Investigation of Long-term Sea Training Problem of Maritime Students in Turkey

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Abstract: Nearly 90% of the transportation of goods due to worldwide trade is carried out by maritime transportation. It has a large share in the economies of the countries. The training of marine officers is of great importance in order to have a good maritime trade fleet.

In recent years, Turkey has significant developments in the maritime sector. Besides, a number of new maritime schools opened in order to increase the number of educated seafarers. The new schools resulted in increase in the number of students. Today, Turkey is the second country after China raising most sailors in the world. Hence, a new problem is emerged for students that they cannot find company for the long-term sea training. The factors such as inexperience of the students in the sector, lack of adequate company knowledge and decision of what type of ship they want to work also contribute to this problem.

In this study, the number of new maritime colleges, the number of students, and the number of ships in the Turkish fleet are analysed to observe the sufficiency of Turkish merchant fleet for long-term training of these students. The analysis shows the insufficiency of the Turkish merchant fleet and coordination problems. Solutions to this problem are proposed for a better sea training environment.

Keywords: Maritime education, long-term sea training, maritime colleges, Turkish merchant fleet

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Türkiye'deki Denizcilik Öğrencilerinin Uzakyol Deniz Stajı Probleminin İncelenmesi

Özet: Dünya ticaretinin yaklaşık %90'ı en ucuz yöntem olan deniz yolları kullanılarak taşınmaktadır. Dolayısıyla ülkelerin ekonomilerinin oluşmasında deniz taşımacılığının payı büyüktür. Ekonomide büyük öneme sahip deniz taşımacılığında iyi bir ticaret filosunun oluşturulması bu sektörde çalışacak kişilerin iyi bir eğitim almaları büyük önem arz etmektedir.

Son yıllarda ülkemiz denizcilik sektöründe önemli gelişmelere imza atmıştır. Bunun yanı sıra eğitimli denizci sayısını artırmak için yeni denizcilik okulları açılmıştır. Bunun sonucunda denizci öğrenci sayısında ciddi bir artış olmuştur. Günümüzde Turkey Çin'den sonra dünyada en çok denizci yetiştiren ikinci ülke durumundadır. Öğrenci sayısındaki artış sonucunda öğrencilerin uzun dönem ve kısa dönem stajları için firma bulamama gibi olumsuz etkileri olmuştur. Öğrencilerin sektörde deneyimsiz olması, yeterli şirket bilgisine sahip olmaması, hangi gemi tipinde çalışmak istediğinin analizini yapamaması gibi sebepler de bu soruna katkı sağlamıştır.

Bu çalışmada Turkeyde açılan yeni denizcilik okullarının sayısı, bu okullardaki öğrenci kontenjanları, ve Türk deniz ticaret filosundaki gemi sayısı öğrencilerin deniz stajları için yeterliliği açısından incelenmiştir. Sonuç

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olarak Türk deniz ticaret filosunun bu konuda yetersiz kaldığı ve koordinasyon eksikliğinin oduğu görülmüş ve bu probleme bazı çözüm önerilerinde bulunulmuştur.

Anahtar Kelimeler: Denizcilik eğitimi, uzun deniz stajı, denizcilik okulları, Türk deniz ticaret filosu

INTRODUCTION

International maritime education and training standards are determined by the Standards of Training Certification and Watch keeping Convention (STCW) of International Maritime Organization (IMO). Oceangoing watch keeping officer candidates have to complete a sea training period of 12 months at sea going ships over 500 GT. 6 months of this period should be spent on the bridge. Oceangoing watch keeping engineer candidates have to complete a sea training period of 6 months on ships powered by main propulsion machinery of 750 kW or more. The sea training should comply with an approved training record book and candidates must be successful in the officer exams carried out by the administration (IMO, 1996). These sea training conditions are listed in Table 1.

Table 1. Sea training conditions for engine and deck departments

Department	Period	Ship type	Training record book
Deck	12 months (6 months of which being training on the bridge)	Sea going ship over 500 GT	Approved onboard training record book
Engine	6 months	Main engine power > 750 kW	Approved onboard training record book

Engine and deck cadets are defined as follows in the regulation for seafarers of Turkish maritime authority (Regulations for Seafarers, 2002):

> "Engine cadets are being trained and educated to become restricted engineer officers, engineer officers, or oceangoing engineer officers to enable them to continue their training at high seas as seafarers, provided that, they are not less than 16 years of age and have completed their safety at sea training successfully as required in the Article 19 of these Regulations.
>
> Deck cadets are being trained and educated to become yacht skippers, restricted watch keeping officers, watch keeping officers, or oceangoing watch keeping officers to enable them to continue their training at high seas as seafarers, provided that, they are not less than 16 years of age and have completed their safety at sea training successfully as required in the Article 19 of these Regulations."

Considering the long training time and fleet characteristics, we come across some problems such as finding a company for training and the quality of the training.

Training onboard ships is a part of the whole education and training system. Actually there is a great potential in training on-the-job. However, in practice, it is not taken seriously by most of ship staff and students. As a result, it is not as efficient as expected (Emad, 2007). One of the main problems is absence of a mechanism that can monitor and supervise students on board (Lewarn, 2002).

In general, education and training are kept separate in business life. Therefore, maritime companies and personnel onboard don't think that they have a duty of training the cadets. In addition, onboard training is far from the supervision and control of educational institutions. The training institution only evaluates the training record book and makes an oral exam to measure the quality of onboard training, which is not an effective way. Many of the students deal with works which are not necessary to improve themselves such as painting, and therefore they are disappointed. The students need more practice and supervision to see the practical side of theoretical things taught in school. The workload of ship personnel is increased due to reduced number of personnel. Therefore the officers don't have sufficient time to deal with trainees which result in unstructured and unsupervised on-the-job training. As a result, today's maritime training and education is not able to provide full qualification to students on board (Emad and Oxford, 2008).

The onboard training is very effective in terms of students' future work life as well as their ability to prepare themselves socially. Working with the master/chief engineer, officers and staff provides many benefits to the cadets in many respects. In order for the onboard training program to be improved, training related arrangements must be organized in this regard. There must be an officer who is responsible for the supervision and training of the cadet. The students would have many opportunities to observe and learn expert practice by the guidance of this responsible officer. The role of the responsible officer here is to encourage students to show their knowledge, reasoning, and problem solving capabilities (Emad and Oxford, 2008).

In this study, the characteristics of Turkish maritime fleet and the number of maritime students are inspected. The mentioned problems of maritime students in Turkey are analyzed. Some feasible solutions to these problems are proposed.

METHOD

This study is based on the statistical data obtained from BIMCO/ICS, Student Selection and Placement System (OSYM), and Turkish Ministry of Transportation, Maritime Affairs and Communications (new name is Ministry of Transport and Infrastructure). The important parameters for the long-term sea training availability of the maritime students are determined. These parameters are Turkish flagged ship numbers, Turkish owner ship numbers, the number of Turkish officers,

seafarer situation in the world, the number of maritime students. Firstly, the situation of Turkey in the number of seafarers is observed by the data obtained from BIMCO/ICS's statistics. The number of Turkish flagged ships and Turkish owner ships are obtained from the statistics of Ministry of Transport and Infrastructure. Comparing the student numbera and ship numbers we can see the availability of ships for long-term sea training. The developments of these companies are observed from 2004 to 2016. In Turkey there are many newly established maritime colleges. The list of these colleges and the number of students are obtained from the OSYM. The change of the number of maritime students from 2004 to 2016 is listed. The comparison of the ship and student numbers is carried out. Even more, the change in ship and student numbers until 2025 is estimated. These statistical data show the problem of long-term sea training of maritime students.

FINDINGS

Seafarers Data and Maritime Colleges in Turkey

One of the most reliable data source for seafarers data is Baltic and International Maritime Council (BIMCO). The statistical data of seafarers prepared by BIMCO/ICS is based on data collected from questionnaires sent to governments, shipping companies, and crewing experts.

The global supply of seafarers in 2015 was estimated as 1,647,500 seafarers, of which 774,000 are officers and 873,500 are ratings by BIMCO/ICS (BIMCO/ICS, 2016). The global supply of seafarers between 2005 and 2015 is shown in Table 2. In the table there is a remarkable rise from 2005 to 2015.

Table 2. Estimated global supply of seafarers 2005-2015

Rank	2005	2010	2015
Officers	466,000	624,000	774,000
Ratings	721,000	747,000	873,500
Total	1,062,00	1,371,000	1,647,500

BIMCO/ICS has also estimated global demand for seafarers in addition to global supply of seafarers. The current global demand for seafarers is around 1,545,000 seafarers, with the industry requiring approximately 790,500 officers and 754,500 ratings in 2015. In Table 3, the estimated supply-demand balance for officers is displayed (BIMCO/ICS, 2016). The estimations show that there will be a great shortage of officers in 2025. Therefore, we can figure out that the number of officers should be increased to be able to meet the sector's worldwide demand.

Table 3. Estimated supply-demand balance for officers

	2015	**2020**	**2025**
Supply	774,000	789,500	805,000
Demand	790,500	881,500	952,500
Shortage	-16,500	-92,00	-147,500
%	2.1%	11.7%	18.3%

What is the situation for Turkey? According to the BIMCO/ISF survey in 2010, Turkey is in the 2nd rank in world with a share of 6.66% of seafarers (Ministry of Transport and Infrastructure, 2016). The seafarer percentages of different countries can be seen in Table 4.

Table 4. Seafarer rates of countries (officer and crew)

Country	**Percentage**
China	10.77%
Turkey	6.66%
Philippines	6.17%
Indonesia	5.9%
Russia	4.94%
India	4.76%
USA	2.92%
Ukraine	2.90%
Malaysia	2.66%
Bulgaria	2.53%
Myanmar	2.36%
Japan	2.17%
Romania	1.85%
Norway	1.78%
United Kingdom	1.76%
Others	31.70%

The number of active officers and ratings in Turkey by August 2016 is shown in Table 5 (Ministry of Transport and Infrastructure, 2016).

Table 5. Active officers and ratings number in Turkey

Total Seafarers	**105.803**
Active Officers	31.213
Active Ratings	74.590

In 2010, the number of total seafarers in Turkey was 91300. If the increase continues linearly, the number of Turkish seafarers in the future will be as shown in Table 6.

Table 6. Total Turkish seafarer estimation for 2020 and 2025

Years	2010	2015	2020	2025
Total Seafarer	91300	105803	120306	134809

Maritime Colleges in Turkey

Recently, many maritime colleges (2 years and four years education) opened in Turkey. Table 7 and Table 8 indicate the number of faculties, applied schools, academies and vocational schools that follow A-II/1 and A-III/1 syllabus. These establishments have education program for watch keeping officers, watch keeping engineers, oceangoing watch keeping officers and oceangoing watch keeping engineers in Turkey.

Table 7. Maritime Institutions and number of students for deck department

School	Department	Number of Students
ITU Maritime Faculty	MTME	118
ITU Northern Cyprus	MTME	60
YYU Maritime Faculty	MTME	11
PRU Maritime Faculty	MTME	140
PRU Maritime Higher Vocational School	MTME	80
GAU Marine School	Deck	55
GU Faculty of Maritime Studies	MTME	20
GU Maritime Academy	MTME	35
GU Maritime Vocational School	MTM	30
DEU Maritime Faculty	MTME	77
KTU Surmene Marine Science Faculty	MTME	84
Ordu University Fatsa Marine Science Faculty	MTME	36
Ordu University Fatsa Vocational School	MTME	102
RTEU Maritime Faculty	MTME	77
IU Faculty of Engineering	MTME	82
GSU Vocational School	MTM	26
KOU Vocational School of Karamursel	MTM	122
MEU Vocational School of Maritime	MTM	82
YALU Yalova Vocational School	MTM	92
IBU Vocational School	MTM	120
NU Vocational School	MTM	80
EGU Urla Maritime Vocational School	MTM	46
Total		1575

The institutions and the declared number of students for deck department and engine department for 2016 are shown in Table 7 and Table 8, respectively (OSYM, 2016). As it can be seen from the

table, the total number of deck department students is 1575 and total number of engine department students is 847. The total number of students who are going to be officers is 2422.

Table 8. Maritime Institutions and number of students for engine department

School	Department	Number of Students
ITU Maritime Faculty	ME	102
ITU North Cyprus	ME	60
YTU Naval Architecture and Maritime Faculty	ME	62
PRU Maritime Faculty	ME	90
PRU Maritime Higher Vocational School	ME	70
GU Faculty of Maritime Studies	ME	20
GU Maritime Academy	ME	25
GU Maritime Vocational School	SMM	25
DEU Maritime Faculty	ME	46
Ordu University Fatsa Vocational School	ME	122
BEU Alaplı Vocational High School	SMM	51
GSU Vocational School	SMM	26
KOU Vocational School of Karamursel	ME	122
MEU Vocational School of Maritime	SMM	26
Total		847

Numerical analysis of maritime students in 2016

The tables above show the total number of the maritime students determined by universities in 2016 in Turkey.

In Turkey, a total number of 835 students were invited to watchkeeping officer programs, a total of 442 students were invited to watchkeeping engineer programs, a total number of 740 students were invited to oceangoing watch keeping officer programs, a total of 405 students were invited to oceangoing watchkeeping engineering programs by the universities in 2016. These numbers are shown in Table 9.

Table 9. Detailed number of total maritime student quota

Program	Student Quota
Watchkeeping Officer	835
Oceangoing Watchkeeping Officer	740
Watchkeeping Engineer	442
Oceangoing Watchkeeping Engineer	405

The number of students between 2004 and 2016 is listed in Table 10. In this list, the student numbers that is published and issued by OSYM in those years are taken into account. For 2016, the

number of student quota is taken into consideration. In the table, we observe a great increase between 2004 and 2016 which is almost three times.

Table 10. Number of students between 2004 and 2016

Years	Students	Years	Students
2004	891	2011	2119
2005	922	2012	2236
2006	978	2013	2317
2007	1067	2014	2333
2008	1173	2015	2407
2009	1554	2016	2422
2010	1562		

Statistical Data of the Turkish Ownership and Turkish Flag Fleet

The number of ships in Turkey is another important parameter for this study to be able to analyze the sea training capabilities on board merchant ships. The students inspected in this research are required to complete the onboard training period on seagoing ships. The data of the ships with Turkish flag and Turkish owner (other flag) are shown in Table 11 which is obtained from the statistics of maritime industry prepared in 2016 by Ministry of Transport and Infrastructure. Actually, the source of this data is ISL and the number and the DWT of the ships between 2004 and 2016 are listed. In the table we can observe the development of Turkish fleet. The number of Turkish flag and Turkish owner ships is 1535 ships by 2016.

Table 11 Annual development of Turkish fleet (1000 GT and over)

Year	World rank	Turkish Flag		Turkish owner (other flag)		TOTAL	
		Qty	DWT-1000	Qty	DWT-1000	Qty	DWT-1000
2004	18	408	6556	163	2159	571	8715
2005	20	420	6427	237	2725	657	9152
2006	19	432	6844	353	3609	785	10453
2007	19	446	6464	424	4650	870	11115
2008	17	490	6592	513	6591	1003	13183
2009	16	520	6736	636	8592	1156	15328
2010	15	560	7246	665	9954	1225	18671
2011	15	547	7797	672	11863	1219	19660
2012	15	523	8479	642	14093	1165	22572
2013	13	627	9488	842	20838	1469	30327
2014	13	599	8580	890	21846	1489	30427
2015	13	564	8297	834	19209	1398	27506
2016	14	551	8272	984	20879	1535	29151

Another statistics of the Ministry of Transport and Maritime Affairs is percentage of ship types of Turkish flag ships which is shown in Table 12 (Ministry of Transport and Infrastructure, General Directorate of Maritime Trade, 2016). In the table the number of bulk carriers, general cargo ships, containers and tankers which are 1000GT and over 1000GT in the Turkish flagged fleet are shown. These ship types are mostly preferred and available types for long-term sea training. The other types such as service vessels or tug boats are not suitable for long-term training. Therefore the number of vessels for long-term sea training is actually less than the total ship number.

Table 12 Distribution of Turkish flag commercial fleet by ship type by 2016

Ship Type	Quantity	%	GT	%
General Cargo	262	44	1365546	22
Bulk Carrier	84	14	2294264	38
Container	77	13	914332	15
Tanker (Oil & Gas)	92	15	960172	16
Passenger	30	5	104944	2
Service Ships	9	2	30891	1
Tugs	1	0	1565	0
Sea Vessels	44	7	423397	7
Fishing Boat	1	0	1407	0
Sportive and	0	0	0	0
Total	600	100	6096519	100

The ships mentioned above are not all suitable for long-term sea training. Even more, not all companies and all ships are employing cadets for engine or deck department. Considering these facts and annual maritime student number, which is 2422, the students have a problem of finding companies for long-term sea training.

Comparison of Number of Students and Number of Ships by Years

The graph in Figure 1 shows the increase in the number of students and the number of the ships that students can do onboard trainings over the years. From the figure we can see that the increase in the number of students is more than the increase in the number of ships.

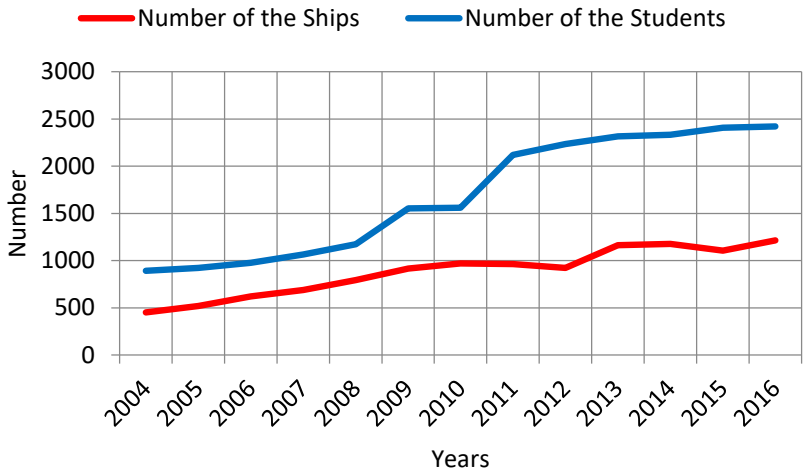

Figure 1. The number of maritime students and Turkish fleet

The future projection of the situation is also important. The estimations of the number of ships and the maritime students are displayed in Figure 2. If the number of students continues to increase at rates close to the rate of increase between 2004 and 2016, it can be seen that the gap between the number of students and the number of ships in 2025 can reach very significant values. It means that the difficulty of finding a ship for long-term training may be harder in the near future.

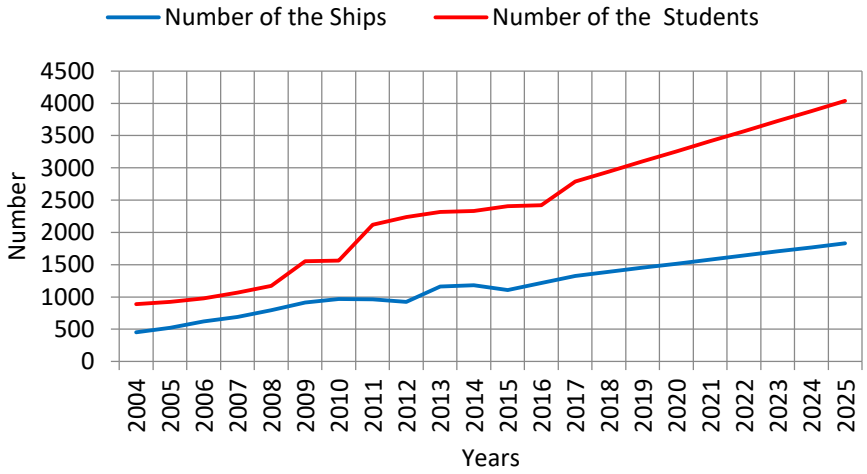

Figure 2. Estimated future value of number of students and ships

RESULTS

Proposed Solutions for Long-term Sea Training

It is possible to mention about two essential problems: One of them is finding a company to complete the long-term sea training and the latter is the quality of training. The authors proposed five solutions which are candidate to solve both of the mentioned problems. These solutions are explained below.

Professional Internship Office

In most of the maritime colleges in Turkey there is an office which deals with the sea training of students. However, this office is actually only checking the training after the sea training is completed. Besides, this office helps students for documentation of the training for the authority before and after the training. Therefore, it has a very limited personnel and limited role. However, the role of the internship office should be much more effective. The internship office should work very professionally and should be a bridge between the companies and the students. One of the reasons for the students not to be able to find company is lack of information about companies. Each student makes a list of possible companies he/she heard before and visits these companies for sea training availability. It is a difficult method for students and also for companies. The office should be in touch with the companies and have data of all the companies, number of ships of each company and sea training availability such as number of students they would employ for lon-term sea training. Therefore, they can direct the students to suitable companies. The number of students and the ships were mentioned above. Actually, the number of ships is sufficient for students but the organization and planning is not good. That's why such a problem takes place.

Besides, this office should develop contacts with foreign companies for training opportunities. Therefore, the students would find better companies for training and working after graduation. This is actually very important for Turkey. It is mentioned above that Turkey is in the second rank in the world after China with seafarer number. And the statistics show that there will be demand for seafarers in the near future. Therefore, the percentage of Turkish seafarers working in foreign companies is another important factor. If we are educating many seafarers, we should employ them in foreign companies. Otherwise, the number of seafarers will be redundant for Turkish fleet.

Training Ships Operated by Institutions

Training ship is a very efficient way of making long-term sea training. According to the regulations, the aim of the training ship is to provide better training environment by eliminating commercial objectives. The operations, maintenance and navigation principles can be practically taught more efficiently during the long training period by the instructors with professional experience. In the merchant vessels, the students can see only the operations that are carried out during their internship. There is not a training plan for the cadets. In case of a training ship, the students will be subject to a training plan and the most important operations will be carried out for students. The instructors who have professional experience will explain the most important points of the operations, thus the cadets will learn more efficiently.

Another advantage of a training ship is availability of different kind of systems. For example, if a student completed the sea training in a bulk carrier he/she will not be able to learn most of the

systems in a tanker ship or a container ship. In a training ship important systems of different ship types can be included in the ship to be able to introduce them to cadets. Even more, the newest systems such as mechatronics systems (PLC, microprocessor, microcontroller, power electronics etc.) should be practically taught to students. These improvements would make the training period more efficient and more satisfying.

In a training ship one of the important factors is design of the ship for a number of cadets. There should be rooms such a dormitory for accommodation, classrooms for studying and the area around the machinery should be large enough for many students.

The most important problem of the training ship is operation of the ship because running costs are very high. The training ship can be designed for both purposes of training and trade. In other words, this ship can operate as a merchant ship. The volume for transportation will be smaller than convenient merchant vessels due to larger area for training. However, the main purpose is training and getting the running costs will be sufficient for such kind of ships. Another important point is support of the government for such kind of training ships. The government should make a special permit for this kind of ships to make trade and transportation. This kind of ships should be made preferable for the brokers by no tax advantages. Therefore, this kind of ships would make trade and training together.

Government-Approved Commercial Vessels for Training

The commercial vessels are the sole choice for Turkish maritime students to carry out sea training. In this section, another sea training opportunity is explained by utilization of commercial vessels as training ship by the support of the government. The government (or ministry) can make an agreement with the maritime companies for long-term sea training improvement in order to train better-educated officers. According to the agreement, the companies will designate one or more ships as a training vessel. These ships are not going to be only training vessels and the commercial activities will continue. The difference is improving the training capabilities of the ship as structural and personnel improvement. The maritime authority should prepare an incentive program for maritime companies. According to this program, advantages should be decided such as low taxes due to educational support of companies. Another advantage for the companies is about manning. The ships which are designated as training ship would not have to employ oiler, wiper, ordinary seaman etc. The cadets will be employed for this purpose. However, the number of cadets will be more than todays' commercial vessels that may be 10 to 20 cadets depending on the company and ship. Besides, the government will pay the salary and insurance of the cadets.

Once the agreement is made, the designated vessels will be configured for training purposes. According to safety manning, the number of people on board the ship will be determined. Accommodation, cabins, halls, training classes, sailboats and safety equipment should be fitted to the

ship in accordance with the number of people. Accommodation should be sufficient for the trainees and staff. Additional cabins, officers and trainees mass rooms, and special education areas should be constructed.

Instructors are another important point of this kind of training ship. There should be experienced and eligible instructors in engine and deck sides who will supervise the cadets. It is important that instructors are experienced engineers and captains who previously served onboard. Therefore, they will help to cadets for adaptation to marine life and their job. These instructors should follow a training plan for effective use of training time.

By this configuration, both the students complete their education under the state guarantee and they gain experience for their professional life on board a commercial ship. On the company side, they will employ better officers who have seen ship life and much better trained in their company.

Training ship is a suitable option for the internship, but it is very expensive to run the training ship. Therefore, it is very difficult to utilize training vessels that are not engaged in commercial activity. Construction of a ship to be used as a training vessel to conduct commercial activities requires a large budget. As a result, training ships that are supported by government can be a better option because it is easier to retrofit a commercial ship suitable for training. It is also an advantage for ship owners to receive tax support from the governmment.

A Governmental Institution of Training Ships

Another solution for training ship problem is to constitute a governmental institute under Ministry of Transportation for this purpose. This institute would obtain a number of ships to be operated only for the training of the maritime students from different marine colleges of the country. The marine colleges and this institute will be in touch and they will organize the students from different colleges and the suitable training terms for them. Different ship types can be obtained or all ships can be designed to be able to demonstrate different ship systems.

Actually this is an existing system. In Japan, Ministry of Transportation has such an institution and they have around 6 ships. They organize the sea training of different maritime colleges. Therefore, the students do not have a problem of finding company for internship and the training is more professional due to qualified instructors on board ship.

International Training Ship Organized by IAMU

IAMU is one of the most important associations for maritime education institutes all over the world. An initiative of IAMU for organizing a training ship (or ships) for the maritime students from different countries would be excellent. In this case, the selected students from many different countries would have the chance to work together and they will learn more about their cultures. The instructors

of these ships should be selected attentively so that the students would prefer to complete their internship on these ships. Even more completing the internship on these ships should be an international privilege and prestige. Considering the globalization and international characteristics of our job this idea would contribute to maritime world to understand each other much better.

DISCUSSION AND CONCLUSION

Long-term sea training is very important for maritime students because they become familiar with ship life and they start to learn the practical side of their job. The students who have a fruitful sea training period are more positive and productive about their job and their future life style. Unfortunately, many of the students are unable to find the knowledge and experience they aim at in their internships. One of the reasons is that training is not considered important sufficiently. Most of the mariners who start their first contract as a responsible engineer/officer don't have sufficient knowledge and confidence. Todays maritime students have the problem of finding a company for internship and some of them have to go to the unpleasant companies just to be able to complete the sea training and to graduate.

Turkey is in second place in terms of the number of world seafarers after China, whose population is close to 1.4 billion. And the number of seafarers will increase in the near future due to the increase in the number of maritime students. Therefore, the maritime students will have difficulty to find company for internship. A solution to overcome this problem can be employing Turkish maritime students as cadets in international companies. A professional internship office has a potential to achieve this.

When Turkey's maritime targets are taken into account, the fact is that we need qualified human power. Considering the quality of sea training, first of all the students should find a ship to complete their internship. Besides, the quality of the training should be increased. To overcome this problem three different methods are proposed above.

It is obvious that there are serious problems in providing onboard training opportunities to students in schools that provide maritime education in Turkey. In this study, the problem of finding internship and the quality of the sea training is pointed out. The number of seafarers, Turkish maritime sector and the number of maritime students are investigated. The solutions to these problems are proposed.

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ABBREVIATIONS

GT : Gross Tonnage
kW : Kilowatts
BIMCO : Baltic and International Maritime Council
ISF : International Shipping Federation
ICS : International Chamber of Shipping
ISL : Institute of Shipping Economics and Logistics
OSYM : Student Selection and Placement System
ITU : Istanbul Technical University
YTU : Yıldız Technical University
YYU : Van Yuzuncu Yıl University
PRU : Piri Reis University
GU : Girne University
DEU : Dokuz Eylül University
BEU : Bülent Ecevit University
GSU : Galatasaray University
KOU : Kocaeli University
MEU : Mersin University
KTU : Karadeniz Technical University
RTEU : Recep Tayyip Erdoğan University
IU : Istanbul University
GAU : Girne American University
YALU : Yalova University
IBU : Istanbul Bilgi University
NU : Nişantaşı University
EGU : Ege University
MTME : Maritime Transportation and Management Engineering
MTM : Maritime Transportation and Management
ME : Marine Engineering
SMM : Ship Machinery Management