

## Study on Systematic Usage of SHS in MET

Research leader

**Prof. Dr. Kinzo INOUE**

Kobe University of Mercantile Marine

### Research Members

#### China

Dalian Maritime University (DMU):

- Prof. Capt. **Hong Biguang**
- Associate Prof. Dr. **MA Hui**

#### Korea

Mokpo National Maritime University (MNMU):

- Prof. Dr. **Yun Myung Ou**

Korea Maritime University (KMU):

- Prof. Dr. **Gug Seung Gi**

Cheju National University:

- Lecturer Dr. **JONG Jae Yong**

#### Turkey

Istanbul Technical University, Maritime Faculty (ITUMF)

- Associate. Prof. Dr. **Ozkan Poilaz**
- Mr. **Cemil Yurtoren**

#### Japan

Kobe University of Mercantile Marine (KUMM):

- Prof. Dr. **Inoue Kinzo**
- Associate Prof. Dr. **Usui Hideo**
- Lecturer Dr. **Hirono Kouhei**
- Post Graduate Student **Hu Zhiwu** (SMU)
- Post Graduate Student **Xie Hongbin** (DMU)
- Miss **Motohashi Momoko** (KUMM) Secretariat

## **Features of this Project**

This research project aims at the establishment of curriculum design strategy for maritime education and training institutions, including simulator-oriented education, which meets the goal of WG-1 at IAMU.

This research project provides a very unique opportunity to achieve the research purposes by the collaboration of international joint members from different MET institutions of different countries. The members are composed of typical types of MET institutions such as KUMM which is in a seafarer-demand-country, DMU, SMU and ITUMP which are in seafarer-supply-country and KMU and MNMU which are in a position of transitional period to seafarer-demand - country.

We believe that this type of research-aim and member-formation is one of the typical activities to achieve the tangible result of IAMU from the viewpoint of utilization of IAMU-networking and activation of WG-activity.

## **Research Purpose**

The goal of this research project is to establish curriculum design strategy for MET institutions, including simulator-oriented education.

In this research project, two steps of survey are planned. 1<sup>st</sup> stage of the survey is to collect data for considering "strategy for curriculum design" that is available to every grade of maritime institution and that is suitable to each maritime institution when one is about to set up specific curriculum. 2<sup>nd</sup> stage of the survey is to collect data and consider how to introduce ship-handling simulator training into the curriculum from the viewpoint of strategic curriculum design.

Regarding the establishment of curriculum design strategy, the significance of know-how for improving curriculum becomes a key. Due to the quick advance of technology and the rapid change of market requirements in the international maritime community, MET institutions are urged to design their own curriculum as to meet the expectations from domestic or international seafarers-market.

In order to set up specific curriculum that is suitable to each MET institution, attention should be paid to whether the country is seafarer-demand-country or seafarer-supply-country or between. The curriculum should not be the same depending on the difference that the country stands on which side.

In this research, strategy for curriculum design is proposed that is available to every grade of MET institution in the international maritime community.

## The 1<sup>st</sup> Stage of the Survey

The 1<sup>st</sup> stage of the survey was planned as follows. Firstly, the investigation on the current reality of shipping industry was prepared. The survey items were (a) number of merchant vessels under operation of own country and (b) number of seafarers with nationality of own country. These data were used to identify whether the country is seafarer-demand-country or seafarer-supply-country or between.

Secondly, the investigation on the current reality of (c) job opportunities of graduates as seafarers was prepared. Finally, the investigation on the current reality of (d) curriculum structure was also prepared. Survey was implemented by using survey format of questionnaires for four member countries and those representative universities in the term of the latest five years of 1998 to 2002.

As the result of this survey, two indices were taken up to identify whether a country is seafarer-demand-country or seafarer-supply-country. One is "self-sufficient-ratio" of seafarer of own country and the other is "job opportunity ratio" of graduates as seafarers.

Self-sufficient-ratio of seafarer of own country ( $R_{ss}$ ) is expressed by the ratio shown as below:

$$R_{ss} = N_{swn} / N_{nec} = N_{swn} / (N_{sh} \times N_{av})$$

$N_{swn}$ : Number of seafarers with nationality of a country

$N_{nec}$ : Necessary number of seafarers to operate fleet under operation of a country.

Where,

$$N_{nec} = N_{sh} \times N_{av}$$

$N_{sh}$ : Total number of ships under operation of a country

(including Native Flag, Flag of convenience and Chartered vessel)

$N_{av}$ : Average number of officers to operate a ship

If the fleet is mostly operated by foreign seafarers, the value of  $R_{ss}$  comes to zero. This means that the country is seafarer-demand-country. When the fleet is mostly operated by seafarers of own country, the value of  $R_{ss}$  comes close to 1.0. In such case, it can be said that the country is seafarer-supply-country.

Another index taken up here is job opportunity ratio of graduates as seafarers. Job opportunity ratio of graduates as seafarers ( $R_{jo}$ ) is expressed by the ratio shown as below:

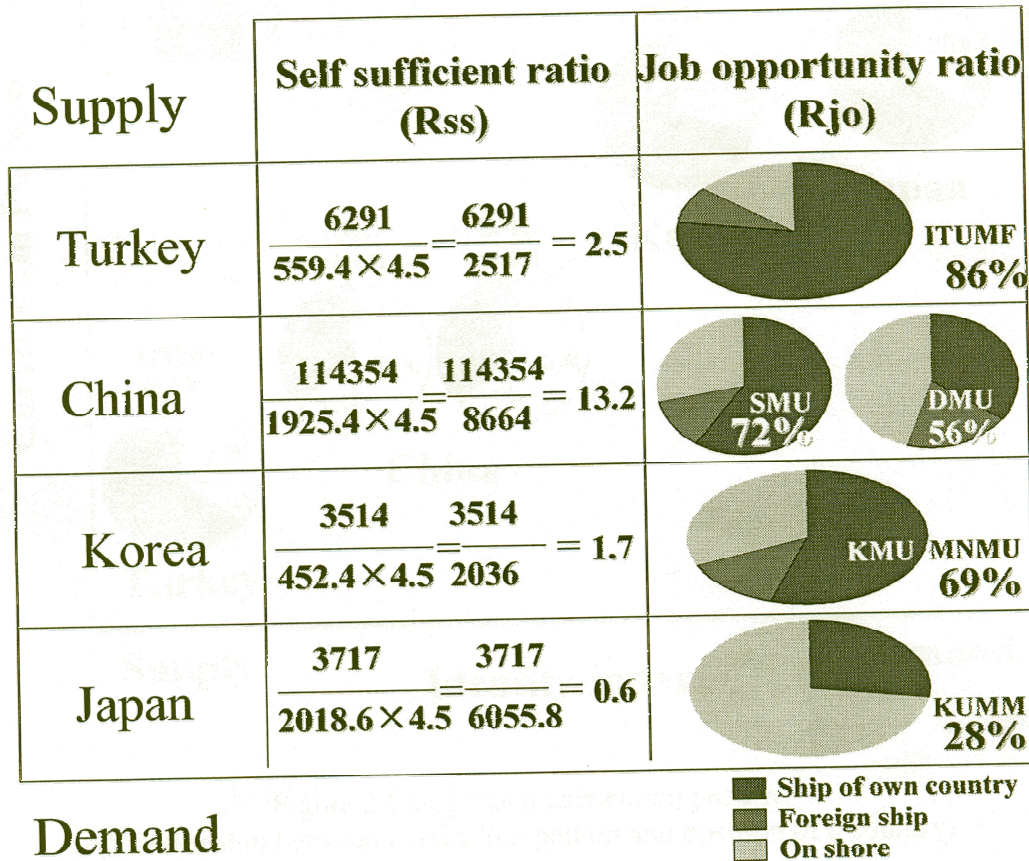
$$R_{jo} = N_{job} / N_{grd}$$

$N_{job}$ : Number of graduates got job on board

$N_{grd}$ : Number of graduates from a MET institution

When the percentage of job opportunity ratio is high, the graduate students have high possibilities to be able to go to sea whatever the ships are of own country or of foreign countries. So that such country is supposed to be seafarer-supply-country.

Figure 1 shows the results of data analysis. Job opportunity ratio (Rjo) relatively gives reasonable result in good order. Regarding the self sufficient ratio (Rss), further checking of source data seems to be necessary. However, the results express a tendency in good order.

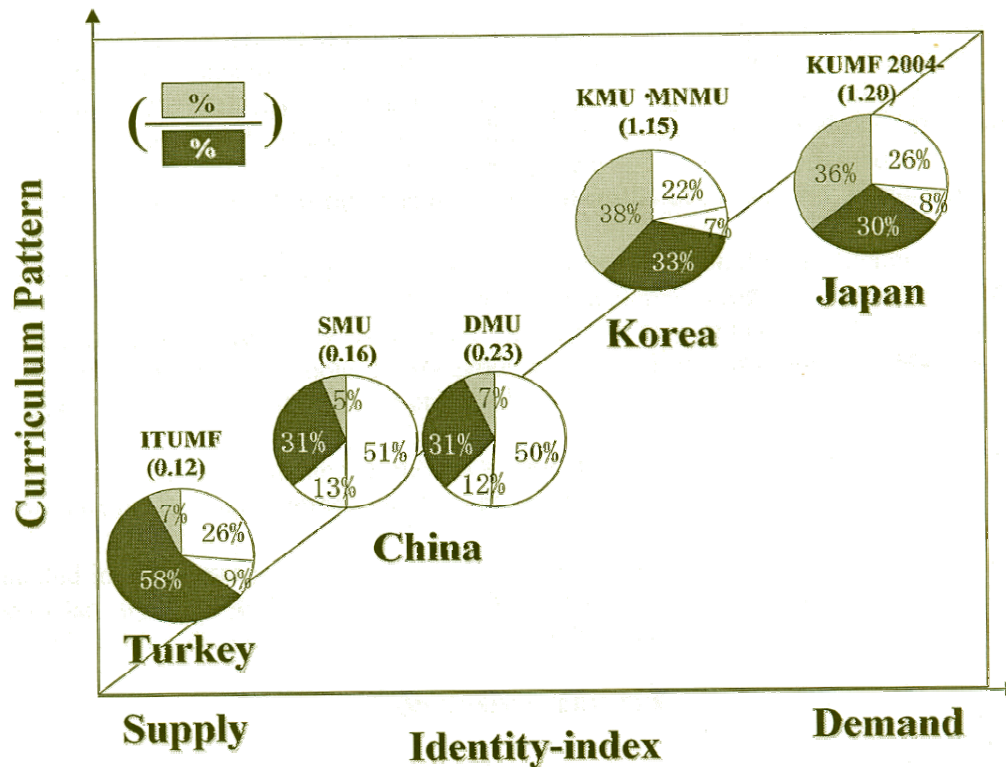


Demand

**Figure 1: Results of data analysis  
Job-opportunity-ratio (Rjo) and Self-sufficient-ratio (Rss)**

In order to analyze the pattern of curriculum of each MET institution, by focusing on the subjects of lectures, curriculum structure was categorized into four groups such as General basic subjects, Specialized basic subjects, Nautical subjects and advanced maritime subjects.

Figure 2 shows the relationship between the identity-index whether the country is seafarer-demand-country or seafarer-supply-country or between and the categorized pattern of curriculum. The features of the curriculum structure are expressed by the ratio of percentage share of nautical subjects to advanced maritime subjects in simple manner.



**Figure 2: Categorized curriculum pattern**  
(Relationship between curriculum pattern and position of a country)

When a MET institution is about to design the curriculum as to meet the expectations from domestic or international seafarers-market, a recommendable pattern of curriculum can be suggested from this diagram.

To provide more strategic suggestion for the curriculum design, further discussion will be made among project members hereafter.

## The 2<sup>nd</sup> Stage of the Survey

The 2<sup>nd</sup> stage of the survey is to collect data and consider how to introduce the ship-handling simulator training into the curriculum from the viewpoint of strategic curriculum design.

The quality required to the students is not the same depending on the difference that the country stands on. In MET institutions of seafarer- demand-country, ship-handling simulator is used not only for enhancing the vocational ability but also the academic research ability. The arrangement of the ship-handling simulator training in curriculum may not the same depending on the difference that the country stands on which side. In this research, strategy for introducing ship-handling simulator training into the curriculum is proposed. The 2nd stage of the survey is planned as follows. The survey items are the current reality of the arrangement of simulator-oriented training in curriculum in each MET institution and the current reality of the training formation.

The questionnaire will be arranged to ask whether the ship-handling simulator training is introduced in the curriculum as the regular educational program, how the training program is implemented, what is the training purpose, how many students in one group, how often in a week, how about the scenario, who is the instructor, how to assess the skill progress, how many credit units are provided and so on.

Survey will be implemented right after this meeting by using survey format of questionnaires for four member countries and those representative universities.

The 2<sup>nd</sup> international joint meeting will be held in one of the member countries around top of January 2004 to discuss how to introduce ship-handling simulator training into the curriculum from the viewpoint of strategic curriculum design.

### **Conclusive Remarks**

This research project aims at the construction of the systematic curriculum design strategy including ship-handling simulator training that meets the goal of WG-I at IAMU. When MET institutions are about to design their own curriculum, specific curriculum should be designed as to meet the expectations from the seafarers market of their own country. The results of this research project will be able to provide better suggestion for the design of the curriculum that is suitable to each MET institution.