I understand a little bit of Spanish, Actually no I can't speak Spanish?	German
Ghana	English	English
Holland	Dutch, English, German, a little Finnish	Dutch and English
Holland	Dutch, English, a little German and French, learning Filipino.	The guys are learning me but it is quite difficult, so it is going slowly. <i>Its good that you are learning from them I'm sure they appreciated that you 're making the effort. Yes</i>

		sure, communication it sometimes very bad because some sailors are not speaking very good English, no communication, no sailing the ship.
Nationality	What languages do you speak?	And the language you would normally use on Ship?
India	A little bit of Portuguese because we go to Brazil regularly, I did French as a schoolboy so there is a certain amount of French which I can read but... it is impossible to get the pronunciation. A little bit of Japanese... In India I speak quite a few languages, six or seven different languages in India,... anybody in Bombay ... would have four different languages really.	
India	English, Indian dialect	English
Indonesia	English and Indonesian language	English
Italy	Tagalog, Italian, English	Tagalog, Italian
Italy	Italian, English. I speak Portuguese very well, Zulu	Being an Italian ship
Kenya	English, part Arabic	English
Latvia	Russian, English, Latvian, Polish	English
Madagascar	Multi cultural language, French, very little English	They speak Arabic and French.
Middle East	Arabic, English, French. My Father and Mother speak German	Arabic. The captain is Arabic. We also have Filipino crews.
Pakistan	Seaman's language	English
Pakistan	Orduh, English	English, Orduh
Pakistan	Ordu, English	Ordu
Philippines	Filipino, Greek, English. I speak a little Spanish,	
Philippines	English	Tagalog
Philippines	Tagalog, English, Spanish a little.	Tagalog

Philippines	English and also Tagalog	English
Philippines	Tagalog and English	English
Philippines	Tagalog, English I can understand Spanish a little bit but I cannot speak.	
Nationality	What languages do you speak?	And the language you would normally use on Ship?
Philippines	Tagalog, English	English.
Philippines	English and Tagalog. I can understand a few words in Japanese.	English
Philippines	English and Tagalog	
Philippines	Tagalog, English. Spanish, a little bit but we understand because we have to learn in the Philippines, not that we can speak properly but we know.	English language
Philippines	English, German Spanish and Dutch	German
Philippines	English, Tagalog, I understand a little Spanish	English
Poland	Sometimes I try to speak English and I also speak German, but honestly I don't like it. I understood everything what they speak. And many people from Poland speak Russian. Sometimes if we are in Spain I can speak Spanish but only in the matter of ship business.	Polish. New crew must be able to speak some German or English.
Poland	English sometimes. English is the first language of the ship to give orders and instructions.	
Poland	English, Polish, and a little bit of German and Russian	English
Poland	English, I am still trying to learn the language	English on board

Russia	Russian , English	Russian
Sri Lanka	Sri Lankan (Sinhalese), English	English
Sri Lanka	Sri Lankan (Sinhalese). My second language is English because we were in an English colony.	
Sweden	English, Swedish and Tagalog (not fluently) I lived there for one year.	
Venezuela	English, Tagalog	Tagalog, English

Non-English speaking seafarers using English at sea

Nationality	Language	2nd language	3rd language	4th language	Ship language	2nd ship language
Cuba	Spanish	Portuguese	Italian	English	English	
Estonia	English	German	Estonian		English	German
Ghana	English				English	
Holland	Dutch	English	German		English	Dutch
India	English	Indian Dialect			English	
Indonesia	English	Indonesian			English	
Kenya	English	Arabic			English	
Latvia	Russian	English	Latvian	Polish	English	
Pakistan	Ordu	English			English	Ordu
Pakistan	English				English	
Philippines	English	Tagalog			English	
Philippines	Tagalog	English			English	
Philippines	Tagalog	English			English	
Philippines	English	Tagalog			English	
Philippines	Tagalog	English			English	
Philippines	English	Tagalog			English	
Poland	English	Polish			English	
Poland	English				English	
Sri Lanka	Sri Lankan	English			English	
Venezuela	English	Tagalog			English	Tagalog

Non-English speaking seafarers not using English at sea

Nationality	Language	2 nd language	3 rd language	4 th language	Ship language	2 nd ship language
Bulgaria	Bulgarian	Polish	Russian	English	Polish	
Estonia	German				German	
France	French	English			French	
Germany	German	English	Greek		German	
Italy	Italian	English	Portuguese	Zulu	Italian	
Italy	Tagalog	Italian	English		Tagalog	Italian
Lebanon	Arabic	English	French		Arabic	
Madagascar	French	English			Arabic	French
Pakistan	Ordu	English			Ordu	
Philippines	English	German	Spanish	Dutch	German	
Philippines	Tagalog	English			Tagalog	
Philippines	English				Tagalog	
Poland	English	German	Russian		Polish	
Russia	Russian	English			Russian	

8. Education and Training Requirements-Ten Strategies for Overcoming Language Barriers

One of the aims of the project is to attempt to evaluate current English language teaching methods and provide a basis for effective communication training. This would involve producing a form of pilot syllabus as guidance to teachers worldwide. Alternative methods of designing appropriate materials would be considered to update current methods of teaching.

This proved to be a great deal more difficult than had originally been anticipated because the range of teaching materials in use was so diverse. Teachers everywhere had their own ideas on teaching methods but a common thread seemed to be that few were certain that their methods were precisely what was wanted.

This section covers the methods and difficulties involved in producing such a standardized form of teaching. It considers the problems encountered in maritime training establishments all over the world in attempting to pass on to their students the standards that those institutions think appropriate.

Current Standards

Maritime education and training are under scrutiny as institutions around the world examine their course offerings and content to ensure that they are preparing safe and capable seafarers and that they are in compliance with the International Convention of Standards of Training, Certification and Watch keeping for Seafarers (STCW 1978 as revised and adopted by the IMO in 1995). One focus is on communication and providing seafarers with the English language skills they need for competent communication in international situations and as part of multilingual/multicultural crews. However, on a worldwide basis there is little co-ordination in terms of language use, syllabus design, course content, and assessment tools, teaching materials and teaching methods. Each country over the years has developed its own systems, albeit with some co-operative agreements as well as shared educational heritage and maritime tradition.

This section of the thesis summarizes some of the findings obtained to date concerning the worldwide status of communication standards and assessment tools in maritime colleges and similar institutions and following are some of the initial observations that the project made:

- Current standards for maritime communication are considered by most maritime educators to be too vague as currently defined by the International Maritime Organization (IMO).
- Individual maritime English teachers frequently establish the content and standards for their courses rather than national or maritime policy.
- National or institutional examinations for graduation or certification establish standards in some countries.
- Many respondents expressed concern that language testing was primarily being conducted for reading comprehension, vocabulary, grammar and general English. They felt that listening and speaking skills were important but were not being tested and this meant, in some cases, were not being taught.
- Maritime English teachers often create their own teaching materials and tests.
- There is wide variety in maritime English and general English teaching content and methods.
- There is wide variety in the number of hours allocated for English instruction.
- Many maritime educators believe that English teachers should have seafaring experience as well as English teaching expertise.

- If seafarers do not learn English communication skills as part of their education, their employment opportunities are limited.
- The language of instruction, language of textbooks, and language of examinations or certifying tests are not always the same.
- Technological support for English teaching ranges from none to the most advanced.

A country's language policy is one of the main determinants for establishing the type of English language training provided. On a worldwide basis, the full range of situations exists with monolingual, bilingual, and multilingual language policies and customs. Increasingly, countries are adding English as part of the options or requirements in their elementary and secondary schools. For maritime education and training institutions, the amount and depth of elementary and secondary English training directly relates to their language policy. Many do not need to offer general English for English competency can be expected from applicants. Their focus can be on maritime English. Others must anticipate needing to provide instruction in English as a Second Language (ESL) as well as maritime English.

However, there is not universal agreement on what type or amount of English seafarers need for different situations. Following are a few of the opinions that are voiced:

Only the master and radio officer need to know English to talk with the pilot and to communicate with shore.

All crewmembers in multilingual/multicultural crew environments need to know English to be able to communicate in an emergency situation and have a trusting onboard environment.

In an emergency situation a second language will be forgotten and sign language is all that is needed.

Attitude is the critical factor; if the master creates a co-operative environment, crewmembers communicate even if they do not have a common language.

Only a relatively few basic words and phrases are needed and if these are learned, no other English training is necessary.

All seafarers must have Basic English and then learn maritime phrases in addition if dependable communication is to take place.

Speaking and understanding are the most important skills.

Seafarers must be able to read documents and write reports.

Captain Fred Weeks in his paper, "Whither Maritime English," presented at the WOME 9 conference, June 1997 identified seven types of English the maritime English lecturer needed to consider in deciding "how the precious hours of English teaching should best be spent."

1. Standard English
2. Standard English with 'Belonging' (maritime) English
3. Survival English for shipboard use
4. Maritime business English
5. Technical English
6. Communication English, specifically for use over voice radio
7. Standard communication phrases, as exemplified by the IMO Standard Phrases

Content and Methods of Teaching

In information obtained on the content and methods of teaching the most frequently mentioned concern was that maritime English teachers needed to have maritime experience as well as English teaching ability and that the vast majority did not. There were exceptions; in Poland at Szczecin Maritime University all the maritime English teachers are required to go with students for practice on one of the training vessels. According to Elzbieta Plucinska in her paper, "Upgrading the Maritime Register of English Teachers" presented at the WOME9

conference, June 1997, "It is very difficult sometimes to explain a term or a phrase if someone has not spent at least some time aboard the ship or if he has not taken many long walks in the harbor looking at the way the things are being done there." On the other side, students have commented on how boring subject matter teachers are in their method of teaching English. As communication standards are often initially indirectly determined by English teachers, it will benefit the maritime industry if they have seafaring experience and well as training in English and language teaching methodology.

Following is a brief list of some of the methods identified in English language training Cases
An "English Day" program requiring English conversation all day
Grammar based instruction
Individual learning

Native speaker conversation teacher

Peer tutoring

Simulations in class

Student work groups

Teacher centered lectures

Teacher/student meetings

Translation

Visual demonstration

Maritime English textbooks written by local professors

Vocabulary recognition

Workbooks, pre-printed

Respondents to the first questionnaire were asked to identify technological aides used for language instruction. Some commented that they had no technological aides or mentioned only one tape recorder being available. A wide range of possibilities exists for the delivery of maritime English, but it is not available to all countries and locations. Following is a list of those identified:

Audio equipment

Cassette recorders

CD-ROM instructional material

Computer lab

Computers for word processing

Computers for language activities

GDC lab

Internet communications

Internet sites (weather, shipping, maritime law, etc.)

Language Technological Aids (LTA) laboratory

Language lab

Language lab used as communication simulators for voice radio communications

Overhead projector

Personal Computer (PC) used as GMDSS simulators

Satellite resources selected for use

Self-instruction facilities

Simulator: Language lab used as communication simulator for voice radio communication

Simulator: Navigation

Simulator: Radar

Simulator: PC used as GMDSS simulators

Simulator: Ship handling

Simulator: VCR

Simulator: VHF

Simulator: VTS
Slide projector
Walkie-talkies for external & onboard communication
Listening to television conversations
Virtual Language Laboratory
English radio station

On Board Learning Options

Although it was not a clear objective of this report to evaluate on-board training, sufficient respondents mentioned it as a possibility that it seemed valuable to include it as one of the training options. A wide variety of opinions exist as to whether or not it is possible to expect, require and/or support on-board language training. Some seafarers spoke of captains who supported and assisted them to learn and practice English while on-board. Others say this rarely happens and, if it did in the past, it is no longer possible on ships that have fewer crewmembers with more duties. The reality seems to be that the availability of learning possibilities varies with the type, size, location and management policies of the individual ship as well as the motivation of the learner.

Many seafarers interviewed spoke of problems with the learning environment on ship. An officer keeps sometimes language-learning materials and a crewmember may be hesitant to request them and admit a learning need. One seafarer interviewed spoke of shipboard life as a prison environment and after a few months the psychological attitude that took over did not encourage learning.

Many educators spoke of the possibility of using a computer for learning, both in an on board system and in a linked interactive system. Again, the realities at the current time seemed to indicate that this is not a frequent opportunity. Time differences make active link-ins to join classes difficult. Time is not allotted for such activities. The possibility remains, and further study is needed, to identify effective ways on-board education can take place.



Learning On Board

10 Strategies for Overcoming Language Barriers

Language barriers are a common challenge in international business settings—and a two-way process. What native speakers often don't realize is that frequently it is not the other person's accent but their own way of speaking that creates the greatest barriers to effective communication. Use the strategies below to ensure you're not putting up your own roadblocks to effective international communication.

1. Speak slowly and clearly.

Focus on clearly enunciating and slowing down your speech. Even if you're pressured for time, don't rush through your communication. Doing so often takes more time, as miscommunication and misunderstanding can result and you'll ultimately have to invest additional time in clearing up the confusion.

2. Ask for clarification.

If you are not 100% sure you've understood what others say, politely ask for clarification. Avoid assuming you've understood what's been said.

3. Frequently check for understanding.

Check both that you've understood what's been said and that others have fully understood you. Practice reflective listening to check your own understanding (e.g. 'So what I hear you saying is...') and use open-ended questions to check other people's understanding. Ask, 'what's your understanding of this process?' instead of 'is that clear?'

4. Avoid idioms.

Business language is often contextual, and therefore culture specific. For example, in the US, baseball terms are used extensively: 'Straight off the Bat,' 'Ballpark figures,' 'Out in left field,' 'Touch base,' 'Strike a deal'. As a good general rule, if the phrase requires knowledge of other information—be it a game or metaphor—recognize that this may make your communication more difficult to be understood.

5. Be careful of jargon.

Watch the use of TLAs (Three Letter Abbreviations) and other organizational language that may not be understood by others. If you use them, provide in parentheses a description of what these are so others can learn to use the same language you do.

6. Define the basics of business.

In international business contexts terms such as: 'success', 'doneness', 'meetings', 'punctuality', etc. may mean different things to different people. Spend time early in your communication defining what these mean to you and others. Invest in building a shared vocabulary.

7. Be specific.

Spell out your expectations and deadlines clearly. Instead of, 'Please get back to me shortly,' say 'Please email the completed report by 5 pm Eastern Standard time on Wednesday, February 21.'

8. Choose your medium of communication effectively.

Carefully choose your form of communication (phone or video conference, email, instant message, etc.). Be mindful not to 'overuse' email. While useful, there are times when the medium is likely to be ineffective. When a message is complex and complicated or there is tension or conflict that needs to be resolved, switch to another medium.

9. Provide information via multiple channels.

Follow phone calls with emails that summarize what's been said. When possible, provide presentations, agendas, etc. in advance so those working in their non-native language can get familiar with materials.

10. Be patient.

Cross-cultural communication takes more time. If not at all times, certainly initially you cannot expect your communication to occur with the same speed and ease as when you are communicating with someone from your own culture.

9. Conclusion

Mistakes in this industry are costly. Language barriers and miscommunication on board merchant vessels is a primary cause for having accidents at sea every year. The crew of merchant vessels nowadays is multilingual and multicultural so it happens to be very difficult to communicate with fellow crewmen or with other vessels and shore with the assistance from bridge equipment, which helps to reduce the risk of collision or other accidents on board.

This dissertation was made to help all the bridge officers and point out the language problems, which occur on board.

Seafarers do not have to speak different languages for misunderstandings to occur, it only needs different accents in the same language to cause confusion. This confusion sometimes can put the vessel and crew at grave risk and extremely difficult situations.

It is at the interface between ship and shore, i.e. port control, pilotage and mooring operations that most misunderstandings occur, predominantly deck officers, are Not aware of the existence of SMCP standards and the necessity to apply them when listening to or reading texts of broadcasts from coast stations. Even more so, when taking part in VHF or MF communication exchanges.

Language standardization is really important in external communications of the vessel either ship to ship, ship to shore or between the crew itself.

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