Maritime English – Is this the Only Way to Communicate?

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ABSTRACT

Several discussions and investigations to develop the effective use of Maritime English have intensively made by academic staff of maritime institutions since the establishment of the Standard of Maritime Communication Phrases (SMCP). Most of the outcomes obtained are of dealing with improvement of course syllabi and teaching methods and some are of dealing with the relation between SMCP and the regulations of the STCW and the ISM code.

'Is Maritime English the only way to communicate?' This question has been arising in the authors' mind since he asked himself whether non-native speakers could speak proper English even at the time of emergency in which almost all of the people involved might be in panic and chaotic situation.

In this paper, the author proposes establishing a type of non-verbal communication such like sign language as a complementary communication method, especially at the time of emergency, with introducing a sign language which used to be used in the noisy machinery space till those days of 1950s in Japan.

1. Introduction

It has commonly been recognized that poor language skills among crewmembers on ships as well as between ships and shore services are increasingly a significant factor in many maritime accidents. This fact is also backed up with a report which shows that approximately 20% of maritime accidents have a relation with communication problems (Portela, 2003). A phrase 'Careless talk costs lives' quoted from some British propaganda during WWII (Winbow, 2002), if it can be applied to maritime industry, may be represented as 'Careless talk costs lives and global environment'.

In order to minimize such communication problems derived from language difficulties, the SMCP has systematically developed and nowadays regulated as Regulation A.918 by the International Maritime Organization (IMO) on its 22nd Assembly. Additionally, the application of SMCP to

communication among crewmembers on ships and between ships and shore services is compulsory by STCW and SOLAS. These actions taken by IMO have given a considerable boost to several learned societies and associations relating to the Maritime Education and Training. As a result, many discussions and proposals to develop the Maritime English courses and their effective teaching methods have been made mainly by academic staff of maritime institutions. Some of the examples are briefly summarized as follows;

Trenkner clearly stats what Maritime English is, how the SMCP has been developed and what the relationship between SMCP and STCW is (Trenkner, 2002). As far as the issues in standardizing Maritime English is concerned, Pritchard surveys the relation between the standard forms and linguistic variations in using English in maritime communication in order to find out the concrete learning and teaching objectives for Maritime English courses (Pritchard, 2002). Additionally, there are some papers describing an effective teaching tool for Maritime English and assessment and examination of seafarers in Maritime English from the non-native speakers' point of view (Yakushechkina, 2002), (Loginovsky, 2002). These papers suggestively point out that there are fundamental issues in learning and teaching English as a second language.

However, the author's concern is whether precise communication among the crewmembers who are from non-English speaking countries can successfully be achieved even at the time of emergency. Because it is well known that a man behaves instinctively when he or she is falling into panic, that is to say, crewmembers from several countries may start using their mother tongues in the chaotic and confusing situation even if they have completed Maritime English training in compliance with SMCP and the IMO model course 3.17.

The author first mentions in this paper the communication process and the mechanism of communication by language in order to show the limitation of using English for non-native speakers from the viewpoint of cerebral physiology. Necessity and proposal of a subsidiary communication method are then discussed in the following sections with introducing non-verbal communication for marine engineers which used to be used in noisy machinery space till those days of 1950s in Japan.

2. Communication Process

Communication is defined as the process by which persons share information meanings and feelings through the exchange of verbal and non-verbal messages (Klopf, 1991). The basic elements of communication, therefore, consist of a sender, receiver and message. In order to achieve complete communication, meaning of the message by language, symbols, signs and gestures has to be fully and mutually understood by both the sender and the receiver. When considering communication process in detail as a function of human activity, it is worth knowing the mechanism of communication by language in the human brain.

2.1 Mechanism of Communication by Language

The usage of language as a communication tool is a high-level brain function. The area of language in the human brain has been pinpointed on the cerebral cortex as illustrated in Fig.1. The function related to the sequence of language element for speech is allocated to Broca's area of the frontal lobe, while that related to the comprehension of language is allocated to Wernicke's area of the temporal lobe. Additionally, the area of memory, which is another important function for communication, is also located on the cerebral cortex. Since almost entirely functions related to the communication using language are controlled on the cerebral cortex of the human brain, the function of using language as a communication tool is also related to the condition of the cerebral cortex, so-called the level of awareness.

Broca's area

Wernicke's area
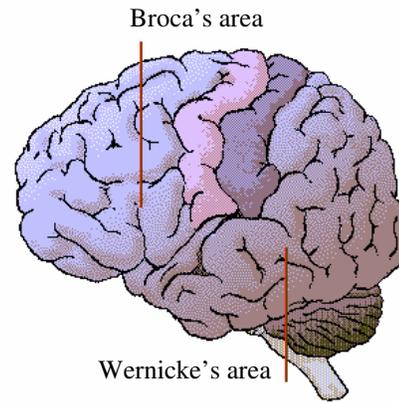
Figure 1:The area of language on the human brain

2.2 Level of Awareness

Hashimoto suggested, in his pioneering research with several experiment and investigation on the internal condition that would be a cause of human errors, that the activity of the information processing system in the human cerebrum, which was relating to possibility of an error or a mistake, strongly depended on the level of awareness as briefly summarized in the table 1 (Hashimoto, 1978). The level of awareness is activated up to Phase III on which the behavior and decision of people are always appropriate and accurate. However, when falling into panic, the level of awareness becomes hyperactive, so that attentiveness concentration at a point and judgment does not work properly. Consequently, people can make proper behavior and correct decision no longer.

Table 1: Level of Awareness

Phase	Mode of Awareness	Physiological Condition
0	unconscious, swoon	sleep, epileptic fit
I	subnormal,	fatigued, drunk, doze
II	normal, relaxed	rest, daily routine
III	normal, clear	positive action
IV	hyperactive, excited	panic, confused

This finding has contributed to promote the research activities regarding the cause of the human error. In addition to the fact, the author would like to point out that the level of awareness must have had a strong relation to the usage of language which is a function controlled by the cerebral

cortex in the human brain. The following fact must be a typical and meaningful example (Masada, 1997).

On 30 July 1971, a passenger plane (Boeing-727) and a training plane of the Japan Self-Defense Agency (F-86) had a collision on the designated route for civil aircrafts in Japan. The one hundred and sixty two people were killed in this air disaster. After the detailed investigation by the aircraft and railway accident investigation commission in Japan, it was reported that the major cause of this air disaster was attributed to the training plane which was flying across the designated route for civil aircrafts. The interesting fact in terms of the usage of language on emergency situation was found in the record of the radio communication. Just a couple of seconds before the collision, the pilot of the civil plane screamed, "*Sakero!*" -Avoid!- and "*Kocchi e Kuru!*" -It's coming to me!-.

It is well known that the language for communication among the pilots of civil planes and the air traffic controllers is English language. All pilots are strictly trained to be able to communicate by English during their flight. Nevertheless, the pilot facing to such an emergency situation used his mother tongue –Japanese. This example suggestively shows that despite of English training, it may be quite difficult for non-native speakers to speak in English according to the level of awareness, which fluctuates with the situations where they are. In addition to this, it should be noted that people in panic usually use a short word with an authoritative tone, which is probably not contained in the SMCP.

3. Necessity of Subsidiary Communication Method

The SMCP is divided into Part A and Part B like its status within the framework of the STCW'95, namely, Part A is the mandatory section and Part B is the guidance section that has a meaning of supplementary to Part A. Part A is subdivided into External Communication and On-board Communication, while Part B contains only On-board Communication. As far as communication in urgent situation is concerned, important phrases are mainly contained in the items of Distress Communications (AI/1), Urgency Traffic (AI/2), Safety Communications (AI/3) in External Communication Phrases in Part A.

It is quite obvious that the aim of the establishment of the SMCP is not to standardize the words and phrases used at the time of emergency only, but to standardize the language used in communication for navigation at sea, in port-approaches, in waterways, harbors and on board vessels with multilingual crews, in order to diminish misunderstanding in safety related verbal communications. Eventually, the phrases contained in the SMCP are selected not only from distress communication but also from ordinary orders on board ships and are formal and tolerably simplified, that is to say, it seems that somewhat 'textbook-like' phrases are selected as the standardized phrases. Although the establishment of the SMCP and relevant countermeasures taken by IMO are highly appreciated, a question rising up to the author's mind is whether the SMCP can solve any problems in communication with people having different language and culture. Then the answer to the question seems to be 'No, it can't.' in the light of the reason briefly discussed in the section 2.

As mentioned in the section 2, people under considerably press of time or psychological stress, i.e. in Phase IV, could not make proper behavior and correct decision in most cases. As far as the non-native speakers in Phase IV are concerned, it must be quite difficult for them to use somewhat textbook-like English phrases contained in the SMCP. Moreover, this difficulty will not completely be overcome by their efforts during the Maritime English course in compliance with the SMCP, because the difficulty is based on the function on the cerebral cortex in the human brain. Therefore, from the viewpoint of the fail-safe concept, a subsidiary communication method, which can easily and surely transfer important but short message to receivers, e.g. non-verbal communication, should be prepared for overcoming the difficulty in case of emergency.

3.1 Non-Verbal Communication

In fact, non-verbal communication has long been utilized as an effective tool on board ships. The followings can be typical non-verbal communication media on board ships; semaphore, light signals, Morse code, colored buoys and whistle. These have already been institutionalized as international codes and widely used in the field of the safe navigation because of the great advantage to the limitation of visible and audible distance and to their simplicity.

The classification of non-verbal communication seems however to be quite difficult. Consequently, many theories for the classification have been proposed so far (Mitarai, 2000). In the case of considering effective use of non-verbal communication, the types of parties involved in the communication, surrounding condition and existence of supporting tools can also be significant factors. Since the author would like to focus on a specific situation of communication in this paper, the following conditions are assumed as the factors on the specific situation.
- Distance between the parties is within a couple of meters.
- Parties have no tool for communication at the moment.
- Parties involved in the communication are from several countries having different cultures.

These conditions are selected with considering typical emergency situations on the bridge, in the machinery space, in front of lifeboats and on guiding passengers to a safe place. External communication between ship and shore/ships and ships should be out of consideration in this paper because of the first assumption listed above. Taking the second conditions into account, the non-verbal communication methods as mentioned above seem to be inappropriate because each needs a certain tool or equipment; namely a set of flags, searchlights, radios and so on. In contrast, hand signs and gestures may be more appropriate as a subsidiary communication method in case of emergency from the point of view of its simplicity and reliability. However, it is well known that most hand signs and gestures have a close connection with the cultures of the communicators. For example, the OK sign, as used in the United States, means that things are fine or that something has been understood perfectly, but in the case of the Japanese, it means money (Harris and Moran, 1978). In other words, the dependence of sign language upon culture may be a negative factor for the third condition listed above.

In the next section, the feature of Engineers' sign language which does not have strong dependence on culture will be introduced and examined, according to the outcomes of the investigation which the author have been involved (Katagi, et al., 1990, Kikuchi, et al., 1991).

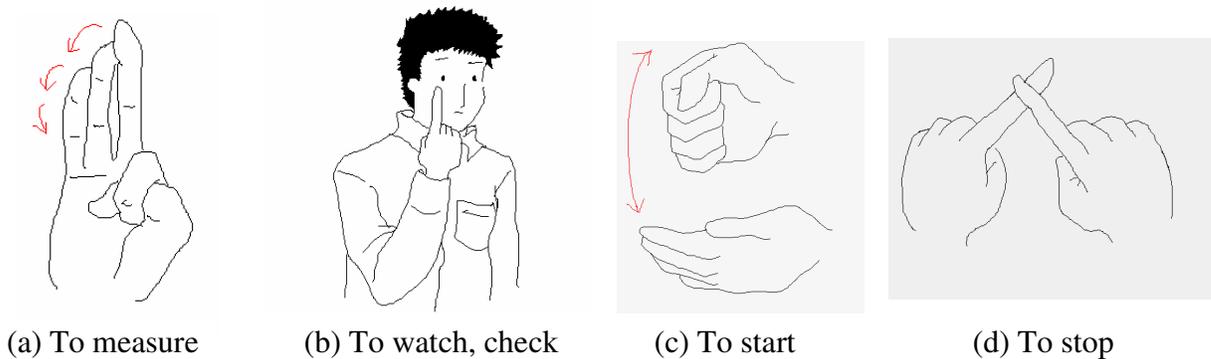## 3.2 Engineers' Sign Language – Its Application to Communication

The development of Engineers' sign language in Japan has not yet been clarified. Probably, it had spontaneously developed with the practical demand for correct communication in the noisy machinery space in past. The use of Engineers' sign language had, however, declined, due to the rapid increase of the use of loudness speakers in the machinery space. Nowadays, only elderly marine engineers have fragmentary memory. The feature of Engineers' sign language is briefly summarized, with referring to the findings of the investigation as mentioned in the previous section.

3.2.1 Graphical Expression and its Simplification

Both Engineers' sign language (hereafter, E-language) and sign language for deaf mutes (hereafter, D-language) frequently use graphical expression that directly shows the figure of an object rather than vocal language. Graphical expression therefore decreases the numbers of signs and gestures to show the object, which can be a benefit of this sort of language. However, signs of E-language are more simplified than those of D-language. For example, E-language of 'lubrication oil' is expressed by one sign as illustrated in Fig. 3.(d) -to rub ones thumb and index finger together-, while D-language usually needs two signs combined with the signs of 'lubricate' and 'oil'. This is attributed to the fact that the communicators in E-language usually have a common recognition - their responsibility in machinery space-, while those in D-language often do not have such recognition. D-language has to use for general topics. Some signs and gestures of E-language are illustrated as a series of figures in Fig.3 for objects and Fig.4 for actions, respectively.

(a) Generator   (b) Bearing   (c) Lub. Oil   (d) Pump
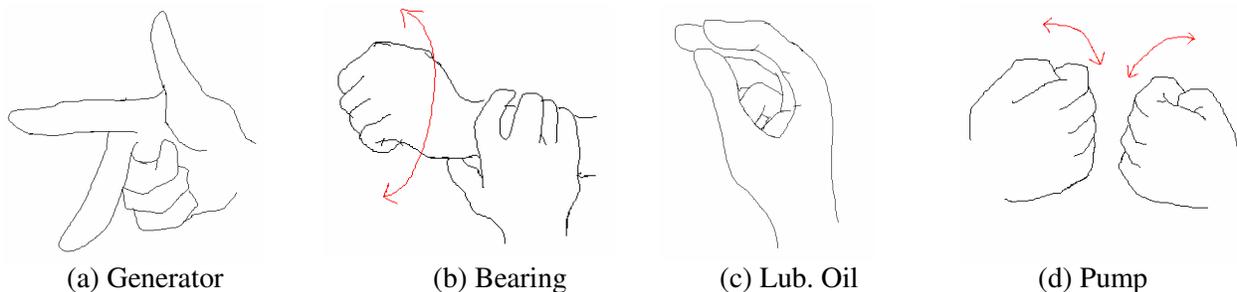
Figure 3: Signs and gestures for objects in E-language

| (a) To measure | (b) To watch, check | (c) To start | (d) To stop |

Figure 4: Signs and gestures for actions in E-language

3.2.2 Use of Phonograms and Demonstrative Pronouns

D-language has the signs for phonograms that show each sound on the syllabary and also the demonstrative pronouns as illustrated in Fig.5, - A cat chases a mouse-. In contrast, E-language has neither phonograms nor demonstrative pronouns. Accordingly, D-language is suitable for complicated communication applicable to possible topics and situations, while E-language is suitable for considerably specialized communication.

3.2.3 Sentence of Engineers' sign language

A sentence of E-language is actually quite easy and basically consists of signs indicating an action and the objects. For example, an order 'Start the lubricating oil pump" can be shown as a combination of signs and gestures concern, Fig. 4. (a) + Fig. 3. (d) + Fig. 3. (e) .

| (a) A cat | (b) This is the | (c) A mouse | (d) That is the |

(e) The cat chases the mouse.
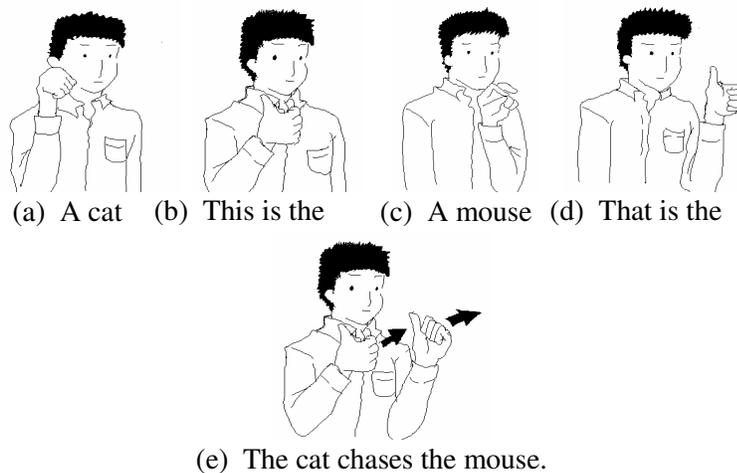
Figure 5: Complicated communication of D-language

4. Conclusion

The purpose of this paper is not to contradict the establishment of the SMCP and relevant countermeasures taken by the IMO, on the contrary, to examine the potential to utilize hand signs and gestures as subsidiary communication method in case of emergency on board ships. In early part of this paper, necessity of a subsidiary communication method in case of emergency was proposed, based on an accident report that showed the relation between the usage of language and level of awareness in the human brain. After the proposal, non-verbal communication methods were introduced as a subsidiary communication method and discussion about the optimum use of hand signs and gestures was made on comparison between sign languages for deaf mutes and a traditional sign language for marine engineers in Japan. In the light of the findings of the previous investigation about Engineers' sign language as discussed in the section 3.2, new knowledge with regard to the optimum use of hand signs and gestures on board ship are briefly summarized as follows;

- Hand signs used for an object should be as graphical as possible.
- Hand signs and gestures should be used only for some imperative instructions in case of emergency and not for complicated communication.

The author would like to recommend at the end of this paper that considering the findings through this study, the preparation of the minimum numbers of the hand signs and gestures related to safe operation on board ships should be undertook. In that case, non-verbal communication independent of all cultures would compensate for insufficiency of the countermeasures to language difficulty in multicultural and multilingual environment on board ship.

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