

Rudi Čop, Ph.D.

University of Ljubljana Faculty of
Maritime Studies and Transport
Pot pomorščakov 4
6320 Portorož
Slovenia

Review article

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INTEREST IN MARITIME STUDIES AT HIGHER EDUCATION LEVELS IN THE REPUBLIC OF SLOVENIA

Future navigating and engineering officers in Slovenia are educated at a higher education level at the Faculty of Maritime Studies and Transportation, Portorož in two separate courses: Navigation and Mechanical Engineering. The first-year students in both courses, who were registered for the first time, were analyzed for two selected periods of time. For the selected generation of students, the qualities that were important for their success were determined. The final results of the selected generation of final-year students were analyzed and on the basis of this analysis the maritime-programme teachers' work was assessed and, in addition, recommendations for its improvement were made.

Key words: higher education, maritime, teaching-method success, quality of studies

1. EDUCATION AND TEACHING OF TRAINED SPECIALISTS FOR MARITIME DEVELOPMENT

Maritime affairs include marine and inland navigation and exploitation of marine resources. They include all activities that enable safe navigation and the maintenance of the vessel [1]. To carry out these tasks it is important to ensure proper higher education for individuals in the maritime professions.

Maritime higher education in Slovenia has a tradition going back more than 50 years [2]. A maritime college (VPPŠ) was organized as an independent educational institution in Portorož in 1960. Today the maritime curriculum has evolved and has been established as the Maritime Programme of the Faculty of Maritime Studies and Transport in Portorož. The Faculty is a part of the Uni-

versity of Ljubljana. Throughout this period, people who were devoted to the seafaring profession and acted accordingly have successfully maintained Slovenian higher education in Maritime Studies in spite of great economic and political changes.

At the beginning of the 1980s, to fit the needs of the maritime curriculum, transportation technology studies were gradually introduced and today there is a Transport Technology Studies Programme within the Faculty of Maritime Studies and Transport (UL-FPP). UL-FPP Faculty is the former Higher Maritime and Transport School (VPPŠ). The majority of the students at the FPP Portorož Faculty study today under the three courses from the VPPŠ School - navigation, engineering and transport. A diagram of the first-year-students registered in the Maritime Studies Programme for the first time (Figure 1) shows fluctuations. These fluctuations are the characteristics of investment cycles in the macro economy lasting from 7 to 11 years [3, 4].

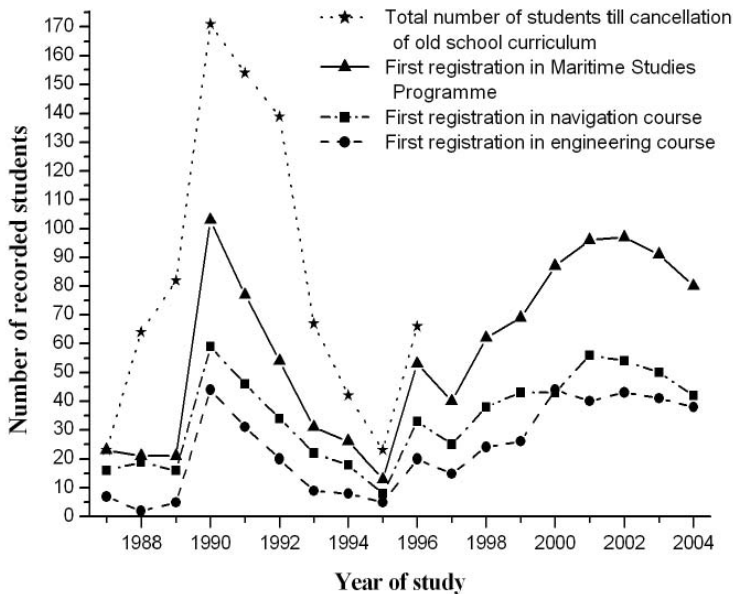


Figure 1: Number of the first year students registered for the first time at the Maritime Studies Programme of the Faculty of Maritime Studies and Transport, Portorož.

There are two separate courses in the Maritime Studies Programme of the UL-FPP Faculty: Navigation and Engineering. Graduated students of both courses, after compulsory apprenticeship on an ocean-going vessel, acquire the right to submit applications to a State commission for navigating and engineering officer examination. After passing this examination they are given an international certificate of competency under the provision of the STCW Convention (Standards of Training, Certification and Watchkeeping for Seafarers Convention). This means that the curriculum for the maritime studies at the higher education level must be drafted in accordance with the international STCW Convention [5].

Navigating and engineering officers are being sought by the European labour market. In 2002, there was a lack of approximately 30,000 navigating and engineering officers or 30% of the number of workers needed for these positions [6]. In this decade the anticipated deficit will increase. It is known that over 80 % of all accidents at sea are caused by human error and, moreover, that junior officers from other countries are products of teaching programmes that, as a rule, are not so rigorous as the European ones [7].

2. CONTROL OF NEW STUDENTS

As can be seen (Figure 1), from 1997 to 2001, registration numbers increased while from 2001 to 2004 they reached stability and did not increase any further. Checks on records for the observed period showed that the number of first-year students who were registered for the first time in the Maritime Studies Programme increased every year in both courses. The navigation course had an average growth rate of 13.8 % (Figure 2) and the engineering course had an average growth rate of 21.5 % (Figure 3). In this period, the final marks from the high school, where our students completed their studies before registration at the Faculty, decreased on an average from the mark 'quite good' (2.75) to the mark 'adequate' (2.40). The level of knowledge of high school students was lower from generation to generation, and therefore, in their effort to maintain a high level of knowledge by students graduating from the Maritime Studies Programme, the teachers were faced with growing demands.

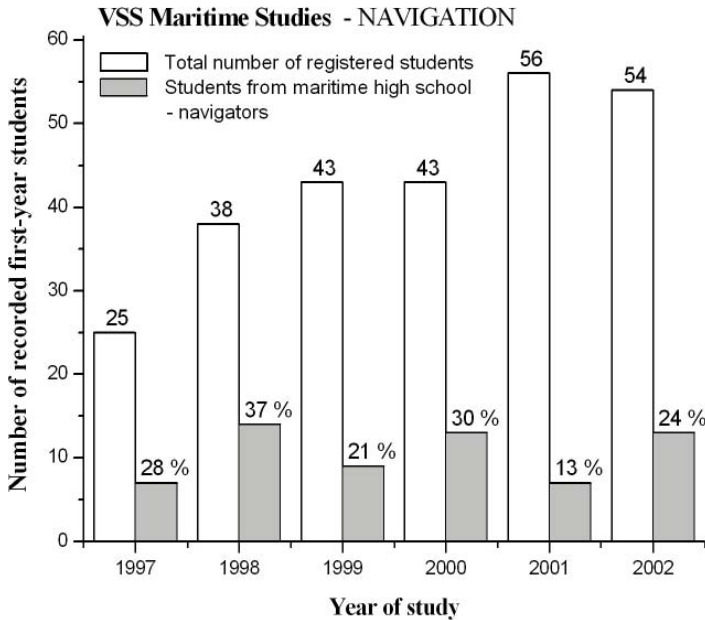


Figure 2: Number of all first-year students, who were registered for the first time, at the Maritime Studies Programme in comparison with those from the maritime high school.

The number of first-year students present at the compulsory ship-electrotechnics laboratory exercises during the observed period was 75 % for the navigation and 52 % for the engineering course. During the observed period attendance at the laboratory exercises increased every year.

Every year there was a lower number of students at the Maritime Studies Programme who had previously completed studies at the maritime high school. During the observed period, among navigation course students 24.7 % had completed a maritime high school and among engineering course students 29.4 % had completed a maritime high school. At the end of the observed period the latter percentage rapidly decreased and in the 2001/2002 academic year for engineering course students it was only 5 %. However, only students with completed maritime high school studies fulfill all the conditions to go on board an ocean-going vessel, before being registered as first-year students at the Maritime Studies Programme and so complete their apprenticeship for ordinary seamen as specified by statute, though shipboard experience is not required for the entrance at the UL-FPP Faculty.

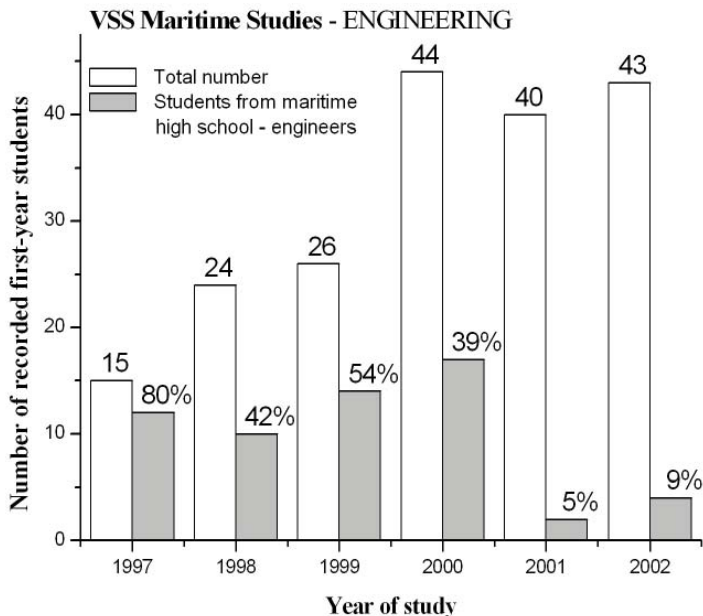


Figure 3: Number of all first-year students, who were registered for the first time, at the Maritime Studies Programme in comparison with those from the maritime high school.

3. STUDY SUCCESS OF STUDENTS WHO ARE PREPARING FOR THEIR DEGREE

The full-time study in the Maritime Studies Programme of the UL-FPP Faculty lasts four years. Three years are devoted to lectures and the fourth year is spent preparing for the degree. After finishing the degree preparation, six students who were registered as first-year students for the first time, in the 1997/1998 academic year had graduated by the end of September 2001. Five of them (out of 25 registered) became graduated navigators and only one (out of 15 registered) became a graduated engineer. Therefore, after four years of full-time study, among navigation course students 20 % became graduated navigators and among engineering course students 6.7 % became graduated engineers. The teaching-method success of each generation of students should be regularly monitored and published, to reduce the time of study and to achieve a higher percentage of graduated students.

Checks of a number of first-year-examinations passed, showed that the navigation course students, who were preparing their degree, had passed 91.4 % of their first-year-examinations and the engineering course students, who were preparing their degree, had passed 76 % of their first-year-examinations. The percentages of examinations passed from the second and third year were lower. For example the engineering course students, who were preparing their degree, had passed 69 % of their third-year examinations. Under the school curriculum, teachers should help and advise students to increase the number of examinations passed in each year.

The first and second year students of the 2001/2002 academic year registered in the Maritime Studies Programme were acquainted with these research results. The first and second year students of the course were given questionnaires. These questionnaires showed that the students spend very little time on studying. 85.7 % of the students were aware of this fact, however, all of them wanted to complete their studies in a four year period. 13.3 % of the first-year students and 30.7 % of the second-year students intended to seek employment on board ocean-going vessels. More than half of the students questioned had been occasionally employed or had full-time jobs and only 1/3 of them had to make their living out of their employment. The students who made a living out of their employment carried out their study tasks. Most of those who worked to earn extra money neglected their study tasks. The students, who worked part-time during their studies, postponed their qualification or were unable to qualify for the profession they had been educated for as full-time students.

The teachers in the Maritime Studies Programme were surprised by these results. This kind of the research was carried out for the first time after the transition from the college to the Faculty of Maritime Studies and Transport in Portorož. They received the data on the number of students in the generation being analyzed who were preparing their degree with scepticism. It was interesting to see the reaction of the teachers who had had their lectures in the first year, when they discovered that some students who were preparing their degree had not passed their first-year examinations yet. It appeared that there were two completely different approaches for increasing the number of students who passed their examinations:

1. Some teachers increased the number of examination terms and student-teacher interviews and updated and improved their method of lecturing.
2. Other, simply maintained the approach that the students were not fully acquainted with the elementary textbooks in compliance with international recommendations.

The real effect of the efforts to improve studying results in the Maritime Studies Programme is not known, because the research into this matter was suspended at the end of the 2002/2003 academic year. Most teachers agreed with the following proposals for the improvement of the study results in this programme:

- to track the development of each generation;
- the school curriculum should be improved & updated and in compliance with international recommendations;
- the lessons should be distributed according to carefully planned schedules to ensure that the students are not too burdened;
- a presentation of the Maritime Studies Programme in Slovenia should be organized.

Additional research showed that among engineering course students, who were registered in the first year, only 36.9 % reached the fourth year reserved for preparing a degree in four years. They graduated on an average after six years. 30.2 % of the students of each generation, or 30.2 % of the students registered in the first year, graduated in 10 years. These results showed that in the Maritime Studies Programme a great number of students postponed their graduation without justified reason, i.e. they worked part-time, and failed to get their professional qualifications for a profession that is in high demand at the European labour market.

4. IMPROVEMENT OF KNOWLEDGE AND QUALIFICATION OF STUDENTS

On the basis of this analysis, a long-term goal to improve the knowledge and qualification of Maritime Studies Programme students was established. Students should get all necessary knowledge and at the same time be qualified as soon as possible for going on board ocean-going vessels to accomplish their compulsory traineeship for ordinary seamen.

The last few years have shown a lack of mentors, i.e. 'expert co-workers', in maritime trade companies in the Republic of Slovenia, for traineeship of third year students in the Maritime Studies Programme. On the basis of this research and the third year-student applications in the 2002/2003 academic year, we started searching for and training 'expert co-workers', who had full-time jobs in maritime trade companies. We selected those who were able to work in an educational institution, who wished to teach in this area and who were experienced officers in the merchant marine.

Together with finding new 'expert co-workers' we began to supplement the curriculum of lectures with a 'Practical on board course for navigators and a 'Practical on board ships or platforms course for engineers. The final supplemented curriculum for these lectures was drafted by a group of 6 teachers within 7 months. As expected, two younger teachers argued against the proposed changes. They asserted that the entire traineeship could be carried out using Computer Simulator Teaching Tools.

After the supplemented curriculum, the lecture 'Practical course on board a ship' and 'Practical course on board a ship or a platform' was approved by the UL-FPP Faculty Senate, and was included in the regular programme of the 2002/2003 academic year, assisted by the 'expert co-workers'. This supplementation did not impose any restrictions on the existing activities, which were normally performed within this lecture structure. After finishing their compulsory traineeship within this structure, the students said it was useful and well organized. They proposed to reposition it from the third year study to the end of the first year. So, through their traineeship within the UL-FPP Faculty, and considering that most students did not previously attend a maritime high school, they may be introduced to their profession earlier and get additional motivation to be more successful in theoretical subjects.

5. QUALIFICATION OF TEACHERS

We made a detailed analysis of the examinations passed for all the 11 first year subjects, for a generation of students who were preparing their degree (Figure 4). Some fourth-year students did not pass examinations number 9, 10 and 11. The average final marks per subject were between 6.41 and 7.68. An exception was subject number 4 with an average mark of 9.21. The difference between these marks increased when we used equation (1), which took into consideration the number of examinations repeated.

$$(1) \quad O_{sr} = \frac{O_z + \sum_{i=1}^n (O_i \cdot i)}{1 + \sum_{i=1}^n i}$$

O_{sr} ... mean mark
 O_z ... final mark
 O_i ... mark at repeated examination
 i ... successive number of the repeated examination
 n ... number of examination repeated

In this example the subjects and its teachers are divided into 4 groups:

1. Group of subjects where the teachers return the exam applications until those students show adequate knowledge (9, 10, and 11). These are difficult theoretical subjects, which present basic professional knowledge.
2. Group of subjects where teachers evaluate student knowledge by average mark and where the students hardly ever repeat their examinations (2, 3).
3. Group of subjects where teachers evaluated students on the basis of attendance at lectures followed by a positive mark obtained at the examination (4).
4. The largest subject group has a mean negative-mark (1, 5, 6, 7, and 8). The teachers try to assure that the students reach a certain level of knowledge and at the same time enable students to pass the examination.

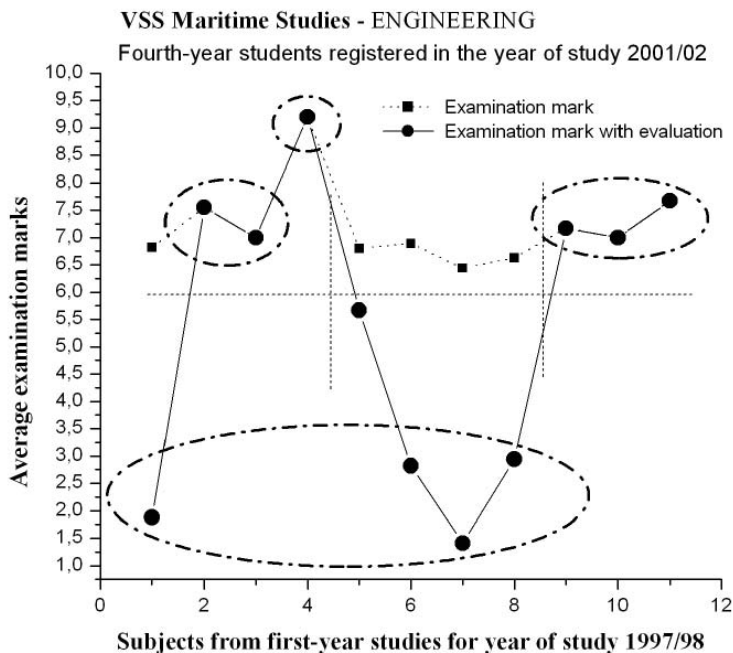


Figure 4: Average mark for examinations at first-year studies reached by fourth-year students in engineering course in study year 2000/2001

The methods used for the evaluation of the teacher's pedagogical skills are applicable for the study programmes drafted in compliance with the Bologna Declaration. The international convention STCW requests that the lecturers prove their expert knowledge. As each teacher is sovereign in his area of habilitation and is responsible for the adequacy of his knowledge from this area, they were recommended to:

- provide study literature and lecture notes in Slovene;
- carry out individual work with students through seminar works;
- purchase or provide teaching aids, models for example;
- organize educational trips for students and teachers;
- take part in additional training in the maritime trade and teaching profession.

Each teacher must prove the extent and level of his knowledge about his subject by the publication of his lecture notes [5]. Measurement of the quality of education and the assessment of students' satisfaction in today's world are necessary. The students' demands have increased and the traditional way of education is not sufficient in the 'era of information'. New technologies change our perception of the world, the way we think, and how we communicate with others.

6. CONCLUSION

The number of registered first-year students in both the courses, the navigation and engineering one, in the Maritime Studies Programme of UL-FPP Faculty was unchanged during the last year. However, the situation may change due to external or internal reasons, as has already happened in the past (Figure 1), such as:

- intervention of politics in the work of institutions (1990 – 1991);
- inappropriate procedure in changing the curriculum (1992 – 1995, 1996 – 1997);
- changing the school name which is well known and the local level and worldwide as well.

Information on the profession of officers in the merchant marine should be brought before the public in the Republic of Slovenia, a small littoral country. It is also important to stress that ship's officers who will have the possibility for employment and the immediate possibility for traineeship and the acquiring of work experience. Experience is important for the employment ashore, since European seafarers spend 5 years at the most on board ocean-going vessels [8] and after that they mostly find jobs ashore. The curriculum in the Maritime Studies Programme of the Faculty of Maritime Studies and Transportation, Portorož is in compliance with this practice.

The only indicator of the quality of the curriculum of the Maritime Studies Programme is the success of its students. The deciding factors in forming an opinion on an educational institution are the students themselves. For this reason, it is very important that all employees at the UL-FPP Faculty treat students in an appropriate manner. Success in this working team can only be achieved where mutual respect, willingness to attain additional professional and pedagogic education and willingness to improve mutual relations take precedence of. Only in such a working environment is it possible to give and receive positive criticism and enhance the possibilities for the improvement of both the teachers and the students.

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Sažetak

INTERES ZA DODIPLOMSKI STUDIJ POMORSTVA U SLOVENIJI

Budući časnici palube i stroja obrazuju se u Sloveniji na dodiplomskom studiju Fakulteta za pomorstvo i transport u Portorožu na dva odvojena odjela: nautičkom i brodstrojarskom. Odabrana su dva određena vremenska perioda unutar kojih je izvršena analizana studenta oba smjera koji su prvi puta upisali prvu godinu studija. Kod odabrane generacije studenata utvrđene su kvalitete koje su neophodne za uspješno studiranje. Konačni rezultati do kojih se došlo kod odabrane generacije studenata završne godine studija podvrgnuti su također analizi, na temelju koje se ocijenio rad predmetnih nastavnika pomorske struke, dajući im isto vrijeme i preporuke kako poboljšati i osuvremeniti stručne nastavne predmete.

Ključne riječi: visoko obrazovanje, pomorstvo, uspjeh u načinu predavanja, kvaliteta studija

Dr.sc. Rudi Čop
Sveučilište u Ljubljani
Fakulteta za pomorstvo in promet
Pot pomorščakov 4
6320 Portorož
Slovenija