

# Factors Related To The Maritime Pre-Apprenticeship Phase Of A University

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**Abstract:** A maritime apprenticeship is an arrangement of preparing intended to get ready cadets for skilled occupations, and comprising of a mix of at work preparing with skilled excursion laborers and paid related classroom direction. At the point when a student has finished the predefined number of hours of apprenticeship preparing, he turns into a confirmed talented sailor. This study meant to distinguish the variables identified with the oceanic pre-apprenticeship stage as the reason for proposing a program. The study employed the descriptive method using surveys and interviews with key informants. A three-set researcher made questionnaire was constructed based on the apprenticeship program guidelines, suggestions, and opinions provided by the institutions' superintendents and STOs and the apprenticeship crewing managers of selected shipping companies. The gathered data were treated using simple percentage, weighted mean, rank, Spearman Rank Order Coefficient, and ANOVA. The study revealed that key informants have the same perceptions of the skills and competencies needed to qualify applicants for an apprenticeship. It was concluded that the apprentice mates, shipboard training officers, and crewing managers considered certain factors related to their qualifying for apprenticeship and that they encountered problems along the way. The researchers strongly recommend the implementation of the learning program to improve procedures for applications.

**Keywords:** Maritime, maritime pre-apprenticeship, Philippines

## 1. Introduction

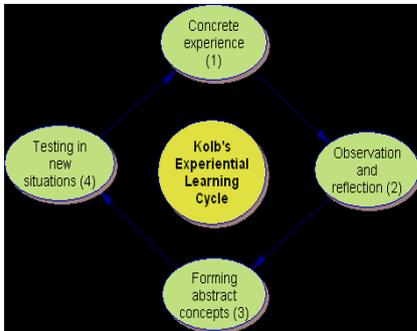
The Maritime industry, both here and abroad, relies on qualified deck and engine officers. Cruise ships carrying 2,000 to 2,500 passengers require as many as 1,000 crew members to maintain safe operations and provide customers with many of the same services they would expect to receive in excellent hotels (Alderton & Saieva, 2013; Gibson, 2006; Beaver, 2005). Journey transport accommodation occupations are relied upon to develop as extra port-to-port voyage lines, ship watercraft and gaming riverboats increment (Pallis, 2015; Gaouette, 2010). According to the Baltic and International Maritime Council (BIMCO), the maritime industry will experience a worldwide shortage of 27,000 ships' officers by the year 2015 (Cahoon & Haughstetter, 2008). As per information from the Commission on Higher Education (CHED) 30% of the seafarers abroad are Filipinos. Working locally available expansive maritime vessels is one of the numerous enterprises that is by its exceptional nature to a significant degree blunder inciting. Enrolling, preparing, and all the more significantly holding the ideal individuals to work in these businesses is of fundamental significance if security is to be consistently enhanced and financial advantages acknowledged (Davy & Noh, 2012). From the observations and experiences of Maritime colleagues and friends, it was learned that a good number of those who finished the 3-year academic program find difficulty in looking for a year shipboard apprenticeship (OJT) on both local and foreign shipping companies. Rumors have it that many young Filipinos have become regular Luneta residents waiting for the much-awaited moment to board a foreign vessel. Only the scholars of the international shipping companies like the Norwegian Shipowners' Association (NSA) have no difficulty in getting into the

apprenticeship program since they are assured of boarding a different ship as included in their program of study. However, it is sad to say that only around ten of the Philippine Maritime Higher Education Institutions (HEIs) nationwide, are tapped for scholarships by the foreign shipping companies, where apprenticeship is made easy. The University of Cebu-Maritime Education and Training Center (UC-METC) is one of the prestigious maritime institutions in the Philippines as evidenced by the number of foreign shipping companies giving scholarships to its students. In spite of this, it still finds difficulty in having students' board shipping vessels as apprentices. Based on the registrar's records of the University of Cebu, statistics show that roughly 30% come back after the apprenticeship program to qualify for the Professional Regulation Commission (PRC) Board Examination.

## 2. Framework

Apprenticeship is very crucial to the life of a cadet because without complying with the 12-month apprenticeship, the cadet will never become a licensed seaman. It is a requirement of PRC before one is allowed to take the dreaded government maritime board examination. These prompted the researchers to undertake the study and identify the factors related to the maritime pre-apprenticeship phase of a cadet to propose a maritime pre-apprenticeship program. This study is supported on the Experiential Learning Theory (ELT) by Kolb and Kolb (2005) which characterizes learning as the procedure whereby information is made through the change of involvement. Learning comes about because of the blend of getting a handle on and changing the experience. The ELT show depicts two argumentatively related methods of getting a handle on experience -

Concrete Experience (CE) and Abstract Conceptualization (AC) - and two persuasively related methods of changing background - Reflective Observation (RO) and Active Experimentation (AE). The four-organize learning cycle portrayed in Figure 1, prompt or substantial encounters are the reason for perceptions and reflections acclimatized and refined into philosophical ideas from which new ramifications for activity can be drawn. These suggestions can be effectively tried and fill in as aides in making new encounters (Joy & Kolb, 2009).



**Figure 1:** *Experiential Learning Cycle by Kolb*

As showed by Eler et al. (2009) that Norwegian seafarers convince this investigation is communicating, We give high need to Filipino seafarers on board Norwegian-guaranteed, controlled, managed, or worked vessels. Filipinos are known in the business to be exceptionally skilled experts and for their steadfastness (Siar, 2012). That is the reason we require them (McKay & Michelle Miller-Chair, 2011; Ellis et al., 2010). Some studies on apprenticeship programs have been conducted here and abroad. Foreign shipping companies prefer Filipinos as seafarers, yet there is still a significant number of applicants for apprenticeship who find it difficult to get into apprenticeship (Berg et al., 2013). International shipping companies remain confident about the quality of Cebuano maritime students and professionals. This, after the Norwegian Maritime Foundation of the Philippines Inc. (NMFPI) and the University of Cebu-Lapu-Lapu and Mandaue (UC-LM) campus, inked a deal for an exclusive partnership to train local cadets for high-quality ship officers. To answer the appeal for world-class seafarers, UC-LM is resolved to supply the huge workforce necessity of its accomplice, the Norwegian Shipowners' Association (NSA), by giving full grant gifts to 300 maritime students. Horck (2011) found out that there was a significant difference between the perceptions of the deck and engine cadets of their basic and specialized training. Findings of the study of Bergheim et al. (2015) suggest that psychological capital (PsyCap) has an indirect relationship with perceptions of safety climate through job satisfaction. Cross-national contrasts were built up in that the aberrant impact was legitimate for European laborers, and not for Filipinos. An essential ramification of these discoveries is that wellbeing centered could profit by considering in preparing and spurring for security. As indicated by Andresen et al. (2007), that employment fulfillment is rather an indicator of how much weight and stress Mariners can deal with. In spite of medical issues and a lessening in their

satisfaction because of working extraordinary hours, most sailors don't lament their decision of calling. The policies and strategies to reduce recruitment costs are among the first steps required to protect workers against the many risks involved in migration processes. Moreover, some of the measures taken by origin countries ostensibly to protect workers such as not allowing different employers to hire workers directly have led to raising the costs for the employees (Abella et al., 2014). As per Bell and Bezanson (2006) that the effects of profession improvement administrations for youth show that vocation advancement projects and officials bolster youth pathways to the work showcase. Career development services can broaden worldviews, increase knowledge of work and occupational options, and help to build a great workplace and decision-making skills and support transition planning. The study argued the need to establish lifelong guidance systems as part of their lifelong learning and active labor market policies. The role of formal education should be to provide solid foundations for entry into the workforce. Better career advice, starting at secondary school, is needed to attract young people to these industries and to lift female participation. Sustained efforts are required by government, industry and education providers to advance efforts in skill utilization and to reduce skill gaps. Acknowledgment that recognition of prior learning demands adequate resources and the provision of funding for skill gap training will improve approaches to up-skilling existing workers (Beddie et al., 2014). It is in the light of these theories and related studies that the researchers have been inspired to conduct the investigation.

### 3. Objectives of the Study

This exploration intended to recognize the variables identified with the sea pre-apprenticeship stage as the reason for proposing a program. Specifically, it aimed to: 1) identify the factors related to the pre-apprenticeship phase as perceived by the key informants; 2) identify the skills and competencies of apprentices needed by recommending maritime institutions and shipping companies; 3) identify problems encountered by the key informants; and 4) determine whether there is a significant difference in the perceptions of the key informants.

### 4. Methodology

The research used the descriptive method using surveys and interviews with key informants. A survey instrument was constructed based on the apprenticeship program guidelines, suggestions, and opinions provided by the institutions' superintendents and STOs and the apprenticeship crewing managers of selected shipping companies. These were then validated and then distributed to the respondents of the study. Field researchers have been chosen and briefed on the process of the distribution and the retrieval of the questionnaires. Individual meetings with the principal witnesses were likewise directed to supplement the information assembled from the reviews. The examination was led by oceanic instructive establishments and transportation organizations working in Cebu City, the capital city of

Cebu Province in the Philippines. It is the second hugest metropolitan focus in the Philippine Islands. The city is situated on the eastern shore of Cebu and is the primary Spanish settlement in the Philippines. Cebu is the Philippines' primary local delivery port and is home to over 80% of the nation's household shipping organizations. It is a critical focal point of business, exchange, and industry in the Visayas and Mindanao locale. As per the 2007 Philippine registration, the city has a populace of 798,809 individuals. The respondents of the study were the key informants namely, the 10 Maritime superintendents and shipboard training officers (STO) from seven Maritime educational institutions (population) in Cebu City, the 15 crewing managers from seven shipping companies (population) in Cebu City and approximately 30 alumni (purposively sampled) and 316 apprentices on board. Three sets of questionnaires for each of the key informants (superintendents, STOs and crewing managers), the alumni and apprentices were constructed, validated and distributed. There are three parts of the questionnaire namely, demographic profile, skills and competencies needed, and problems encountered. Interview guides for the key informants were constructed and administered. Gathered data were subjected to appropriate statistical treatment: frequencies, percentages, weighted means, and standard deviations were computed. An Analysis of Variance and Spearman 's Rank Order Coefficient (Rho) were used to test the difference between the perceptions of the institutions' superintendents and STOs, the shipping companies' crewing managers, the alumni and apprentices on the factors related to the maritime pre-apprenticeship phase.

### 5. Results and Discussions

Factors have been operationally defined as about the following requirements for boarding a ship as an apprentice: documents, physical, medical, training, skills, and competencies. Other factors identified as related to the maritime pre-apprenticeship phase are the waiting time, persons who helped in getting the apprenticeship and amount needed in applying for an apprenticeship.

**Table 1: Paper Documents Required for Apprenticeship**

Paper Documents	STO	Crew	f	%
Transcript of records	10	14	24	96.00
Birth certificate	10	13	23	92.00
Certificate of good moral character	9	14	22	88.00
NBI clearance	8	14	21	84.00
Police clearance	8	12	20	80.00
Marriage contract	3	7	10	40.00
Training certificates	0	3	3	12.00
Seaman's book	2	0	2	8.00

The STOs and the crewing managers were made to identify the paper documents needed for the apprenticeship of which the results are shown in Table 1. It can be seen that among the paper documents, transcript of records got the highest percentage (96.00%). This shows that the shipping companies give importance to the quality of applicants as reflected in the grades in their transcript of records. Next on the list is the birth certificate of the applicants; certificate of good moral character; the NBI clearance. These documents assure the shipping companies that they are boarding apprentice mates who

will behave properly on board the ship. The medical requirements needed for apprenticeship identified by the STOs and the crewing managers are presented in Table 2. It is surprising to note that X-ray topped the list with 96% of the respondents checking it. This is followed by CBC, urinalysis and stool exam with a tie at 88%. These exams are the usual routine procedures for a medical check-up. Specific to the maritime field is the Ishihara test. Other medical tests needed were Hepatitis B, psychological test, and drug test.

**Table 2: Medical Requirements for Apprenticeship**

Requirements	STO	Crew	f	%
X-ray	10	14	24	96.00
CBC	9	13	22	88.00
Urinalysis	9	13	22	88.00
Stool exam	9	13	22	88.00
ECG	9	11	20	80.00
Hepatitis B	2	3	5	20.00
Psycho test	2	2	4	16.00
Drug test	1	2	3	12.00
Ishihara test	1	1	2	8.00
HIV	0	1	1	4.00
Alcohol	0	1	1	4.00

The STOs and crewing managers were asked about the training requirements for apprenticeship. Top of the rundown of preparing prerequisites, in Table 3, is the individual survival systems. Fire fighting and prevention, elementary first aid, personal safety and social responsibilities were tied with 92% share of the reactions.

**Table 3: Training Requirements for Apprenticeship**

Requirements	STO	Crew	f	%
Personal Survival Techniques	9	15	24	96.00
Fire Prevention and Fire Fighting	9	14	23	92.00
Elementary First Aid	9	14	23	92.00
Personal Safety and Social Responsibilities	9	14	23	92.00
Engine/Deck Watchkeeping	9	12	21	84.00
The Crowd and Crisis Management	5	14	19	76.00

Some skills were identified by the respondents as vital to the success in qualifying for apprenticeship. As seen in Table 4, the alumni and apprentice mates, the STOs and the crewing managers considered human relation skills as Highly Needed. Critical thinking skills came in second with, and problem-solving skills came next. The use of computer skills alongside with marketable skills was the least needed.

**Table 4: Skills Needed for Apprenticeship as Perceived by Key Informants**

Skills Needed	Mean	Interpretation
A. Human relations skills	4.47	Highly Needed
B. Critical thinking skills	4.34	Highly Needed
C. Problem-solving skills	4.25	Highly Needed
D. Commercial skills	4.02	Moderately Needed
E. English language fluency	3.94	Moderately Needed
F. IT skills	3.46	Moderately Needed

The alumni and apprentice mates, the STOs and the crewing managers were also made to identify the competencies needed for apprenticeship. According to the crewing managers, the STO's, alumni and the

apprentice mates, for the deck, maintain a safe navigational watch; responding to a distress signal at sea; maintaining seaworthiness of the ship, and operating life-saving devices were the top competencies needed.

**Table 5: Competencies Needed for Apprenticeship (Deck)**

Competencies Needed	Mean	Interpretation
1. Maintain a safe navigational watch	4.65	Highly Needed
2. Respond to emergencies	4.58	Highly Needed
3. Maintain seaworthiness of the ship	4.58	Highly Needed
4. Respond to a distress signal at sea	4.55	Highly Needed
5. Operate life-saving appliances	4.55	Highly Needed
6. Prevent, control and fight fires	4.54	Highly Needed
7. Utilization of radar and ARPA to keep up wellbeing of route	4.53	Highly Needed
8. Monitor loading of cargoes	4.51	Highly Needed
9. Screen the stacking, stowage, securing and emptying of cargoes and their care amid the voyage	4.49	Highly Needed
10. Steer the ship	4.48	Highly Needed
11. Monitor discharging of cargoes	4.47	Highly Needed
12. Ensure compliance with pollution prevention requirements	4.47	Highly Needed
13. Apply medical first-aid	4.45	Highly Needed
14. Plan and conduct a passage and determine the position	4.41	Highly Needed
15. Monitor compliance with the legislative requirement	4.39	Highly Needed
16. Use IMO standard Maritime communication phrases and write and speak English	4.33	Highly Needed
17. Maintain and overhaul cargo systems and associated equipment	4.29	Highly Needed
18. Maneuver the ship	4.25	Highly Needed
19. Transmit and receive information by visual signaling	4.20	Highly Needed

Table 5 shows the overall results of the competencies needed for the apprenticeship of Deck cadets. Maintaining a safe navigational watch was identified as the top competency Highly Needed. Meanwhile, the least necessary skill was transmitting and receiving information by visual signaling.

**Table 6: Competencies Needed for Apprenticeship (Engine)**

Competencies Needed	Mean	Interpretation
1. Maintain a safe engineering watch	4.74	Highly Needed
2. Maintain engineering system, including a control system	4.66	Highly Needed
3. Operate life-saving appliances	4.63	Highly Needed
4. Prevent control and fight fires	4.62	Highly Needed
5. Ensure compliance with pollution prevention requirements	4.58	Highly Needed
6. Utilize hand apparatuses, electrical and electronic measuring and test gear for blame discovering, support and repair operations	4.53	Highly Needed
7. Work principle and helper hardware, and related control frameworks	4.50	Highly Needed
8. Utilize hand instruments and estimating hardware for	4.47	Highly Needed

9. disassembling, upkeep, repair and re-get together of shipboard plant and gear	4.47	Highly Needed
10. Operate pumping systems and associated control systems	4.46	Highly Needed
11. Apply medical first aid	4.43	Highly Needed
12. Use English in written and oral form	4.43	Highly Needed
13. Monitor compliance with legislative requirements	4.41	Highly Needed
14. Utilize proper apparatuses for creation and repair operations normally performed on boats	4.41	Highly Needed
15. Maintain seaworthiness of the ship	4.32	Highly Needed

There were other factors related to the maritime pre-apprenticeship phase such as: waiting time to get an apprenticeship, persons who helped get an apprenticeship, and the amount needed in applying for an apprenticeship. The results are given in the tables that follow.

**Table 7: Skills Needed for Apprenticeship as Perceived by Key Informants (n = 264)**

Waiting Time	f	%
6 months	107	40.53
1 year	92	34.85
1 year and 6 months	29	10.98
Others	9	3.41
No response	27	10.23

Table 7, the waiting time to get an apprenticeship was 6 months with the highest percentage of 40.53%. The most extended waiting time is one year and six months.

**Table 8: Problems Encountered by the Alumni and Apprentice Mates (n = 264)**

Problems Encountered	f	Rank
1. Waiting period after submission of application requirements	166	1
2. Lack of financial support from family	161	2
3. The distance of residence from the desired workplace	108	3
4. Lack of influential people to recommend them	82	4
5. Lack of school support	57	5
6. Inadequate knowledge on the preparation of required documents	49	6
7. Health (sickness)	17	7
8. Impatience	16	8
9. Inadequate maritime skills	9	9

The problems encountered by the key informants in getting an apprenticeship were also gathered. Table 8 gives a summary of the problems encountered by both alumni and apprentice mates. The top problem identified was the waiting period after the submission of the application requirements. On the other hand, they identified poor maritime skills as the least problem. The alumni and apprentice mates believe that the schools have equipped them with enough maritime skills to qualify as an apprentice mate.

**Table 9: Problems Encountered by the STO (n = 10)**

Problems Encountered	f	%	Rank
1. Cadets' inability to meet deadlines for the submission of required documents	9	90.00	1
2. Cadets' fluency in both oral and written English	7	70.00	2
3. Cadets' inadequacy to meet financial requirements for training	7	70.00	2
4. Cadets' preference to board international vessels	7	70.00	2
5. Indecisiveness of cadets	6	60.00	3
6. Shipping company academic requirements (grades)	4	40.00	4
7. Cadets' inability to meet health requirements	4	40.00	4
8. STO/ school's relationship with shipping companies/linkages	2	20.00	5

Data on the problems encountered by the key informants in getting an apprenticeship were also gathered. As can be seen in Table 9, nine out of the ten STOs considered the cadets' inability to meet deadlines for the submission of required documents as the number one problem they encountered. Another problem encountered was the cadets' fluency in both oral and written English with seven out of the ten STOs choosing this.

**Table 10: Problems Encountered by the Crewing Managers (n = 15)**

Problems Encountered	f	%	Rank
1. Limited slots of apprentice mates in the company	9	60.00	1
2. Behavior/ characteristics and attitude of cadets towards work	8	53.33	2
3. Lack of qualified and adequately trained applicants	5	33.33	3
4. Inadequately-trained cadets	4	26.67	4
5. Political and influential interventions in the selection of cadets	4	26.67	4
6. Relationship with schools/STOs	2	13.33	5

The crewing managers were also asked about the problems they have encountered regarding cadet's application for an apprenticeship in their shipping companies. In Table 10 that the top problem encountered by alumni/apprentice as perceived by the crewing managers were the limited slots of apprentice mates in the company. They can only accept 25 apprentices the most. It cannot be denied that the alumni and apprentice mates, the STOs and the crewing managers did encounter different problems in the process of applying for an apprenticeship. The significance of the differences in the perceptions among the critical informants on paper documents, medical requirements, training requirements, other training requirements, and skills and competencies were determined. Spearman Rank Order Coefficient (Rho) was used for the first four factors while Analysis of Variance (ANOVA) was used for the last two factors.

**Table 11: Statistical Tests of Significance of the Difference in Perceptions**

Factor	Computed Rho	n	Table Value	Decision
Paper documents required for application	0.92	8	0.73	Significant
Medical requirements	0.94	11	0.71	Significant
Training requirements	0.70	4	1.00	Insignificant
Other Training Requirements	0.95	7	0.89	Significant

Table 11 shows the results of the tests of the significance of the differences in perceptions among the key informants. Then again, there is no remarkable contrast in the impression of preparing necessities with a computed Rho of 0.70, which is less than the table value of Rho, which is 1.00.

**Table 12: Test of Significance of the Difference in Perceptions of Skills and Competencies**

Source of Variation	df	F Value	P Value	Results
Between Groups	2	0.7235	0.5050	Accept Ho
Within Groups	12			
Total	14			

The significance of the difference in the perceptions among the critical informants on skills and competencies was also determined. Using Analysis of Variance, the results of the test of significance is shown in Table 12. The F value of 0.72353 is less than the critical F value of 3.885294. This shows that the null hypothesis "there is no difference in the perceptions of the key informants on skills and competencies" is thus accepted. This means that the key informants have the same perceptions of the skills and competencies needed to qualify for an apprenticeship.

## 6. Conclusions

The researchers conclude that the apprentice mates, shipboard training officers, and crewing managers considered specific factors related to their qualifying for apprenticeship and that they encountered problems along the way. Furthermore, the apprentice mates need the help of the maritime institutions and shipping companies, through the shipboard training officers and crewing managers, in the form of a maritime pre-apprenticeship program.

## 7. Recommendations

All maritime institutions should have a shipboard training officer for the maritime students; follow-up and monitoring system of application for apprentice in shipping companies; see to it that every cadet must be able to board as apprentice; establish a board-now-pay-later plan for the students; see to it that the cadets are well-equipped with the needed skills and competencies in applying for apprenticeship. The cadets should be exposed to filling up of forms, mock interviews and presentation skills. The alumni should help put up a dormitory with an affordable monthly budget to provide shelter while

waiting for boarding. The student affairs office should conduct an orientation on the advantages and disadvantages of boarding local and foreign vessels. The apprentice mate should have patience in waiting for the results of his application for apprenticeship and should find ways and means to support/meet the financial needs of getting an apprenticeship. Likewise, they should not be choosy in finding a vessel to board. The STOs should strengthen relationships with shipping companies to improve the processing of an application for apprenticeship and also identify the needs of the shipping companies regarding skills, competencies and other requirements. The shipping companies, through the crewing managers, must have communication lines open with the maritime schools. This way, a harmonious relationship will exist and will redound to the betterment of the lives of the cadets.

## 8. Translational Research

The outcome of this study had been translated into a Maritime Pre-Apprenticeship Program which is designed to address the problems encountered by the alumni, apprentice, shipboard training officers of the maritime education institutions and the crewing managers of the shipping companies. It is a four-phase, thirty-three-day program that prepares the cadet for apprenticeship.

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