KNOWME

TECHNICAL PAPER TP 1.2.1

Upper secondary school pupils' perceptions: Their image of and attitude to shipping

Due Date: March 2013
Submitted: May 2013
Main Author: Arne Jensen, University of Gothenburg
Dissemination: Programme participants (PP)

DOCUMENT CONTROL SHEET

Workpackage:	WP 1		
Deliverable :	Upper secondary school pupils' perceptions: Their image of and attitude to shipping		
Document short name:	TP 1.2.1		
Version:	1		
Document History:	Version	Issue Date	Distribution
	[Draft]	February 2013	[Task partners]
	[Final]	May 15, 2013	[Task partners / WP partners / Consortium / Project Officer]

Abstract: Please read chapter 1, “Introduction”.

Table of contents

Page Table

Page **Table**

Page **Table**

Page **Figure**

TP 1.2.1: Upper secondary school pupils' perceptions: Their image of and attitude to shipping

1 Introduction

This paper reports on findings from a major comparative study of the perceptions of shipping among upper secondary school pupils in Sweden, Norway and Greece. Our **objectives** are the following:

- To develop and define a construct for representing the image of shipping as a career opportunity
- To use this the construct for measuring the image of shipping held by upper secondary school pupils in Sweden, Norway, and Greece
- To define and measure relevant attitudes to shipping as a profession among upper secondary school pupils and to shipping in a more general sense
- To estimate the relative importance of different image dimensions and other variables as determinants of upper secondary school pupils' stated intentions to work as a seafarer and their attitudes to the shipping industry.

It is our ambition to create a scientific knowledge platform of both conceptual and empirical knowledge for strategy development in such areas where knowledge of image and attitudes are important ingredients. This study can also be seen as a first step aiming at developing an international image indicator based on scientific research. Such an instrument could give important inputs for strategic decisions at corporate, national, and supranational levels. The study was made in collaboration between the University of Gothenburg in Sweden, Molde University College in Norway, and the University of the Aegean in Greece.

The present technical paper, T1.2.1, is partly based on the paper "The image of shipping – perceptions of pupils in upper secondary schools in Sweden, Norway, and Greece" by Jensen, Bergqvist, Hjelle, and Lekakou, which has been accepted for presentation at the 2013 IAME world conference in Marseilles (IAME=International Association of Maritime Economists). The IAME paper has been developed within the KnowMe project. The difference is that the IAME paper has been further developed into the present technical paper, T1.2.1, by expanding it with a treatment of attitudes and the relationship between intentions, image, attitudes and other influential variables with the aim of creating knowledge as input for marketing strategies.

2 Core concepts: Image and attitude

2.1 Image

Following representative theoretical writings on image, such as Kotler and Keller (2006), we define image as the set of beliefs, ideas, and impressions a person holds regarding an object. Translated to the subject of shipping we define the image of shipping as:

The set of beliefs, ideas, and impressions a person holds regarding shipping

Image is the result of perception, the process by which an individual selects, organizes, and interprets information inputs to create a meaningful picture of the world. Perception has been studied in experimental psychology for a long time. According to Shiffman (1982), perception involves receiving/seeking stimulation from the external environment by listening, looking, touching, smelling, tasting, and being opposed to forces of gravity and acceleration, e.g. by being pushed and pulled. This means that other activities than looking and listening can contribute to the creation and development of an image. The physical movements of a ship in stormy weather leading to seasickness are only one example of activities referred to by Shiffman which could contribute to an individual's image of shipping.

In order to develop the image of shipping to a measurable construct we start from the assumption that image is a multidimensional concept (cf. Hampton *et al*., 1987; Newman, 1957; Herzog, 1963; Dichter, 1985; Spector, 1961; Stell and Fisk, 1986). Appendix 4 contains a comprehensive literature study of image and related concepts. The managerial relevance of the image construct is based on the common notion of links between image and behaviour. Based on this notion, it is reasonable to assume that improved knowledge about conceptual and empirical aspects of its image could help the shipping industry to accomplish long range strategic goals by influencing the behaviour of key target groups. An important task for scientific image research when developing a construct for shipping management, therefore, must be to identify, describe, and explain dimensions that are true descriptors of the phenomenon of interest and at the same time relevant from a managerial point of view. This calls for considering both general and specific aspects of shipping in order not to end up with results that are too myopic. In this paper we are focusing on both general dimensions of shipping and dimensions related to shipping as a possible career path.

2.2 Attitude

Attitude is a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object.(Fishbein and Ajzen, 1975)

It could be described using such terms as feelings, emotions, and likes/dislikes. Attitude has a directional quality. It connotes a preference regarding the outcomes involving the object, evaluations of the object, or positive/neutral/negative feelings for the object. Attitudes are

latent, affective variables assumed to produce consistency in behaviour, either verbally or physically. If pupils show a positive attitude to shipping as an industry or a labour market it can be assumed to increase the probability that they will consider the maritime industry for their future career.

Image, defined earlier, is a cognitive component representing the individual's information about the object. This information includes awareness of the object, beliefs about the characteristics or attributes of the object and judgments about the relative importance of each of the attributes. The conceptual difference between image and attitude is that image is supposed to be mainly knowledge based, while attitude is supposed to have its main direct origin in feelings and emotions.

Assuming that the image a person develops of an object comes earlier in time than the development of attitude to the same object it makes sense to see a causal relationship between image and attitude, that is attitude is perceived as being a function of image, but of course of other variables as well. This view is expressed by the research model in Figure 1.

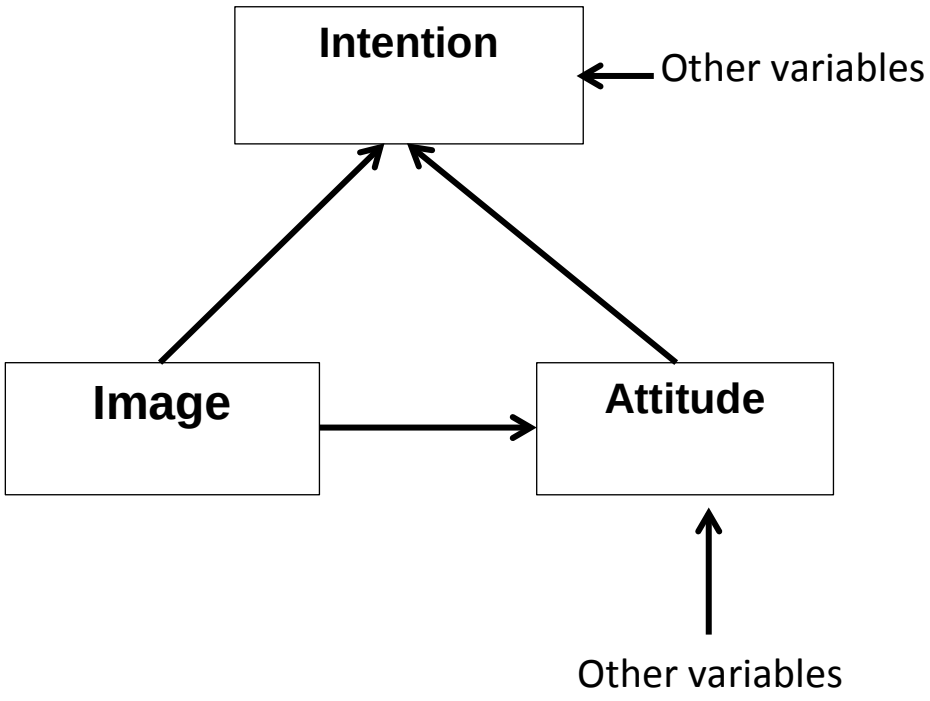

Figure 1. Research model

We define pupils' attitude to work in the shipping industry operationally by means of their reaction to the affective statement number 7 in the questionnaire ("Shipping seems to be an attractive industry to work in") measured on a seven degree Likert scale. The responses to

this statement are supposed to express the respondents' general attitude to shipping as a labour market and not necessarily their own personal plans to work in the maritime industry.

3 Methodology

We have followed an inductive approach when developing the image of shipping as a measurable construct. This approach involves designing a questionnaire with psychometric scales, collecting the data, and analysing the data using multivariate statistical methods. These steps in the survey, taken together, made it possible to simultaneously develop and define the image construct operationally and nominally, and to measure it quantitatively in various ways.

3.1 Questionnaire design

The image construct is defined by its dimensions. They have been identified by analysing the quantitative outcomes of the survey. This task involves revealing the number of dimensions and describing their meaning. Based on a literature review on various aspects of shipping and the researchers' own personal contacts with the maritime sector, a set of items were developed. They were considered to have sufficient potential to cover the universe of the most relevant general and career oriented aspects of shipping and at the same time to be understood by potential respondents. The items represent the respondents' general opinions about the shipping industry, their beliefs about being a seafarer on board a cargo ship, their beliefs about cargo ships as a workplace, their opinions about transport by ship, and their thoughts and intentions about their future working lives. The items were designed as seven degree semantic differential scales for mainly cognitive aspects and seven degree Likert-like scales for mainly affective aspects. The questionnaire is shown in Appendix 1. Despite the term "Questionnaire", which is often used in surveys, most of the "questions" are not questions in a literal sense. They are statements (items) to which the respondents are asked to respond. By analysing their responses conclusions can be drawn about latent mental variables. This type of "stimulus-organism-response model"(S-O-R model) is a common generic model for designing items for psychometric measurement in surveys.

A Swedish version of the questionnaire was developed by the University of Gothenburg and tested in various ways in a class room session at the University of Gothenburg on a group of 26 university students just having finished upper secondary school. In this test the students first filled out the questionnaires. After that their interpretations of the items as well as the formulation of the items were discussed. This test only led to a few minor modifications of the questionnaire. It was then translated into English and discussed between partners and thereafter translated from English to Norwegian by Molde University College and to Greek by the University of the Aegean.

3.2 Target populations

Two target populations were defined for each country, the main target population and the comparative target population. The main target population is defined as all upper secondary school pupils who are not following a marine programme and who are in their last school year and, if possible, in the second half of their last school year.

All three countries offer maritime programmes at the upper secondary school level, either in separate maritime schools or in schools offering maritime programmes in parallel with other programmes. Pupils in their last school year attending maritime programmes constitute the "Comparative target population" of that country.

When we in the following refer to the pupils/schools associated with the main target population we will use terms like "general schools", "general programmes", "general educations" and for the comparative target population "maritime schools", "maritime programmes", and "maritime education".

We thus have one main population and one comparative population from each country.

3.3 Sampling

The study is designed for analysing relationships between variables using multivariate statistical methods. These methods require "epsem" samples (equal probabilities for sample elements) of pupils, otherwise things may become extremely complicated (e.g. see Kish, 1965). Sample designs aiming at estimating population parameters of single variables, may gain in precision from using complicated selection and estimation schemes such as probability proportional to size, stratification, regression estimates etc. However, this is not our main aim, and epsem selection will give reliable results also for parameter estimation with reasonable sample sizes.

The sample selection was carried out using cluster sampling measuring all pupils in selected clusters. This design, based on simple random sampling of clusters, results in epsem sampling. The definition of clusters was different in the three countries depending on school system, availability of possible selection frames etc. In Sweden and Norway classes were chosen as clusters and in Greece schools. In Sweden and Norway simple random samples of classes were selected from complete lists of classes from these countries' national agencies for education. In Greece a simple random sample of schools was selected from a list of schools from the Ministry of Education.

The final result of the sampling process is one epsem sample per country and target population. These six epsem samples can be handled as independent samples having different selection probabilities.

3.4 Collecting the data

The same research plan for data collection was followed in Sweden, Norway and Greece. The schools were contacted via the headmaster/headmistress of the school who appointed a contact person for each selected class, normally the main teacher of the class or similar. Guidelines were given to the contact persons. The questionnaires were distributed to the pupils during a class activity, filled out under surveillance of the contact person, and collected at the end of the session. This design of the measurement process was chosen firstly in order to improve the measurement properties by minimizing group influences and other distorting activities when filling out the questionnaires and secondly to improve the response rate. The design also assures that the respondents belong to the target populations defined for the study.

No cultural or language problems were discovered during the data collection. This is also what may be expected when using the types of psychometric scales we have used. The responses were finally coded into Excel files by each university.

The following numbers of valid questionnaires were collected: In Sweden 641 (407 males, 234 females), in Norway 773 (445 males, 328 females), and in Greece 684 (371 males, 313 females).

3.5 On nonresponse

There are two causes for nonresponse in the survey. One is refusal by schools or classes to participate and another is pupils' absence from school on the day when the survey took place. In Sweden 59 % of the selected classes participated, in Norway the response rate in terms of classes was 56 %. In Greece, where schools were selected in the first step, all selected schools participated. There are no reasons to expect any association between the two mentioned causes for nonresponse and the survey variables. In a technical sense these non-respondents can be considered as eliminated from the survey at random. This means that pupils that responded in the survey can be regarded as epsem samples without nonresponse in the statistical analysis.

3.6 Multivariate statistical analysis

Two main multivariate methods were used in the statistical analysis of the data: exploratory factor analysis (e.g. see Hair *et al.*, 1995) and a special type of multiple linear regression.

Factor analysis was first used to identify the image dimensions as factors and to explain the meaning of the dimensions by means of factor loadings (correlations between factors and variables). Factors were first extracted using principal components and then rotated using the varimax method for factor rotation. By means of known items loading significantly on factors it was possible to interpret and name the factors.

Factor scores of the varimax rotated factors were used in a second analysis to estimate the relative importance of the image dimensions for explaining the respondents' stated intentions

to work as a seafarer and their attitudes to shipping. This was done by estimating beta coefficients using factor scores as independent variables in a linear regression analysis with measures of career intentions and attitudes as dependent variables. The advantage of this method is that the image dimensions represented by factor scores are orthogonal, given the factor extraction methods we used. This minimizes the multicollinearity problem of multiple regression (e.g. see Aigner, 1971, p.73; Hair *et al.*, 1995, p.400; or Gujarati and Porter, 2009, p.157).

For certain analyses describing image characteristics quantitatively, summated scales (cf. Hair *et al.*, 1995) were used to represent the dimensions. This is the case where specific interpretability is important or if group sizes are too small for reliable factor analysis to be carried out.

3.7 Research collaboration

The research plan, including the research design, the questionnaire and the sampling plan, was developed by Gothenburg University (GU). GU, Molde University College (Molde), and the University of the AEGEAN (AEGEAN), following the research plan, collected the questionnaire data in their respective countries and coded the data into Excel files. GU made the statistical analyses.

4 Image dimensions and their interpretations: main target populations

4.1 All pupils

Table 1 shows all the dimensions that were extracted and identified in three separate factor analyses, one for each country. A good discussion about criteria for the number of factors to extract can be found in Hair *et al.* (1995, p.337). Considering their five criteria and our aim of making comparisons between countries and groups of pupils result in a decision to extract seven factors. They are identified for each country as shown in Table 2. The interpretations of the dimensions are based on items in the questionnaire that load significantly on the respective dimensions. These items function as a sample of manifest markers for the latent concepts, the image dimensions. The markers are used for interpreting and naming the dimensions. The letters S, N, and G in brackets behind the markers in Table 1 denote countries for which the markers load significantly on the dimensions (the factors). Technical details of the analyses are shown in Appendix 2.

Table 1. Image dimensions and their interpretations. Results for pupils in general schools in Sweden (S), Norway (N), and Greece (G)

Dimension	Interpretation of dimension
1. Reward	-Salary (S,N,G) -Opportunity for experiencing interesting places and countries (S,N,G) -Opportunity for career advancement (S,N,G) -Interesting industry (S) -Social responsibility for employees (N) -Social relations on board (N)
2. Significance of Industry	-For world trade (S,N,G) -For my country's trade (S,N,G) -For jobs in my country (S,N,G) -Social relations (S)
3. Ships as a place of work and living	-Working conditions on board (S,N,G) -Leisure time on board a ship (S,N,G) -Risk of injuries in accidents on board (S) -Easiness of frequent communication with friends and family ashore (S) -Organising family life (N) -Daily tasks on board (N,G) -Social relations (G)
4. Environment	-Climate impact from freight transport by ship compared with train (S,N,G) -Damage to the environment from long distance freight transport by ship compared with train (S,N,G) -Environmental responsibility of industry (S,N) -Cost per ton of long distance freight transport by ship compared with train (S,G)
5. CSR of shipping industry	-Degree of social responsibility for all employees (S,N,G) -Degree of equal opportunities for men and women (S,N,G) -Degree of disputes between employers and employees (S,N) -Environmental behaviour of industry (G)
6. Family	-Easiness/difficulty of organizing family life (S)
7. Career shift	-Easiness/difficulty of shifting career from shipping to careers ashore (S,N)
8. Risk	-Injuries through workplace accidents on board (N,G) -Ships sinking due to accidents (N,G) -Barriers to communicating with friends and family ashore (N,G) -Easiness/difficulty of shifting career from shipping to careers ashore (G)
9. Employer-employee relation	-Disputes between employers and employees (G)

Table 2 shows identified image dimensions separately for Sweden, Norway, and Greece. As can be seen, seven dimensions have been identified for each country. There is a remarkable similarity between the patterns of image dimensions of the three countries. The differences may be explained by

- Differences in structure, organisation, and operation of the shipping industries of the countries

- Differences in knowledge and value systems of the respondents
- Recent relevant events in the countries (e.g. events that may influence the perception of risk)

Absence in Table 2 of a certain dimension for a country does not necessarily mean that the aspects of the dimension are missing in the data of the country. The respondents may associate the aspects in question with other dimensions in weak way in terms of factor loadings. The family dimension and the career shift dimension seem to be examples of this. In the Norwegian case the family aspect seems to be associated with dimension 3 “Ships as a place of work and living”. In the Greek case, the “career shift” dimension” seems to be associated with dimension 9 “Employer-employee relation”. Such phenomena may occur in “visual” interpretations since a give variable (item) may load on more than one factor. However, this does not mean that the factors collectively have lost information when used for statistical analyses.

Table 2. Image dimensions for Sweden (S), Norway (N), and Greece (G). Results for pupils in general schools (“X” denotes presence of a dimension).

Dimension	S	N	G
1. Reward	X	X	X
2. Significance of Industry	X	X	X
3. Ships as a place of work and living	X	X	X
4. Environment	X	X	X
5. CSR of shipping industry	X	X	X
6. Family	X		
7. Career shift	X	X	
8. Risk		X	X
9. Employer-employee relation			X

The “employer-employee relation” as a dimension has only been identified for Greece. This may have two explanations. One is media reflections of the turbulence in Greece following the austere financial measures taken. These may have made Greek respondents generally more aware of conflicts in the labour-markets and therefore more sensitive to this question in the questionnaire. The other explanation is the comparatively harmonious relations between employers and unions in the Scandinavian countries.

4.2 Generalized nominal definitions of identified image dimensions

As generalized definitions of the image dimensions shown in Table 1 and Table 2 we have formulated the following nominal constitutive definitions:

- Reward: Monetary compensation, job satisfaction, career advancement, and other physical, mental or social benefits associated with working in the shipping industry

- Significance of industry: Perceived significance of shipping for world trade, for trade and jobs of the individual's country, and for international social relations
- Ships as a place of work and living: Integrated impression of working and living at the same restricted place on a ship involving working conditions, daily tasks, social life, leisure time, communicating with people ashore, and organizing family life.
- Environment: Climate impact and environmental damage from shipping perceived in the light of the shipping industry's environmental behaviour and responsibility.
- CSR: Corporate social responsibility for all employees, for equal opportunities for men and women, and for creating positive employer-employee relations
- Family: Easiness/difficulty of organizing family life being a seafarer.
- Career shift: Easiness/difficulty of shifting career from shipping to careers ashore (Career lock in).
- Risk: Ships sinking due to accidents, injuries through workplace accidents on board, and social risks associated with being locked in on board far from family and friends.
- Employer-employee relation: Perceived level of disputes between employers and employees.

These definitions are based on the dimensions that have been extracted by factor analysis (shown in Table 1) with some very small modifications based on other observations in the data. The definitions can be seen as generic formulations of the image dimension constructs.

4.3 Image dimensions: males and females

Table 3 shows image dimensions for males and females in Sweden, Norway, and Greece extracted in six separate factor analyses on subpopulations of the main target population, pupils in general schools.

Table 3. Image dimensions. Comparisons between males (M) and females (F) for pupils in general schools in Sweden, Norway, and Greece ("X" denotes presence of a dimension).

Dimension	Sweden		Norway		Greece	
	M	F	M	F	M	F
1. Reward	X	X	X	X	X	X
2. Significance of Industry	X	X	X	X		X
3. Ships as a place of work and living	X	X	X	X	X	X
4. Environment	X		X	X		X
5. CSR of shipping industry	X	X	X		X	X
6. Family		X		X	X	
7. Career shift	X	X	X		X	X
8. Risk		X	X	X	X	X
9. Employer-employee relation	X				X	
10. Reward II				X		

There are some noticeable differences between genders within countries and also between countries. As mentioned previously, the dimension "employer-employee relation", which has only been identified for men according to the table, might be affected by general labour-market turbulence.

Dimension 10 "Reward II" deserves a separate explanation. It depends on significant factor loadings for Norwegian females on question number 10 and 11. These items represent beliefs that seafarers have opportunities for experiencing interesting places and countries together with career advancement. This dimension does not appear separately for other subpopulations. This observation for female Norwegian respondents may reflect some of the more "romantic" perceptions of a career at sea, like the ones reported on in the survey of Norwegian sailors (Mack, 2007). Careers on-board cruise-liners may also be more present in the minds of Norwegian pupils due to a traditional strong presence of Norwegian officers on-board such vessels.

5 Image dimensions and their interpretations: comparative target populations

A fundamental difference between pupils in general schools and pupils in maritime school is that the latter have already chosen an industry and a career path for their future professional life which they can be assumed to follow with a high probability. Therefore they can be assumed to be much more knowledgeable about shipping in general and the life as a seafarer in particular. This knowledge may be acquired both before and during their education. A logical hypothesis based on this assumption would be that their image of shipping would be spanned by more dimensions and based on deeper knowledge than the image held by pupils in general schools.

This can also be seen in the data. Eight dimensions were extracted for each country by exploratory factor analysis of pupils in maritime schools in Sweden, Norway, and Greece (versus seven dimensions for general schools). Table 4 shows the interpretations of the dimensions and the names given to them, and Table 5 shows how dimensions were distributed among countries.

Table 4. Image dimensions and their interpretations. Results for pupils in maritime schools in Sweden (S), Norway (N), and Greece (G).

Dimension	Interpretation of dimension
1. Reward	-Salary(S,N,G) -Opportunity for experiencing interesting places and countries(N,G) -Opportunity for career advancement(G) -Interesting industry(G) -Easiness/difficulty of shifting career from shipping to careers ashore(S) -Easiness/difficulty of organizing family life(S)
2. Significance of Industry	-For world trade(S,N,G) -For my country's trade(S,N,G) -For jobs in my country(N,) -Career advancement(S) -Environmental responsibility of industry(G)
3. Ships as a place of work and living	-Working conditions on board(S,N,G) -Degree of equal opportunities for men and women(N) -Leisure time on board ships(S,G) -Easiness of frequent communication with friends and family ashore(S) -Organising family life() -Daily tasks on board(N) -Social relations on board ships(S) -Career advancement(N) -Environmental responsibility of industry(G) -Interesting industry(N)
4. Environment	-Climate impact from freight transport by ship compared with train (S,N,G) -Damage to the environment from long distance freight transport by ship compared with train(S,N,G) -Environmental responsibility of industry(S) -Cost per ton of long distance freight transport by ship compared with train(S,N,G) -Easiness/difficulty of shifting career from shipping to careers ashore(G)
5. CSR of shipping industry	-Degree of social responsibility for all employees(N,G) -Degree of equal opportunities for men and women(S,G) -Degree of disputes between employers and employees(N) -Environmental behaviour of industry(S,N) -Interesting industry(S) -Working condition on board(S) -Easiness of frequent communication with family and friends ashore(G) -Significance for jobs in my country(G)
6. Family	-Social relations on board(G)

7. Career shift	-Easiness/difficulty of shifting career from shipping to careers ashore (N)
8. Risk	-Injuries through workplace accidents on board(S,N,G) -Ships sinking due to accidents(S,N)
9. Employer-employee relation	-Disputes between employers and employees(G,S) -Degree of social responsibility for all employees(S,G) -Daily tasks on board(G)
10. Personal satisfaction from working as a seafarer	-Opportunity for experiencing interesting places and countries(S) -Significance of shipping for jobs in my country(S)
11. Social conditions on board	-Easiness/difficulty of organising family life(N) -Degree of social responsibility for all employees(N) -Social relations on board ships(N) -Leisure time on board ships(N)

Compared with the image dimensions extracted from pupils in general schools, two more dimensions appear. One is “Personal satisfaction from working as a seafarer”, which seems quite logical remembering that these pupils have already expressed a career preference for shipping by their choice of education. The other is “Social conditions on board”, the appearance of which may be explained by their knowledge about the daily life of seafarers learned from education, social networks or their place of living.

Table 5 shows the extracted image dimensions for maritime school pupils separately for Sweden, Norway, and Greece. As can be seen, eight dimensions have been identified for each country. There is a remarkable similarity between the patterns of image dimensions of the three countries. The differences may be explained by differences between countries in terms of shipping industries, economies, labour markets, cultures, traditions, recent events etc. The absence of a dimension for a country does not mean that aspects of this dimension is lacking in the data. They may be included in other dimensions, which may be logical given all the facts of the country and its shipping industry.

Table 5. Image dimensions extracted from pupils in maritime schools in Sweden, Norway and Greece (“X” denotes presence of a dimension).

Dimension	Sweden	Norway	Greece
1. Reward	X	X	X
2. Significance of Industry	X	X	X
3. Ships as a place of work and living	X	X	X
4. Environment	X	X	X
5. CSR of shipping industry	X	X	X
6. Family			X
7. Career shift		X	
8. Risk	X	X	X
9. Employer-employee relation	X		X
10. Personal satisfaction from working as a seafarer	X		
11. Social conditions on board		X	

The fact that the "family" dimension does not appear for Scandinavian respondents from maritime schools may be a bit surprising, as the poor possibilities for an ordinary family life has been identified as a key challenge in recruitment campaigns conducted by the Scandinavian shipowners and their associations. There are several potential explanations of this somewhat surprising result. One could be that this problem actually is smaller for Scandinavian sailors in general because a very significant proportion of these are employed in regular local and short distance regional operations such as ferries and feeder services (Sweden) and ferries and offshore activities (Norway). Normally, these seafarers will have more frequent contact with their home environment than the ones employed in short and deep sea traffic. The availability of good internet-based communications offered by Scandinavian shipowners could be another explanation. Finally, women seem to be more aware of family aspects than men, and the sample proportion of women in maritime schools in Sweden and Norway is smaller than 10%, but about 50% in Greece.

6 Pupils' ratings of the shipping industry's image

It is possible to calculate estimates of the respondents' ratings of the shipping industry along the seven dimensions that have been identified as reflectors of the images they hold. The extracted factors expressed as factor loadings are not easy to interpret quantitatively for this purpose. A better approach is to use summated scales. These are used as approximations of factors that have been extracted to represent the dimensions. A summated scale for a factor, and thereby for a dimension, is normally calculated as an average of the items that load significantly on the factor. A summated scale is expressed in the same units as the items and therefore easier to interpret than the factor it represents. As for all interval scaled psychometric measures, meaningful conclusions about strength/size/intensity etc. based on a single measurement cannot normally be made. All conclusions should be based on comparison between measurements, either between measurements from the same scale applied to different objects or between measurements from different similar scales applied to the same object. To make conclusions whether an image or attitude is positive or negative for example from looking only at the average of a single interval scaled variable cannot be recommended, since an interval scale lacks a natural zero point.

6.1. General schools

Table 6 shows how pupils in general schools rate the image of shipping in the nine identified dimensions. The ratings shown in the table can be treated as 7-degree interval scales ranging from 1 to 7, where 7 represent the maximum positive rating. The development of summated scales behind the ratings in table 6 is explained in Appendix 3. The "Mean rating" at the bottom line of the tables are simple averages of the non- zero ratings per column in the tables presented in order to give a quick overview of levels.

Table 6. Ratings along image dimensions by pupils in general schools in Sweden, Norway, and Greece (7-degree rating scale ranging from 1 to 7, 7= maximum)

Dimension	Sweden	Norway	Greece
1. Reward	4,5	5,3	5,7
2. Significance of industry	4,7	5,3	5,5
3. Ships as a place of work and living	3,9	4,2	4,3
4. Environment	4,1	4,5	4,2
5. CSR of shipping industry	4,2	4,5	4,1
6. Family	3,6		
7. Career shift	4,0	4,3	
8. Risk		4,3	3,6
9. Employer-employee relation			3,3
Mean rating	4,1	4,6	4,4

A two sample t test applied to all three pairs of countries shows that the mean ratings (the bottom line of Table 6) are statistically different between countries at all practical significance levels (<0,0002). The image of shipping seems to be more positive in Norway than in Sweden with Greece in between if conclusions are based on the mean ratings. Shipping is relatively speaking a more significant industry (e.g. in terms of fleet size) in Norway and Greece than in Sweden. The higher ratings in these countries on this dimension may therefore be understandable.

Table 7. Ratings along image dimensions for males (M) and females (F) in general schools in Sweden, Norway, and Greece (7-degree rating scale from 1 to 7, 7= maximum).

Dimension	Sweden		Norway		Greece	
	M	F	M	F	M	F
1. Reward	4,4	4,1	5,2		5,6	5,7
2. Significance of Industry	4,9	4,8	5,3	5,3		5,4
3. Ships as a place of work and living	3,9	3,7	4,2	4,8	4,2	4,4
4. Environment	4,2	4,8	4,5	4,6		4,1
5. CSR of shipping industry	4,3	4,1	4,4	4,3	4,3	4,1
6. Family				3,7	4,6	
7. Career shift	4,0	4,4	4,4		3,9	3,3
8. Risk			4,6	4,3	3,8	3,5
9. Employer-employee relation	4,0	3,9			3,7	
10. Reward II				5,4		
Mean rating	4,2	4,3	4,7	4,6	4,3	4,4

There are only small differences between males and females per country in terms of level of ratings. However, the dimensions identified seem to be somewhat different between the subpopulations.

6.2. Maritime schools

Table 8 shows how secondary school pupils of maritime schools have rated shipping along the image dimensions that were identified for each country. Summated scales have been used to represent the identified dimensions. The ratings shown in Table 8 can be treated as measured by 7-degree interval scales ranging from 1 to 7, where 7 represent the maximum positive rating.

Table 8. Ratings along image dimensions for maritime school pupils in Sweden, Norway, and Greece (7-degree rating scale from 1 to 7, 7= maximum)

Dimension	Sweden	Norway	Greece
1. Reward	4,5	5,8	6,3
2. Significance of Industry	5,7	6,3	5,3
3. Ships as a place of work and living	5,2	6,1	4,6
4. Environment	5,1	5,4	4,3
5. CSR of shipping industry	5,5	5,1	4,0
6. Family			4,5
7. Career shift		4,5	
8. Risk	5,1	5,3	3,3
9. Employer-employee relation	4,6		3,5
10. Personal satisfaction from working as a seafarer	5,3		
11. Social conditions on board		5,1	
Mean rating	5,1	5,5	4,5

Two sample t tests show significant differences in mean ratings (bottom line of Table 8) between all three pairs of countries at all practical levels of significance (<0,0002). There are both similarities and differences between countries. Two differences concern how “Reward” and “ships as a place of work and living” are rated by pupils from the three countries. Another difference can be found in the dimension “Risk”, where the score is much lower in Greece compared to Norway and Sweden. The likely explanation seems to be that the risks of injuries through workplace accidents are perceived as high among Greek respondents. This is a factor which might have been influenced by recent media attention to shipping accidents. The data was collected in spring 2012, a few months after the Costa Concordia accident in Italy. Although the accident got a lot of media attention in Scandinavia as well, one might suspect that the media impact was bigger in Mediterranean countries like Greece.

No comparative ratings for men and women have been calculated for maritime schools due to the low proportion of women participating in these schools in Sweden and Norway.

7 Image as determinant of intention and attitude

7.1 The importance of image as a determinant for pupils' choice of career path and their opinion of shipping as an attractive industry to work in

Pupils' estimated ratings of shipping in various image dimensions were presented in chapter 7. However, they are general ratings of shipping in dimensions expected to represent both general and more specific aspects that can be associated with shipping as a career path and a place of work. These ratings cannot be expected to represent importance of the dimensions for such pupil decisions which demand personal mental commitment and personal mental investment, for example pupils' decisions about choice of career path. The purpose of the present chapter is to analyse how important the identified image dimensions are for upper secondary school pupils' choice of career path and their opinion of shipping as an attractive industry to work in. The term "determinant" should not be understood as "the only influential variable", but as one of the influential variables.

7.1.1 Method

It is widely assumed within the maritime sector that improving the image of the shipping industry could improve the attractiveness of the industry as a future career path for young people. It would therefore be interesting to study the relationship between young peoples' image of the shipping industry and their actual choice of career path. However, this would require a complicated, demanding, and costly research design extended over a rather long period of time in order to observe actual behaviour. Using intentions, plans and similar variables as substitutes for actual behaviour has a long history in research in sociology, marketing and consumer behaviour, and this is the approach we have chosen. In the following, we analyse the relationship between upper secondary school pupils' image ratings in various dimensions and

1. Their stated intentions to work as a seafarer (variable Y_1),
2. Their attitudes to shipping as an attractive industry to work in (variable Y_2)

We use the variable Y_1= (q27+ q28)/2 as "intention to work as a seafarer", where q27 and q28 are variables formed from answers to questions 27 and 28 in the questionnaire, and Y_2 = q7 , where q7 refers to question 7 in the questionnaire (see Appendix 1.). We then regress Y_1 and Y_2 transformed to standardized dependent variables on the image dimensions D_1, D_2, ……D_n, where the D variables are varimax rotated factor scores (orthogonal) that have been standardized in a last step. Expressed otherwise, we estimate the β coefficients in the regression model

$$Y= \beta_1 D_1 + \beta_2 D_2 + \ldots\ldots\ldots \beta_n D_n \qquad (1)$$

This has been done for various populations and sub-populations of interest. The β coefficients in (1) are known as beta coefficients. The advantage of using beta coefficients in this context

is that a beta coefficient reflects the relative impact on Y of the D variable to which the beta coefficient is associated. Beta coefficients can be directly compared within the same estimated model. This means that we have a tool for inferring the relative importance of different image dimensions for upper secondary school pupils' stated intentions to work as a seafarer or their perceptions of shipping as an attractive industry to work in. We interpret model (1) as a causal model in the context of our research design, since it can be argued that it fulfils at least two out of three desirable general requirements for drawing causal conclusions: correlation between Y and the independent variables, and time order of occurrence of variables. The third one, elimination of other possible causal factors, has only been partially analysed (see Churchill, 1995, ch.5).

Inference about importance can be made without direct questioning the respondent about importance in this context which would be a very difficult research task to carry out. The difference between Y_1 and Y_2 is that stating a personal intention (Y_1) is more demanding for a respondent than expressing an opinion about how attractive an industry is to work in (Y_2), since the latter does not necessarily associate any personal commitment with the respondent. The use of Y_2 as dependent variable in (1) is assumed to reveal the importance of different image dimensions for the forming of general opinion among young people about the shipping industry as a labour market and place of work. It should be said also, that our purpose is only to analyse the relationship between the image dimensions that have been identified in the preceding chapters and Y_1 and Y_2 respectively. Our purpose is not to build models of these two dependent variables with maximal explanative power. Such a purpose would require use of more explanative variables than image variables.

In the following we have estimated the regression model (1) with Y_1 and Y_2 as dependent variables on data for the various populations and sub-populations. This has only been done for pupils of general schools, since pupils of maritime schools already have made a choice of career path, at least in terms of choice of education. For this reason, the empirical results in chapters 7-9 are based on pupils of general schools only.

7.1.2. Empirical results

Tables 9-12 show the results of the analyses of the importance of identified image dimensions for pupils' career intentions and their general opinions of the shipping industry as an attractive industry to work in. Results are shown for countries and genders. The tables show estimated beta coefficients and their levels of significance (within brackets) assuming two-tailed tests of the hypothesis that β is equal to zero. Conclusions about relative impact should only be drawn from significant beta coefficients, which from a practical standpoint could mean, say, significance levels < 0,10. It should also be observed that relative levels of impact/importance of image dimensions can be compared within groups (vertically per column in the tables). Horizontal comparisons along rows in the tables will only allow comparison of the internal ranks of given dimensions between groups which may be of minor interest.

Table 9. Importance of identified image dimensions for pupils' stated career intentions. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for career intentions		
	Sweden	Norway	Greece
1. Reward	0,295 (0,00)	0,208 (0,00)	0,207 (0,00)
2. Significance of Industry	-0,073 (0,10)	0,037 (0,30)	0,122 (0,00)
3. Ships as a place of work and living	0,212 (0,00)	0,439 (0,00)	0,266 (0,00)
4. Environment	0,084 (0,06)	0,089 (0,01)	0,095 (0,01)
5. CSR of shipping industry	-0,001 (0,98)	0,175 (0,00)	0,157 (0,00)
6. Family	0,131 (0,00)		
7. Career shift	-0,082 (0,07)	0,062 (0,08)	
8. Risk		0,174 (0,00)	0,089 (0,02)
9. Employer-employee relation			0,209 (0,00)

Table 9 shows that two image dimensions seem to be more important than the rest for pupils' stated intentions to work in the shipping industry: "Reward" and "Ships as a place of work and living". The same seems to be the case for pupils' general opinion about shipping (Table 10). For both dimensions, the beta coefficients are positive and significantly different from zero at all practical levels for all three countries. However, when it comes to "significance of industry", this dimension does only show significant impact on career intentions for Greek pupils. It can also be seen that "significance of industry" means more for forming general opinion than it means for pupils' stated intentions to work in the shipping industry.

"CSR of shipping industry" is an important determinant for Norwegian and Greek pupils' career intentions, while this determinant is without importance for Swedish pupils. On the other hand, "Family" appears as an important determinant for Swedish pupils, but not so for Norwegian and Greek pupils.

"CSR of shipping industry" is the second most important determinant for Swedish pupils' opinion of shipping as an attractive industry to work in, while the same determinant ranks fourth for Norway and fifth for Greece.

The negative value of "Significance of industry" for Sweden (Table 9) seems to have an interesting explanation. The dimension as such contains variables representing shipping's global significance and variables representing significance for the respondent's own country. In the Swedish case, from looking at inter-correlations within the "Significance of industry" dimension it can be concluded that national significance of the industry is positively associated with pupils' career intentions, whereas global significance shows negative association. This observation underlines that image dimensions operationally designed for general purposes may have to be redesigned for specific uses.

Table 10. Importance of identified image dimensions for pupils' general opinion about shipping as an attractive industry to work in. Estimated beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for general opinion of shipping as an attractive industry to work in		
	Sweden	Norway	Greece
1. Reward	0,376 (0,00)	0,372 (0,00)	0,240 (0,00)
2. Significance of Industry	0,022 (0,60)	0,187 (0,00)	0,356 (0,00)
3. Ships as a place of work and living	0,165 (0,00)	0,402 (0,00)	0,316 (0,00)
4. Environment	0,055 (0,18)	0,090 (0,01)	0,044 (0,20)
5. CSR of shipping industry	0,298 (0,00)	0,182 (0,00)	0,111 (0,00)
6. Family	0,133 (0,00)		
7. Career shift	-0,001 (0,97)	0,147 (0,00)	
8. Risk		0,036 (0,29)	-0,046 (0,18)
9. Employer-employee relation			0,157 (0,00)

Table 11 and Table 12 show the importance of the identified image dimensions for pupils' intentions and opinions for men and women in Sweden, Norway, and Greece. There are some differences that deserve mentioning. Table 11 shows differences between men and women. For Swedish men, "Reward" and "Ships as a place of work and living" are the most important dimensions (in that order) for career intentions, while for Swedish women, the corresponding ranking is "Reward" and "Environment". For Norwegian male pupils, "Reward" and "Ships as a place of work and living" have the greatest impact on career intentions, whereas the rank order for Norwegian female pupils is "Ships as a place of work and living" followed by "Family". Greek male pupils, finally, have "Ships as a place of work and living" as the most important determinant for career intentions followed by "CSR of shipping industry". Female pupils of Greece have the same rankings as the male pupils.

Table 11. Importance of identified image dimensions for pupils' stated career intentions. Estimated beta coefficients for men and women in general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for career intentions					
	Sweden		Norway		Greece	
	M	F	M	F	M	F
1. Reward	0,453 (0,00)	0,191 (0,01)	0,404 (0,00)		0,248 (0,00)	0,192 (0,00)
2. Significance of Industry	0,015 (0,80)	-0,175 (0,01)	0,046 (0,37)	0,121 (0,02)		0,124 (0,03)
3. Ships as a place of work and living	0,236 (0,00)	0,165 (0,01)	0,332 (0,00)	0,378 (0,00)	0,322 (0,00)	0,260 (0,00)
4. Environment	0,051 (0,38)	0,188 (0,01)	0,090 (0,08)	0,156 (0,00)		-0,021 (0,70)
5. CSR of shipping industry	0,063 (0,28)	-0,103 (0,12)	0,237 (0,00)	0,141 (0,01)	0,266 (0,00)	0,207 (0,00)
6. Family				0,323 (0,00)	0,075 (0,13)	

7. Career shift	-0,041 (0,48)	-0,060 (0,37)	0,051 (0,32)		0,144 (0,00)	0,031 (0,58)
8. Risk		-0,063 (0,35)	0,027 (0,60)	-0,008 (0,87)	0,040 (0,41)	0,118 (0,03)
9. Employer-employee relation	0,005 (0,93)				0,087 (0,08)	
10. Reward II				-0,105 (0,04)		

Comparing men and women in the Swedish case (Table 12) shows that "Reward" is most important as a determinant for pupils' general opinion of shipping as an attractive industry to work in followed by "CSR of shipping industry" (tie with "Ships as a place of work and living"). The order is the same for both genders. For Norwegian male pupils, "Reward" seems to be the strongest determinant followed by "CSR of shipping industry", while for Norwegian female pupils the strongest determinant seems to be "Ships as a place of work and living" followed by "Family". For Greece, finally, male pupils' most important determinant for forming their general opinion of shipping as an attractive industry to work in is "Ships as a place of work and living" with "Reward" ranked second. For Greek female pupils, the inferred rank is "Significance of industry" followed by "Ships as a place of work and living".

Table 12. Importance of identified image dimensions for pupils' general opinions about shipping as an attractive industry to work in. Estimated beta coefficients for men and women in general schools (Main target populations) in Sweden, Norway, and Greece.

Dimension	Importance for general opinion of shipping as an attractive industry to work in					
	Sweden		Norway		Greece	
	M	F	M	F	M	F
1. Reward	0,446 (0,00)	0,285 (0,00)	0,539 (0,00)		0,316 (0,00)	0,205 (0,00)
2. Significance of Industry	0,094 (0,09)	-0,064 (0,33)	0,243 (0,00)	0,222 (0,00)		0,324 (0,00)
3. Ships as a place of work and living	0,150 (0,01)	0,203 (0,00)	0,233 (0,00)	0,395 (0,00)	0,356 (0,00)	0,318 (0,00)
4. Environment	0,087 (0,11)	0,102 (0,12)	0,014 (0,76)	0,197 (0,00)		0,046 (0,37)
5. CSR of shipping industry	0,250 (0,00)	0,203 (0,00)	0,318 (0,00)	0,055 (0,24)	0,044 (0,20)	0,179 (0,00)
6. Family				0,364 (0,00)	-0,046 (0,18)	
7. Career shift	0,034 (0,54)	0,131 (0,05)	0,019 (0,67)		0,157 (0,00)	-0,123 (0,02)
8. Risk		-0,087 (0,18)	-0,047 (0,29)	-0,075 (0,11)	0,24 (0,00)	0,024 (0,63)
9. Employer-employee relation	0,213 (0,00)				0,111 (0,00)	
10. Reward II				0,132 (0,01)		

8 Simultaneous impact of image and other variables on intentions and attitudes

Chapter 7 analysed the relative importance of the image dimensions for Sweden, Norway and Greece as in order to create a knowledge platform for the design of content of strategies aiming at attracting young people to the maritime industry. In the present chapter the analysis is expanded to cover the flow of influence in the social network of the respondents.

8.1 Proposals from family and friends

Table 13 shows the impact of proposals from family and friends on pupils' stated career intentions. In case of Sweden, it can be seen that direct proposals from family and friends seem to be more important than dimension 1 and 3. In the Norwegian case, proposals from friends seem to the strongest variable, whereas for Greek pupils, proposals from family seem to be the most important. It is interesting to observe that in Norway, friends are a more dominating source of influence than in Sweden and Greece.

Table 13. Importance of identified image dimensions, and proposals from family and friends for pupils' stated career intentions. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for career intentions		
	Sweden	Norway	Greece
1. Reward	0,172 (0,00)	0,097 (0,00)	0,166 (0,00)
2. Significance of Industry	0,021 (0,58)	-0,001(0,97)	0,065 (0,07)
3. Ships as a place of work and living	0,090 (0,02)	0,238 (0,00)	0,195 (0,00)
4. Environment	0,069 (0,06)	0,039 (0,15)	0,066 (0,06)
5. CSR of shipping industry	-0,044(0,23)	0,110 (0,00)	0,105 (0,00)
6. Family	0,033 (0,37)		
7. Career shift	-0,077(0,04)	0,016 (0,58)	
8. Risk		0,113 (0,00)	0,048 (0,17)
9. Employer-employee relation			0,209 (0,00)
Proposals from family	0,349 (0,00)	0,236 (0,00)	0,223 (0,00)
Proposals from friends	0,254 (0,00)	0,413 (0,00)	0,157 (0,00)

When it comes to attitude (Table 14), the impact from family is insignificant in both Sweden and Norway. It is stronger in Greece. This gives support for a hypothesis that attitudes in this context are developed differently in Greece as compared with Sweden and Norway.

Table 14. Importance of identified image dimensions, and proposals from family and friends for pupils' opinion of shipping as an attractive industry to work in. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for general opinion of shipping as an attractive industry to work in		
	Sweden	Norway	Greece
1. Reward	0,343 (0,00)	0,339 (0,00)	0,217 (0,00)
2. Significance of Industry	0,030 (0,47)	0,174 (0,00)	0,323 (0,00)
3. Ships as a place of work and living	0,143 (0,00)	0,341 (0,00)	0,275 (0,00)
4. Environment	0,059 (0,15)	0,076 (0,02)	0,027 (0,42)
5. CSR of shipping industry	0,291 (0,00)	0,163 (0,00)	0,081 (0,02)
6. Family	0,114 (0,01)		
7. Career shift	-0,002(0,96)	0,136 (0,00)	
8. Risk		0,019 (0,57)	-0,07 (0,04)
9. Employer-employee relation			0,131 (0,00)
Proposals from family	-0,052 (0,41)	0,028 (0,56)	0,130 (0,00)
Proposals from friends	0,213 (0,00)	0,165 (0,00)	0,090 (0,03)

8.2 Occupation of family and friends

It can be seen from Table 15 that the importance of parents' and friends' occupation for pupils' stated career intentions is rather low compared with the most dominant image dimensions. There does not seem to be strong or obvious intentions on the average for young people to follow the same career paths as their parents. The same can be said about attitudes to shipping as an attractive industry to work in (Table 16). If pupils have positive attitudes to shipping as an attractive industry to work in, these attitudes do not seem to be inspired from the work experience of their families and friends – at least not compared with several of the image dimensions.

Table 15. Importance of identified image dimensions, and work experience of family and friends for pupils' stated career intentions. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for career intentions		
	Sweden	Norway	Greece
1. Reward	0,271 (0,00)	0,184 (0,00)	0,191 (0,00)
2. Significance of Industry	-0,089(0,04)	0,021 (0,57)	0,097 (0,01)
3. Ships as a place of work and living	0,218 (0,00)	0,422 (0,00)	0,255 (0,00)
4. Environment	0,080 (0,07)	0,085 (0,02)	0,088 (0,02)
5. CSR of shipping industry	-0,001(0,98)	0,181 (0,00)	0,153 (0,00)
6. Family	0,125 (0,00)		
7. Career shift	-0,086(0,05)	0,056 (0,12)	
8. Risk		0,174 (0,00)	0,084 (0,02)
9. Employer-employee relation			0,188 (0,00)
Parents have worked in shipping industry	0,083 0,06)	0,083 (0,03)	0,131 (0,00)
Friends have worked in shipping industry	0,125 (0,01)	0,046 (0,23)	0,112 (0,00)

Table 16. Importance of identified image dimensions, and work experience of family and friends for pupils' opinion of shipping as an attractive industry to work in. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for general opinion of shipping as an attractive industry to work in		
	Sweden	Norway	Greece
1. Reward	0,368 (0,00)	0,353 (0,00)	0,231 (0,00)
2. Significance of Industry	0,017(0,68)	0,168 (0,00)	0,342 (0,00)
3. Ships as a place of work and living	0,166 (0,00)	0,391 (0,00)	0,311 (0,00)
4. Environment	0,053 (0,20)	0,085 (0,01)	0,040 (0,24)
5. CSR of shipping industry	0,298(0,00)	0,190 (0,00)	0,109 (0,00)
6. Family	0,131 (0,00)		
7. Career shift	-0,003(0,95)	0,056 (0,12)	
8. Risk		0,034 (0,32)	-0,048 (0,16)
9. Employer-employee relation			0,148 (0,00)
Parents have worked in shipping industry	0,022 0,60)	0,033 (0,35)	0,055 (0,12)
Friends have worked in shipping industry	0,043 (0,31)	0,081 (0,02)	0,067 (0,06)

8.3 The reference group: impact from friends

It is well known that influence from an individual's reference group is important for the behaviour of the individual. This seems to be the case for young people in particular (which is well known among parents of teenagers). Table 17 shows the importance of proposals from friends for pupils' career intentions. This is the most important variable in all three countries.

Table 17. Importance of identified image dimensions, proposals from friends, and industry's reputation among friends for pupils' stated career intentions. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for career intentions		
	Sweden	Norway	Greece
1. Reward	0,158 (0,00)	0,095 (0,00)	0,178 (0,00)
2. Significance of Industry	-0,061 (0,11)	-0,012 (0,40)	0,073 (0,05)
3. Ships as a place of work and living	0,121 (0,00)	0,240 (0,00)	0,222 (0,00)
4. Environment	0,077 (0,04)	0,027 (0,35)	0,061 (0,09)
5. CSR of shipping industry	-0,059 (0,13)	0,128 (0,00)	0,140 (0,00)
6. Family	0,066 (0,08)		
7. Career shift	-0,079 (0,03)	0,112 (0,00)	
8. Risk		0,117 (0,00)	0,078 (0,03)
9. Employer-employee relation			0,181 (0,00)
Proposals from friends	0,454 (0,00)	0,568 (0,00)	0,260 (0,00)
Industry's reputation among friends	0,164 (0,00)	0,033 (0,00)	-0,021 (0,63)

For attitudes, “the industry’s reputation among friends” is more important than “proposals from friends” for attitudes to shipping as an attractive industry to work in (Table 18). This illustrates very clearly the importance of young peoples’ reference group – their friends.

Table 18. Importance of identified image dimensions, proposals from friends, and industry’s reputation among friends for pupils’ opinion of shipping as an attractive industry to work in. Estimates of beta coefficients for general schools (Main target populations) in Sweden, Norway, and Greece. Significance levels within brackets.

Dimension	Importance for general opinion of shipping as an attractive industry to work in		
	Sweden	Norway	Greece
1. Reward	0,300 (0,00)	0,282 (0,00)	0,181 (0,00)
2. Significance of Industry	0,005 (0,90)	0,124 (0,00)	0,290 (0,00)
3. Ships as a place of work and living	0,121 (0,00)	0,304 (0,00)	0,258 (0,00)
4. Environment	0,045 (0,26)	0,044 (0,18)	0,018 (0,59)
5. CSR of shipping industry	0,253 (0,00)	0,138 (0,00)	0,071 (0,04)
6. Family	0,110 (0,01)		
7. Career shift	0,000 (0,98)	0,112 (0,00)	
8. Risk		0,007 (0,84)	-0,064 (0,06)
9. Employer-employee relation			0,127 (0,00)
Proposals from friends	0,138 (0,00)	0,149 (0,00)	0,108 (0,00)
Industry’s reputation among friends	0,179 (0,00)	0,205 (0,00)	0,173 (0,00)

9 Promotional targeting

Our survey also gives some support for targeting and identifying promising segments of pupils for promotion or other marketing activities by knowing the school programmes they study, sport/leisure activities they participate in, and the industries their parents and friends are working in. Below, qj refer to question number j in the questionnaire. The following variables are used as criteria variables for representing the potential of segments:

Intentions: q27, q28, and Y_1 (=(q27+q28)/2).

Attitudes: Y_2 (=q7), and q9, where q9 represents general attitude to the shipping industry.

Image ratings: Mean image ratings as defined in chapter 6.2.

9.1 School programme

School programmes are easy to target as segments for marketing activities. Table 19 and Table 20 show dependent variables for school programmes. There are, as can be seen, differences between programmes. “Technology, industry, construction”, and to some extent “hotel, restaurant food”, show strong values on both intentions and attitudes.

Table 19. Means of dependent variables for different school programmes. General schools in Sweden

School programmes		Intentions			Attitudes		Image ratings
		q27	q28	Y_1	Y_2 (=q7)	q9	
Natural science	Mean	3,24	2,71	2,9706	4,06	4,47	3,9748
	N	34	34	34	34	34	32
	Std. Deviation	1,970	1,784	1,73616	1,669	1,522	,75523
Business adm, economics, trade	Mean	2,92	2,75	2,8483	3,90	4,62	4,0788
	N	90	89	89	90	90	83
	Std. Deviation	1,956	1,926	1,70628	1,544	1,312	,53035
Social science	Mean	3,35	2,45	2,8986	3,81	4,36	4,1615
	N	74	74	74	75	75	67
	Std. Deviation	2,142	1,681	1,74776	1,458	1,280	,55551
Technology, industry, construction etc.	Mean	4,09	2,96	3,5156	4,16	4,50	4,2055
	N	162	160	160	161	161	139
	Std. Deviation	1,778	1,642	1,51245	1,533	1,189	,49466
Health care, child and recreation	Mean	3,39	2,65	3,0217	4,04	4,26	4,1966
	N	23	23	23	23	23	21
	Std. Deviation	1,699	1,555	1,34400	1,186	,864	,32429
Arts, media, communication	Mean	3,37	2,37	2,8684	4,05	4,47	4,1454
	N	19	19	19	19	19	18
	Std. Deviation	2,140	1,606	1,66535	1,649	1,020	,30022
Hotel, restaurant, food	Mean	3,44	2,56	3,0000	3,40	5,10	4,0812
	N	9	9	9	10	10	9
	Std. Deviation	1,810	1,424	1,52069	1,265	1,197	,31243
Shipping and maritime activities	Mean	3,00	5,00	4,0000	2,33	4,67	3,6413
	N	3	3	3	3	3	3
	Std. Deviation	1,732	1,732	,00000	1,528	2,082	,70222
Other	Mean	3,71	2,98	3,3437	4,06	4,43	4,1091
	N	48	48	48	49	49	43
	Std. Deviation	1,890	1,839	1,63784	1,478	1,258	,46682
Total	Mean	3,56	2,78	3,1699	4,00	4,49	4,1354
	N	462	459	459	464	464	415
	Std. Deviation	1,948	1,737	1,63059	1,514	1,245	,52041

Table 20. Means of dependent variables for different school programmes. General schools in Norway

School programmes		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
Natural science	Mean	2,77	2,25	2,5096	4,17	5,04	4,5932
	N	52	52	52	53	53	47
	Std. Deviation	1,875	1,888	1,75312	1,889	1,300	,67193
Business adm, economics trade	Mean	3,33	2,40	2,8667	4,40	4,90	4,5356
	N	30	30	30	30	30	26
	Std. Deviation	2,023	1,653	1,56983	1,673	1,668	,61213
Social science	Mean	2,42	2,12	2,2708	4,43	4,52	4,1776
	N	24	24	24	23	23	22
	Std. Deviation	1,767	1,513	1,45945	1,619	1,123	,44019
Technology, industry, construction etc.	Mean	4,34	3,54	3,9440	5,43	5,41	4,7544
	N	126	125	125	127	127	110
	Std. Deviation	1,803	1,785	1,66948	1,366	1,256	,58703
Health care, child and recreation	Mean	3,30	2,59	2,9440	4,51	5,07	4,5707
	N	134	134	134	134	134	122
	Std. Deviation	2,099	1,920	1,85940	1,830	1,374	,61061
Arts, media, communication	Mean	3,07	2,15	2,6083	4,38	5,02	4,4901
	N	60	60	60	60	60	55
	Std. Deviation	1,947	1,560	1,66237	1,688	1,308	,70440
Hotel, restaurant, food	Mean	4,65	4,19	4,4189	5,28	5,53	4,8181
	N	37	37	37	36	38	29
	Std. Deviation	2,085	2,106	2,00178	1,523	1,409	,68940
Shipping and maritime activities	Mean	7,00	7,00	7,0000	7,00	7,00	7,0000
	N	1	1	1	1	1	1
	Std. Deviation	.	.	.	.	.	.
Other	Mean	3,37	2,61	2,9892	4,65	5,16	4,5804
	N	139	139	139	137	138	121
	Std. Deviation	2,058	1,804	1,78913	1,785	1,330	,66518
Total	Mean	3,52	2,80	3,1578	4,74	5,16	4,6046
	N	603	602	602	601	604	533
	Std. Deviation	2,059	1,903	1,84869	1,733	1,347	,64987

The coding of " school programme" for Greek respondents does not permit the computation of a similar table for Greek pupils.

9.2 Experience of boating as sport/leisure activity

Tables 21-23 show the relationship between experience of boating as a sport/leisure activity and intentions and attitudes. Intentions and attitudes increase with increasing experience. This is interesting knowledge, since these pupils can be identified or targeted for marketing activities as members of boat clubs or via their parents' ownership of boats.

Table 21. Relationship between means of dependent variables and pupils' experience of boating. General schools in Sweden.

Experience of boating as sport/leisure activity		Intentions			Attitudes		Image
		q27	q28	Y_1	Y_2 (=q7)	q9	rating
Very great experience	Mean	4,16	3,10	3,6327	4,28	5,22	4,3387
	N	50	49	49	50	50	47
	Std. Deviation	1,983	1,851	1,73438	1,807	1,183	,60753
Rather great experience	Mean	3,87	3,10	3,4857	4,27	4,78	4,1991
	N	107	105	105	106	106	96
	Std. Deviation	2,079	1,853	1,73130	1,595	1,302	,62271
Rather small experience	Mean	3,49	2,57	3,0305	3,95	4,38	4,1204
	N	197	197	197	197	197	173
	Std. Deviation	1,862	1,581	1,54658	1,463	1,157	,44590
No experience	Mean	3,20	2,87	3,0378	3,70	4,17	4,0298
	N	119	119	119	122	122	109
	Std. Deviation	1,885	1,862	1,62887	1,471	1,211	,50531
Total	Mean	3,57	2,82	3,1968	3,99	4,51	4,1391
	N	473	470	470	475	475	425
	Std. Deviation	1,949	1,755	1,64203	1,545	1,247	,53016

Table 22. Relationship between means of dependent variables and pupils' experience of boating. General schools in Norway.

Experience of boating as sport/leisure activity		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
Very great experience	Mean	4,33	3,37	3,8539	5,12	5,58	4,8396
	N	90	89	89	90	90	77
	Std. Deviation	1,994	2,113	1,91466	1,766	1,521	,73596
Rather great experience	Mean	3,96	3,10	3,5296	5,05	5,41	4,7283
	N	186	186	186	185	186	163
	Std. Deviation	1,998	1,857	1,80178	1,654	1,174	,65919
Rather small experience	Mean	3,18	2,55	2,8673	4,54	4,93	4,5094
	N	260	260	260	261	260	231
	Std. Deviation	2,043	1,850	1,82081	1,699	1,326	,59289
No experience	Mean	2,70	2,38	2,5423	3,94	4,57	4,3502
	N	71	71	71	70	72	64
	Std. Deviation	1,768	1,831	1,60967	1,817	1,276	,61270
Total	Mean	3,54	2,82	3,1774	4,72	5,13	4,6046
	N	607	606	606	606	608	535
	Std. Deviation	2,057	1,918	1,85449	1,746	1,345	,65491

Table 23. Relationship between means of dependent variables and pupils' experience of boating. General schools in Greece.

Experience of boating as sport/leisure activity		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
Very great experience	Mean	4,84	4,05	4,4474	5,18	4,98	4,5106
	N	57	57	57	57	57	56
	Std. Deviation	2,194	2,341	1,81925	1,764	2,031	,80325
Rather great experience	Mean	4,81	3,37	4,0891	5,68	5,69	4,5386
	N	101	101	101	101	101	99
	Std. Deviation	1,787	2,053	1,46696	1,334	1,340	,61380
Rather small experience	Mean	4,65	3,39	4,0213	5,18	5,32	4,3805
	N	211	211	211	212	212	207
	Std. Deviation	1,875	1,940	1,62884	1,591	1,502	,57379
No experience	Mean	4,32	2,90	3,6123	4,99	5,12	4,3214
	N	227	227	227	227	227	224
	Std. Deviation	1,950	1,921	1,62173	1,695	1,467	,65795
Total	Mean	4,57	3,27	3,9178	5,19	5,28	4,3971
	N	596	596	596	597	597	586
	Std. Deviation	1,928	2,018	1,63700	1,622	1,533	,64159

9.3 Occupation of parents and friends

Tables 24-29 show stronger values on intentions and attitudes for pupils that have parents and friends who have been working in the maritime industry. This knowledge can be used for marketing activities, since such pupils can be targeted and identified from knowing the occupation of their parents and friends.

Table 24. Relationship between means of dependent variables and parents' occupation. General schools in Sweden.
Parents' occupation=1: Have worked in the maritime industry
Parent's occupation=0: Have not worked in the maritime industry

Parents' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	3,48	2,74	3,1061	3,95	4,44	4,1224
	N	412	410	410	414	414	372
	Std. Deviation	1,934	1,737	1,64044	1,536	1,175	,50896
1	Mean	3,99	3,22	3,6216	4,23	4,80	4,2269
	N	75	74	74	75	75	64
	Std. Deviation	1,935	1,792	1,56768	1,530	1,542	,61299
Total	Mean	3,56	2,81	3,1849	3,99	4,50	4,1377
	N	487	484	484	489	489	436
	Std. Deviation	1,940	1,752	1,63850	1,536	1,243	,52604

Table 25. Relationship between means of dependent variables and friends' occupation. General schools in Sweden.
Friends' occupation=1: Have worked in the maritime industry
Friends' occupation=0: Have not worked in the maritime industry

Friends' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	3,38	2,73	3,0540	3,92	4,41	4,1049
	N	391	389	389	393	393	350
	Std. Deviation	1,897	1,737	1,62048	1,524	1,218	,49293
1	Mean	4,31	3,15	3,7211	4,30	4,83	4,2714
	N	96	95	95	96	96	86
	Std. Deviation	1,943	1,780	1,61066	1,557	1,295	,62923
Total	Mean	3,56	2,81	3,1849	3,99	4,50	4,1377
	N	487	484	484	489	489	436
	Std. Deviation	1,940	1,752	1,63850	1,536	1,243	,52604

Table 26. Relationship between means of dependent variables and parents' occupation. General schools in Norway.
Parents' occupation=1: Have worked in the maritime industry
Parents' occupation=0: Have not worked in the maritime industry

Parents' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	3,27	2,57	2,9192	4,48	4,96	4,5277
	N	421	421	421	420	421	380
	Std. Deviation	1,971	1,806	1,75476	1,766	1,375	,63297
1	Mean	4,13	3,37	3,7550	5,22	5,53	4,7738
	N	201	200	200	201	203	169
	Std. Deviation	2,128	2,029	1,93486	1,579	1,212	,65637
Total	Mean	3,55	2,83	3,1884	4,72	5,15	4,6035
	N	622	621	621	621	624	549
	Std. Deviation	2,061	1,916	1,85479	1,742	1,350	,64969

Table 27. Relationship between means of dependent variables and friends' occupation. General schools in Norway.
Friends' occupation=1: Have worked in the maritime industry
Friends' occupation=0: Have not worked in the maritime industry

Friends' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	3,25	2,70	2,9728	4,41	4,95	4,5046
	N	350	349	349	351	351	316
	Std. Deviation	2,054	1,949	1,87810	1,838	1,411	,61862
1	Mean	3,93	3,00	3,4651	5,13	5,40	4,7376
	N	272	272	272	270	273	233
	Std. Deviation	2,010	1,863	1,79011	1,518	1,224	,66786
Total	Mean	3,55	2,83	3,1884	4,72	5,15	4,6035
	N	622	621	621	621	624	549
	Std. Deviation	2,061	1,916	1,85479	1,742	1,350	,64969

Table 28. Relationship between means of dependent variables and parents' occupation. General schools in Greece.
Parents' occupation=1: Have worked in the maritime industry
Parents' occupation=0: Have not worked in the maritime industry

Parents' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	4,42	3,02	3,7236	5,07	5,19	4,3636
	N	436	436	436	436	436	427
	Std. Deviation	1,916	1,931	1,59161	1,586	1,509	,65313
1	Mean	4,97	3,92	4,4469	5,53	5,52	4,4869
	N	160	160	160	161	161	159
	Std. Deviation	1,911	2,106	1,64699	1,677	1,578	,60236
Total	Mean	4,57	3,27	3,9178	5,19	5,28	4,3971
	N	596	596	596	597	597	586
	Std. Deviation	1,928	2,018	1,63700	1,622	1,533	,64159

Table 29. Relationship between means of dependent variables and friends' occupation. General schools in Greece.
Friends' occupation=1: Have worked in the maritime industry
Friends' occupation=0: Have not worked in the maritime industry

Friends' occupation		Intentions			Attitudes		Image rating
		q27	q28	Y_1	Y_2 (=q7)	q9	
0	Mean	4,24	2,90	3,5695	4,86	4,96	4,2909
	N	295	295	295	295	295	291
	Std. Deviation	1,878	1,874	1,54559	1,620	1,608	,64824
1	Mean	4,90	3,62	4,2591	5,52	5,58	4,5018
	N	301	301	301	302	302	295
	Std. Deviation	1,923	2,092	1,65458	1,561	1,392	,61840
Total	Mean	4,57	3,27	3,9178	5,19	5,28	4,3971
	N	596	596	596	597	597	586
	Std. Deviation	1,928	2,018	1,63700	1,622	1,533	,64159

9.4 Place of living

There does not seem to be any significant relationships between pupils' place of living and their and image, intentions and attitude. This is somewhat unexpected, but it underlines that these variables are on the average more influenced by social factors than pupils' place of living. From the perspective of the maritime industry, this lack of geographical pattern signals that the industry has a much wider geographical base than the coastal areas for supply of competent labour.

References

Aigner, D.J., 1971, Basic Econometrics (Englewood Cliffs, N.J.: Prentice-Hall).

Asyali, E. and Zorba, Y., 2009, The impact of global economic crisis on human resources strategies in maritime industry, Maritime Education Summit: Trending and Pedagogy for the Future, Massachusetts Maritime Academy, April 15-17, MA, USA.

Bakka, D., 2007, One industry, three facets, Scandinavian Shipping Gazette, no 10, 2007.

Bakka, D., 2008, Competence, competence…, Scandinavian Shipping Gazette, no 24, 2008.

Bal, E., Arslan, O., 2011, The gender effect in workplace practices: The case of shipping companies. Proceedings of Econship 2011, 20-24 June 2011, Chios, Greece

Barnett, M., Gatfield, D., Overgaard, B., Pakcan, C., Gravesson, A., 2006, Barriers to Progress or Windows of Opportunity? A Study of Career Path Mapping in the Maritime Industries, VMW Journal of Maritime Affairs, 5(2), 127-142.

Berthon, P., Ewing, M. and Hah, L. L., 2005, Captivating company: dimensions of attractiveness in employer branding, International Journal of Advertising, 24(2), 151-173.

Burmann, C., Schaefer, K. and Maloney, P., 2008, Industry image: Its impact on the brand image of potential employees, Journal of Brand Management, 2008(15), 157 – 176.

Cahoon, S., Haustetter, H., Bhaskar, P., 2010, Overcoming seafarer shortages: Human resources management and marketing strategies for a sustainable future, Proceedings of IAME 2010, 7-9 July 2010, Lisbon, Portugal

Chen, M-C., Yen, J-R, Pan, A., 2003, A study on maritime transport education: Students' occupational choices behavior analysis, Journal of Eastern Asia Society of Transportation Studies, vol. 5, October, 3316-3328.

Churchill, G.A., 1995, Marketing Research (Fort Worth: The Dryden Press).

COM, 2007/574, Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions, Conclusions from the Consultation on a European Maritime Policy.

Dichter, E., 1985, What's in an image, Journal of Consumer Marketing, 2(1), 75 – 81.

Dinwoodie, J. and Heijveld, H., 1997, Ensuring quality managers in the maritime industry: an analysis of the undergraduate decision to embark on maritime studies courses. In O. K. Sag (ed.) Proceedings of the Eight Congress of the international Maritime Association of the Mediterranean, Vol. 3, Istanbul, Turkey, November. Istanbul, Turkey: Istanbul Technical University Maritime Faculty, pp. 13.1.1-13.1.10.

Dinwoodie, J., 2000, The perceived importance of employment considerations in the decision of students to enroll in undergraduate courses in Maritime Business in Britain, Maritime Policy and Management, 27(1), 17-30.

Fishbein, M. and Ajzen, I., 1975, Belief, Attitude, Intention and Behavior (Reading, Mass.: Addison, Wesley).

Gardner, B., Naim, M., Obando-Rojas, B., Pettit, S., 2001, Maintaining the maritime skills base: does the Government have a realistic strategy? Maritime Policy and Management, 28(4), 347-360.

Gekara, V., 2009, Understanding attrition in UK maritime education and training, Globalisation, Societies and Education, 7(2), 217-232.

Grewal, D. and Haugstetter, H., 2007, Capturing and sharing knowledge in supply chains in the maritime transport sector: critical issues, Maritime Policy and Management, 34(2), 169-183.

Gujarati, D. N. and Porter, D. C., 2009, Basic Econometrics (New York: McGraw-Hill).

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C., 1995, Multivariate Data Analysis with Readings (Englewood Cliffs, N.J.: Prentice-Hall).

Hampton, R.D., Guy, B.S., and Sinkula, J.M., 1987, Consumer images of financial institutions: A comparative study of banks versus savings and loans. Journal of Professional Services Marketing, 2(Spring), 83-100.

Herzog, H., 1963, Behavioral science concepts for analyzing the consumer. Marketing and the Behavioral Sciences, Peny Bliss, ed., (Boston: Allyn and Bacon, Inc.), 76-86.

ITF Seafarer, 2013. URL: http://www.itfseafarers.org/ITI-women-seafarers.cfm accessed 28 January 2013.

Kish, L., 1965, Survey Sampling (New York: John Wiley).

Kotler, P. and Keller, K. L., 2006, Marketing Management (Upper Saddle River, N. J.: Pearson Prentice Hall).

Mack, K., 2007, When seafaring is (or was) a calling: Norwegian seafarers 'career experiences, Maritime Policy and Management, 34(4), 347-358.

Makkar, J., 2004, The maritime industry – meeting the challenge of training, BIMCO Review 2004.

Mitroussi, K., Papazoglou, I., 2011, The gender effect in workplace practices: The case of shipping companies, Proceedings of Econship 2011, 20-24 June 2011, Chios, Greece

Newman, J.W., 1957, New Insight, New Progress, For Marketing, Harvard Business Review, November-December, 95-102.

Ng, A., Koo, A., Ho, W.C., 2009, The motivations and added value of embarking on postgraduate professional education: Evidence from the maritime industry, Transport Policy, vol. 16, 251-258.

Pallis, A. A., Bissas, I. A., Papachristou, A. A., 2011, She goes maritime: Women in marine and maritime studies in Greece, Proceedings of Econship 2011, 20-24 June 2011, Chios, Greece

Shiffman, H. R., 1982, Sensation and Perception (New York: John Wiley).

Spector, A., 1961, Basic dimensions of the corporate image, Journal of Marketing, 25(6), 47-51.

Stell, R., and Fisk, R.P., 1986, Services images: A synthesis of image creation and management. In M. Venkatesan, D. M. Schmalensee and C. Marshall (Eds.), Creativity in services marketing: What's new, what works, what's developing. (Chicago: American Marketing Association), 113-117.

Thomas, M., 2012, Get yourself a proper job girlie!: recruitment, retention and women seafarers, Maritime Policy and Management, 31(4), 309-318.

Vickers, D. and Walsh, V., 1999, Young men and the sea: The sociology of seafaring in -eighteenth-century Salem, Massachusetts, Social History, 24(1), 17-38.

Appendices

Appendix 1: Questionnaire

KNOWME

UNIVERSITY OF THE AEGEAN

UNIVERSITY OF GOTHENBURG
SCHOOL OF BUSINESS, ECONOMICS AND LAW

Molde University College
Specialized University in Logistics

Questionnaire about shipping

This questionnaire is part of a research project, "KNOWME", supported by the EU. In this project we want to find out how young people in some European countries perceive shipping, and what opinions they have about the shipping industry. The results of the project will be used as one of the inputs for EU's maritime policy in the future. The project is carried out in collaboration between universities in Sweden, Norway, UK, Germany and the Greece.

We would greatly appreciate if you could fill out and return the questionnaire. Your answers will be treated confidentially. If you have any questions, please contact:

Rickard Bergqvist *tel. 031-786 5241* *e-mail: rickard.bergqvist@handels.gu.se*
Arne Jensen *tel. 031-786 1484* *e-mail: arne.jensen@handels.gu.se*

Explanations:
Shipping: Commercial use of ships for transport
Shipping Industry: Companies and people operating or owning ships in commercial use for transport
Seafarer: Man or woman employed onboard a ship regardless of position

My general opinion about the shipping industry

Answer questions 1 to 9 by placing a check mark in one of the boxes between the words to the left and right of each 7-degree rating scale. The more you strongly agree with the statement given in a question, the further to the right you should place your mark, and the more you strongly disagree, the further to the left you should place your mark. Place your mark in the box in the middle (the "0" box) if you have no opinion at all about a certain question

1. **In general, long distance freight transport causes less damage to the environment if done by ship than by train**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

2. **The shipping industry is behaving in an environmentally responsible way**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

3. **The shipping industry takes social responsibility for all employees**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

4. **The shipping industry offers equal opportunities for men and women**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

5. **Shipping appears to be an interesting industry**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

6. **Disputes between employers and employees are uncommon in the shipping industry**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

7. **Shipping seems to be an attractive industry to work in**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

8. **The shipping industry has a good reputation among my friends**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

9. **All in all, my opinion about the shipping industry is positive**
   Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
   -3 -2 -1 0 +1 +2 +3

My beliefs about being a seafarer on board a cargo ship

Answer questions 10 to 26 by placing a check mark in one of the boxes between the words to the left and right of each 7-degree rating scale. The stronger your belief is described by the word to the left, the further to the left you should place your mark, and the stronger your belief is described by the word to the right, the further to the right you should place your mark. Place your mark in the box in the middle (the "0" box) if you have no opinion at all about a certain question.

10. **The opportunity for experiencing interesting places and countries as a seafarer is:**
    Small ☐ ☐ ☐ ☐ ☐ ☐ ☐ Big
    -3 -2 -1 0 +1 +2 +3

11. **The opportunity for career advancement as a seafarer is:**
    Small ☐ ☐ ☐ ☐ ☐ ☐ ☐ Big
    -3 -2 -1 0 +1 +2 +3

1(3)

12. **Organising family life as a seafarer appears to be:**

Difficult ☐ ☐ ☐ ☐ ☐ ☐ ☐ Easy
-3 -2 -1 0 −1 +2 +3

13. **Shifting career from being a seafarer to careers ashore is:**

Difficult ☐ ☐ ☐ ☐ ☐ ☐ ☐ Easy
-3 -2 -1 0 −1 +2 +3

14. **The wage level for seafarers is:**

Low ☐ ☐ ☐ ☐ ☐ ☐ ☐ High
-3 -2 -1 0 +1 +2 +3

My beliefs about cargo ships as a workplace

15. **The daily tasks on board ships are:**

Boring ☐ ☐ ☐ ☐ ☐ ☐ ☐ Stimulating
-3 -2 -1 0 +1 +2 +3

16. **Working conditions on board ships are:**

Bad ☐ ☐ ☐ ☐ ☐ ☐ ☐ Good
-3 -2 -1 0 +1 −2 +3

17. **Social relations on board ships are:**

Bad ☐ ☐ ☐ ☐ ☐ ☐ ☐ Good
-3 -2 -1 0 −1 +2 +3

18. **Leisure time on board ships is:**

Boring ☐ ☐ ☐ ☐ ☐ ☐ ☐ Stimulating
-3 -2 -1 0 +1 +2 +3

19. **The risk of injuries through workplace accidents on board ships is:**

High ☐ ☐ ☐ ☐ ☐ ☐ ☐ Low (which is positive)
-3 -2 -1 0 −1 +2 +3

20. **On board ships, frequent communication with friends and family ashore is:**

Difficult ☐ ☐ ☐ ☐ ☐ ☐ ☐ Easy
-3 -2 -1 0 −1 +2 +3

My opinion about transport by ship

21. **Compared with transport by train, the cost per ton of long distance freight transport by ship is:**

High ☐ ☐ ☐ ☐ ☐ ☐ ☐ Low
-3 -2 -1 0 +1 +2 +3

22. **Compared with using train, the climate impact from long distance freight transport by ship is:**

Great ☐ ☐ ☐ ☐ ☐ ☐ ☐ Small
-3 -2 -1 0 +1 +2 +3

23. **Compared with other modes (truck, aviation, train), the significance of shipping for world trade is:**

Small ☐ ☐ ☐ ☐ ☐ ☐ ☐ Great
-3 -2 -1 0 +1 +2 +3

24. **Compared with other modes (truck, aviation, train), the significance of shipping for Sweden's foreign trade is:**

Small ☐ ☐ ☐ ☐ ☐ ☐ ☐ Great
-3 -2 -1 0 +1 +2 +3

25. **Compared with other modes (truck, aviation, train), the significance of shipping for jobs in Sweden is:**

Small ☐ ☐ ☐ ☐ ☐ ☐ ☐ Great
-3 -2 -1 0 +1 +2 +3

26. **The risk that ships sink due to accidents at sea is:**

High ☐ ☐ ☐ ☐ ☐ ☐ ☐ Low (which is positive)
-3 -2 -1 0 +1 +2 +3

About my future working life

Answer questions 27 to 31 by placing a check mark in one of the boxes between the words to the left and right of each 7-degree rating scale. The more you strongly agree with the statement about your future working life given in a question, the further to the right you should place your mark, and the more you strongly disagree, the further to the left you should place your mark.

27. **I could imagine working as a seafarer for a period some time in the beginning of my working life**

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
-3 -2 -1 0 +1 +2 +3

28. **I intend to go in for a career as a seafarer**

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
-3 -2 -1 0 +1 +2 +3

29. **It is not impossible that I will work occasionally as a seafarer for short periods as a complement to another main occupation**

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
-3 -2 -1 0 +1 +2 +3

30. **My family has proposed that I should work in the shipping industry**

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
-3 -2 -1 0 +1 +2 +3

31. **I have friends who have proposed that I should work in the shipping industry**

Strongly disagree ☐ ☐ ☐ ☐ ☐ ☐ ☐ Strongly agree
-3 -2 -1 0 +1 +2 +3

2(3)

About my background

32. Gender: Male ☐ Female ☐

33. Age:_____ Years

34. Have any of your parents been working (please mark your answer with an *x* in one box on each row below):

In the shipping industry:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more
In the port industry:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more
On a fishing vessel:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more
In a fishing port:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more
In another transport or logistics industry: (other than those mentioned above)	☐ No	☐ Yes, less than two years	☐ Yes, two years or more

35. Do you have brothers, sisters or grandparents that have been working (please mark your answer with an *x* in one box on each row below):

In the shipping industry:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more	☐ Don't know
In the port industry:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more	☐ Don't know
On a fishing vessel:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more	☐ Don't know
In a fishing port:	☐ No	☐ Yes, less than two years	☐ Yes, two years or more	☐ Don't know
In another transport or logistics industry (other than those mentioned above)	☐ No	☐ Yes, less than two years	☐ Yes, two years or more	☐ Don't know

36. Do you have friends that have been working (please mark your answer with an x in one box on each row below):

In the shipping industry:	☐ No	☐ Yes, less than 3 months	☐ Yes, 3 months or more	☐ Don't know
In the port industry:	☐ No	☐ Yes, less than 3 months	☐ Yes, 3 months or more	☐ Don't know
On a fishing vessel:	☐ No	☐ Yes, less than 3 months	☐ Yes, 3 months or more	☐ Don't know
In a fishing port:	☐ No	☐ Yes, less than 3 months	☐ Yes, 3 months or more	☐ Don't know
In another transport or logistics industry: (other than those mentioned above)	☐ No	☐ Yes, less than 3 months	☐ Yes, 3 months or more	☐ Don't know

37. Have you lived in a coastal area before the age of 12?

☐ Yes, less than two years ☐ Yes, two years or more

If yes, where did you live in a coastal area:

- ☐ City/town with shipping
- ☐ Coastal area without shipping
- ☐ On an island
- ☐ Other, namely:_____

38. Have you lived in a coastal area when aged 12 or older?

☐ Yes, less than two years ☐ Yes, two years or more

If yes, where did you live in a coastal area:

- ☐ City/town with shipping
- ☐ Coastal area without shipping
- ☐ On an island
- ☐ Other, namely:,

39. What experience do you have of boating as a sport or leisure activity?

- ☐ Very great experience
- ☐ Rather great experience
- ☐ Rather small experience
- ☐ No experience

40. To what extent have you been thinking about your choice of profession?

- ☐ To a very great extent
- ☐ To a rather great extent
- ☐ To a neither great nor small extent
- ☐ To a rather small extent
- ☐ To a very small extent

41. What secondary school programme are you attending?

Name of programme:_____

In what study area would you place your programme (Please answer by putting an *x* in one of the boxes) :

- ☐ Natural science
- ☐ Business administration, economics and trade
- ☐ Social science
- ☐ Technology, industry, construction and similar
- ☐ Health care, child and recreation
- ☐ Arts, media, communication
- ☐ Hotel, restaurant, food
- ☐ Shipping and maritime activities
- ☐ Other:_____

Thanks for filling out the questionnaire!

3(3)

Appendix 2: On factor analysis

The Bartlett test of sphericity and the measure of sampling adequacy (MSA) have been used for determining the appropriateness of factor analysis. As can be seen from Table A2.1, the Bartlett test is significant at all levels and the MSA measure has satisfactory values (>=0,70).

Regarding the number of factors to extract, the following criteria are suggested in the literature (e.g., see Haire *et al.* 1995): Latent root criterion, a priori criterion, percentage of variance criterion, and the scree test criterion. The decision to extract seven factors for pupils in general schools and eight factors for pupils in maritime schools rest on the following considerations: In comparative studies it is desirable to extract the same number of factors for all groups in order to facilitate comparison (a priori criterion). According to the latent root criterion, factors having eigenvalues equal to one, or approximately so, are significant. Using this criterion resulted in the extraction of seven factors for some groups and six for others. The percentage of variance criterion, when applied in social sciences, can be considered satisfactory if extracted factors account for close to 60% or more of the total variance. These three criteria taken together support the decision to extract seven factors for general schools and eight for maritime schools. This is also supported by the scree test criterion. Table A2.1 gives some quantitative explanations for general schools.

Table A2.1. Indicators for factor analysis. Pupils in general schools

Group	Extracted factors if eigenvalue set to 1	% of variance extracted	Bartlett's test. Sign. Level.	MSA
Sweden, all pupils	7	58,0	0,000	0,80
Sweden, men	6	61,0	0,000	0,78
Sweden, women	7	58,4	0,000	0,70
Norway, all pupils	6	59,4	0,000	0,87
Norway, men	6	61,0	0,000	0,86
Norway, women	6	61,0	0,000	0,85
Greece, all pupils	6	53,4	0,000	0,80
Greece, men	6	56,0	0,000	0,80
Greece, women	7	55,0	0,000	0,71

Appendix 3: Summated scales

Summated scales were defined for various groups of pupils and dimensions. A summated scale used as a proxy variable for a factor has been calculated as an average of items having factor loadings >0,50 on the factor. Correlations between factors and summated scales were used to check the validity of summated scales as approximations of factors. Appendix 3 shows this procedure for pupils in general schools in Sweden, Norway, and Greece. Similar procedures (not shown due to lack of space) have been followed for other summated scales used in this paper. In the following, we use "qj" to denote question number j in the questionnaire (see Appendix 1):

Sweden, all pupils, general schools:
Reward: (q5+q10+q11+q14+q15)/5
Significance of Industry: (q17+q23+q24+q25)/4
Ships as a place of work and living : (q16+q18+q19+q20)/4
Environment: (q1+q2+q21+q22)/4
CSR of shipping industry: (q3+q4+q6)/3
Family: q12
Career shift: q13
Norway, all pupils, general schools:
Reward: (q3+q10+q11+q14+q17)/5
Ships as a place of work and living: (q12+q15+q16+q18)/4
Significance of Industry: (q23+q24+q25)/3
Environment: (q1+q2+q22)/3
CSR of shipping industry: (q3+q4+q6)/3
Risk: (q19+q20+q26)/3
Career shift: q13
Greece, all pupils, general schools:
Reward: (q10+q11+q14)/3
Ships as a place of work and living: (15+q16+q17+q18)/4
Significance of Industry: (q23+q24+q25)/3
Environment: (q1+q21+q22)/3
CSR of shipping industry: (q2+q3+q4)/3
Risk: (q13+q19+q20+q26)/4
Employer-employee relation: q6

Table A3.1 shows the correlations between factors and summated scales (see above) for each of the identified image dimensions for Sweden, Norway, and Greece. With a few exceptions, the summated scales seem to be good approximations of the factors used to identify the dimensions

Table A3.1. Correlations between factors and summated scales for image dimensions identified forpupils in general schools in Sweden (S), Norway (N), and Greece (G).

Dimension	S	N	G
1. Reward	0,90	0,86	0,84
2. Significance of Industry	0,92	0,93	0,95
3. Ships as a place of work and living	0,89	0,86	0,94
4. Environment	0,93	0,94	0,86
5. CSR of shipping industry	0,86	0,80	0,94
6. Family	0,74		
7. Career shift	0,79	0,86	
8. Risk		0,88	0,94
9. Employer-employee relation			0,70

Appendix 4: Literature study

The image of shipping

In 2008, a common campaign run by IMO ILO BIMCO, ISC, ICS, INTRTANKO, INTERCARGO and ITF mentioned that the industry should continue to provide support for and endorse campaigns aimed at improving image (recent examples include: Shipping Facts, Poseidon Challenge, Maritime Industry Foundation and its Knowledge Centre, Sea Vision, etc.) and use some key industry figures as examples of career progression. During the consultation on the process of EU Integrated Maritime Policy all stakeholders agree on the importance of better public awareness of the seas and oceans, as this could improve the image of the maritime economy and make citizens more aware of the maritime environment. (COM, 2007)

Several researchers (Grewal and Haugstetter, 2007; Asyali and Zorba, 2009; Gekara, 2009; Gardner *et al.*, 2012) stress the importance of improving the image of shipping and the attractiveness of shipping professions given the need for maintaining the maritime skills base in the future and the competitiveness of the maritime industry. The concept of image and the shipping industry is particularly complex given the serious differences between different sectors of the shipping industry. Cruise lines are part of shipping industry, but their public image is very different to those of tanker companies, or terminal operators or ship management companies.

Shipping as a profession and career

Berthon *et al.* (2005) identify five dimensions of employer image. Development value is based on potential recruits' perceptions that an employer provides recognition, self-worth and confidence, career-enhancing experiences and a springboard to future employment. Social value is based on perceptions that an employer provides a working environment that is fun, happy, provides good collegial relationships and a team atmosphere. Interest value is the extent to which the employer provides an exciting work environment, novel work practices and makes use of its employee's creativity to produce high quality, innovative products and services. Economic value is the extent to which recruits think that an employer provides above-average salary, compensation package, job security and promotional opportunities. Application value is based on a recruit's perception that the employer provides opportunities for employees to apply what they have learned and to teach others in an environment that is both customer orientated and humanitarian.

There are several studies focusing on the perception of shipping as a profession and career, shipping as a field of study and cultural dimensions of shipping. Mack's (2007) study of Norwegian seafarers' career experiences, consisting of literature studies and in-depth conversations with 41 Norwegian seafarers, is one example. She identifies a number of key human elements in seafaring careers as perceived by seafarers, i.e. *Seafaring as a calling* (Love of the sea and nature´s elements, Sense of adventure and social status), *Facilitators* (Sense of community, Contract periods, Seamanship), *Hinderers* (The

competitive environment of “flagging out”, Security and safety, Economic and political environment). The seafarers generally express a declining status and interest for seafarers both within the industry and by the society as a whole. According to the respondents seafaring has become much more “industrialized” than before when it was more characterized as a career associated with “adventure”.

Barnett, *et al*. (2006) accounts for similar observations, however, focusing on the career path in the maritime industry in an EU context. The main reasons for going to sea according to Barnet, *et al.* (2006) are: *The location of home or place of upbringing, Family influence, Good career prospects, A long-term interest in the sea* and *Travel* (however, recognized as probably less influential in today’s modern age of jet travel than previously; cf. Vickers and Walsh, 1999). The study also identifies the main reasons for staying at sea: *Career ambition to become Master or Chief Engineer, Liking of the lifestyle, “Fast track” promotion and salary, Relationship to employer* (Seafarers holding permanent contracts as compared to a crewing agency tend to be more committed). Furthermore, the study identifies a number of cultural differences between different member states and career paths in the maritime industry: *Geography and location* (the countries related to trade routes, etc.), *Strength of family culture* (the importance of family relationships for employment). Greece is here recognized as an example were family connections is particularly important for employment, although the fact that only one out of five maritime students in a Greek survey (Pallis *et al.* 2011) said they had parents in the maritime industry could offer a reason for questioning how strong this link is. In a study of undergraduate maritime students in Greece and in Hong Kong, Pallis and Ng (2010) reports on a similar proportion of the students coming from "shipping families". The "family culture" aspect may therefore seem to be of a moderate importance when young people who have chosen a maritime educational track are asked about their background. However, the link to a hometown or area with strong maritime traditions seems to be a lot stronger (op.cit), as some two thirds of the more than 400 responding students reported to come from such an area. According to Barnet, *et al.* (2006), *The maritime education and training system* (“vocational” approaches as opposed to more “academic” approaches) is also identified as an attraction. The “love of the sea” is recognized as an important element by several researchers (e.g. Dinwoodie, 2000; Chen *et al.* 2003). As an example, two thirds of the undergraduates enrolled in Maritime Business courses interviewed in Dinwoodie (2000) expressed it as important for their interest in the subject. In the same study, about half of the students mentioned job prospects as important, supporting earlier work by Dinwoodie, and Heijveld (1997). None of the undergraduate Greek or Hong Kong students in the study made by Pallis and Ng (2010) had any prior maritime work experience, and only 4 per cent of the postgraduate students had prior work experience from the maritime industry. This illustrates that students pursuing a maritime academic degree very rarely have started their career at sea or in on-shore maritime jobs (Pallis and Ng, 2010). In the same study, 37 per cent of the undergraduate students planned to pursue postgraduate studies related to maritime transport or logistics. Three out of four of the

remaining students, not planning for postgraduate degrees, said they wanted a job in the maritime industry after their lower university degree.

Gender and equality aspects

Similar to Mack (2007) and Barnett, *et al*. (2006), but from an industry perspective, Grewal and Haugstetter (2007) recognize work/life balance of seafarers, lifelong learning and flexible career pathways as important elements for the competitiveness of the maritime industry (cf. Ng *et al.*, 2009). The difficulty related to the separation from home and family is also recognized by the study made by Thomas (2012) focusing on women seafarers. This is also confirmed by Pallis *et al.* (2011) in a study of Greek female maritime students. According to Thomas (2012) it is a significant source of stress regardless of genders (cf. Chen *et al.* 2003). However, many women seafarers in the Thomas (2012) study, reported problems related to sexism in the maritime industry in general and onboard ships in particular. This is confirmed by Mitroussi and Papazoglou (2011) in a survey of female employees of maritime companies. Even in countries and regions with a strong tradition for the promotion of equal rights in traditionally gender-dominated workforces (e.g. UK, USA, Scandinavia, and the Netherlands), two thirds of the respondents reported on issues of gender discrimination, according to the same study. This discrimination could take many forms, ranging from not being considered at all for job vacancies to poor opportunities for promotions and generally lower wages. Among the companies involved in this study (Mitroussi and Papazoglou, 2011) only 10 per cent of the management positions were occupied by women. Still, this study, and the study among Greek female maritime students (Pallis *et al.*, 2011) report on highly motivated women who also find the sector to have attractive opportunities. This is even confirmed in a small study among female maritime employees and students in Turkey (Bal and Arslan, 2011), although the Turkish women employees also report on a very patriarchic culture which makes it hard to get into the more interesting jobs. Making the industry more attractive to female employees also has a great potential, substantiated by the fact the only a very small proportion (some 2 per cent according to ITF Seafarer (2013)) of the current workforce in maritime professions are women. In many countries, including countries with a very strong maritime tradition, like Greece, female students have for a long time only had limited access to maritime training and education (Pallis *et al.*, 2011), but (2009-2010) almost one third of the maritime students are female. The women, who have chosen such an education in Greece, seem to have had a fair degree of support from their parents in their choice of career. This tendency seems to be stronger the higher the incomes of the parents are. The female maritime students in Greece seem to a lesser degree (12,3 per cent) than the male ones (24,1 per cent) to originate from families where the parents have (had) a career in maritime professions. However three quarters of the female maritime students in this survey come from regions with strong maritime traditions and some two thirds of the respondents report that they will have good employment opportunities within maritime professions in their home area. According to the study of Greek female maritime students (Pallis *et al.*, 2011), the primary choice of a workplace seems to be in ocean-

going freight shipping, followed by coastal and cruise shipping. Among the ocean-going fleet, tankers are ranked as most desirable, then container and dry bulk vessels. The students seem to find land-based jobs within or outside the maritime business to be significantly less attractive.

Seafaring as a profession provides great professional opportunities both off-shore and ashore (Makkar, 2004). Gardner *et al.* (2012) highlights the need for seafaring expertise and experiences to fill a wide range of jobs in the maritime industry ashore in a UK context. This observation in parallel with the difficulty of separation from home and family for seafarers should provide an opportunity for better career path planning in order to improve the attractiveness of shipping as a profession.