

# The Impacts of Internship at Sea on Navigation Students' Seafaring Commitment

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## ABSTRACT

Internship is a socialization process for school students to experience before entering the job market. This study explores the internship mechanism that affects navigation students' seafaring commitment as well as their intentions to remain in the internship company by looking into the work context and organizational socialization process that interns experience aboard. The main results of empirical analysis reveal that work context (route and ship type) are associated with socialization as well as intentions to remain (in the internship companies), in the meanwhile the socialization process ('coworker support' and 'future prospects') mediate the relation of work context with intentions to remain. In addition, we also find that seafaring commitment mediate the effect of socialization on intentions to remain. Implications of results for practice are provided.

Keywords: Internship, Navigational education, Seafaring commitment, Seafaring

## I. Introduction

Internship is a curriculum design to fulfill the theoretical study through a practical exercise (Uen and Chang, 2007). For college students, internship in the industry can help them developing a more accurate self-concept and a realistic understanding about different job markets and organizational environments. It can also further examine whether one's personal characteristics and work request fits into each other (Greenhaus, Callanan, and Godshalk, 2000). With respect to practicality-oriented navigational education, shipboard internship plays a very key role. The emphasis of practical training aboard ship as seen from the

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implementation of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 and its amendment (STCW) reflects the fact that internship at sea is indispensable to navigational education (Chen, 2000).

Over the past two decades, as the implementation of STCW Convention and changes in the international seafaring, the internship system in Taiwan's navigational education was forced to have gone through quite a number of changes (Chen, 2000). Among them the most noteworthy one is that shipboard internship opportunities offered by shipping companies have been reduced to the extent of inadequacy (Chen, 2000; Tian and Yeh, 2007) which results in the gradual changes of the shipboard internship curriculum from being a core course to an elective course for navigational colleges in Taiwan (Jong and Ye, 2009). Furthermore, Taiwan students' shipboard internship opportunities have been cut down because shipping companies in Taiwan share a common view of their poor learning attitude and low return rate to serve after graduations, so they would rather cultivate foreign seafarers mostly from China (Lin, Yeh, and Ke, 2007).

However, for some Taiwan students, the seafaring nature of high salary and chance to journey round are still very attractive (Guo, Liang, and Ye, 2006). That's why the application for shipboard internship was quite eagerly demonstrated over the past three years. Concern rose, however, that some lucky students got shipboard internship opportunities, but after two months or half a year's life at sea, their visions to work aboard ships seemed to diminish quite a bit (Tian and Yeh, 2007). Why such negative effect of shipboard internship happened? One of the purposes of internship at sea is to allow students to have a realistic understanding about the people and things aboard, so they can evaluate whether they are suitable to work as seafarers. Is it because after those navigational students have a realistic understanding about the work that they fear to really step into the field after graduation?

## **The Impacts of Internship at Sea on Navigation Students' Seafaring Commitment**

By examining navigational students with various internship experiences, this study aims to explore the differences of their willingness to work aboard ships and returning to the same company after graduation in order to clarify the extent of effect that internship has on the aforementioned two issues. That is, we investigate how work context (i.e. route, internship length, ship type, ship age, and seafaring diversity) and organizational socialization aboard ships affect those interns on their 'seafaring commitment' and 'intentions to remain'? The issues that this study focused on closely relate to the development of Taiwan's seafaring and the future evolutions of navigational education of this country, so as to require immediate clarification and resolution. We applied questionnaire survey to navigational students graduated in 2009 from the National Taiwan Ocean University. Their thoughts on internship at sea and relevant information about work context aboard ships were collected and analyzed with statistic method. The research results of this study are expected to provide a deeper understanding about the efficiency of internship at sea in Taiwan's navigational education and to reveal further discussion based on the research results.

## **II. Literature and Hypotheses**

### **2.1 Internship at sea and seafaring commitment**

Prior studies all treated internship as a positive experience for college students and found that it would bring many favorable outcomes (Callanan and Benzing, 2004). For example, studies revealed that the completion of internship or cooperative education assignment may improve self-confidence in making career choice and enhance the crystallization of vocational self-concept (Brooks, Cornelius, Greenfield, and Joseph, 1995; Taylor, 1988), and may also acquire work related skills (Garavan and Murphy, 2001). Also, former studies pointed out that the effects of internship may include an improvement of work compatibility recognition and work steadiness at an early stage of career (Richards, 1984), an

increase of objective success and job satisfaction (Gault, Redington, and Schlager, 2000), a reduction of adaptive problem when working full time (Paulson and Baker, 1999; Taylor, 1988), and the tendency of locating career-oriented employment (Callanan and Benzing, 2004).

However, Brooks et al. (1995) indicated that internship experience would not affect one's vocational commitment, and the so-called vocational commitment refers to the attitude towards one's specialty or profession (Blau, 1985). This seems to imply that even though one may compare the picture between oneself and the profession (Ducat, 1980) and obtain a better visualization of vocational self-concept (Brooks et al., 1995), some interns' vocational commitment may be weakened as they figure out more clearly that they are not quite compatible with the vocation. Relatively, some interns may find themselves very compatible with the work context and therefore increase their willingness to work in the field in the future.

This paper is interested in whether the completion of shipboard internship would affect interns' seafaring commitment. Following Blau's (1985) definition regarding vocational commitment, seafaring commitment refers to the attitude towards one's seafaring profession. If navigation students have strong seafaring commitment, they will persist in the seafaring profession after graduations. As mentioned above, the shipboard internship course has gradually become elective, so those who choose to take the course is deemed to identify themselves more with the navigational career than others. Therefore, it is inferred that those who participated in shipboard internships, comparing with other counterparts, are likely to have higher seafaring commitment because, as Brooks et al. (1995) indicated, internship experience may not affect one's professional commitment. Thus, the following hypothesis is proposed:

H1: Those participating in the shipboard internships are likely to have higher seafaring commitment than other navigation students with land-based

internship.

## **2.2 Work context and intentions to remain**

Seafaring is a special vocation entirely different from working at land. To be apart from family and partner for a long period seems to be unavoidable for seafarers (Thomas, Sampson, and Zhao, 2003). Interns would certainly realize the uniqueness of seafaring field after being aboard ships for a certain period of time. However, as high salary and the chance to journey round are still very attractive to some young men (Guo et al., 2006), whether interns' seafaring commitment would be affected after being aboard ships for a certain period of time depends on how one interacts with the work context. This may be explained through the person-environment fit theory (Lewin, 1951). That is, when interns feel that they fit properly into the work context provided by the shipping company, they may have higher intentions to remain in the same company to serve after graduation. On the other hand, when interns feel that they do not fit properly into the work context, their intentions to remain after graduation may not be too high.

It is worth mentioning that we expected that work context aboard ships may not affect interns' vocational commitment, corresponding to the study of Brooks et al. (1995). As argued by Guo and Liang (2009), to improve family economic status is the key motive for choosing to work as seafarer. Given that, suppose there is a student who is originally determined to work at sea, even he/she may not be fully satisfied with work context or even he/she may consider that the shipping company is not suitable for oneself, and then he/she may choose to find another more suitable shipping company. It is not likely that the student would choose to leave seafaring and abandon one's original intention to improve family economic condition.

In terms of shipping operation in practice, work context that affect work pattern and life quality aboard ship include route, length of time aboard ship, ship type,

ship size, ship age and seafaring diversity. As ship size is much related to route and ship type, we, therefore, selects five objective work characteristics, namely route, internship length, ship type, ship age, and seafaring diversity, to explore their effects on interns' intentions to remain in the same company to serve after graduation.

### 2.2.1 Route

Shipping route is generally divided into three types: domestic route, near-sea route and ocean-going route. Since cargoes loaded on ships of domestic and near-sea route are less, their time stayed in port is relatively short. Also because of shorter waterway between two ports, it is more frequent for seafarers to prepare for berthing/unberthing. Therefore, seafarers on domestic and near-sea routes are often in a state of intense readiness which in turn deprives them of sleep and leisure time onshore. This may be reflected in an interview quotation as below from a qualitative research conducted by Guo, Ye, and Liang (2007):

*I am usually very tired. You know, berthing stand-by, duty for cargo operations, stand-by for leaving, and navigation duty repeat over and over in a tight cycle. I have been on this ship for five months. That is to say, I've been at ports more than 80 times, but I've briefly gone ashore only five times to get some snacks. (Third Mate)*

For a newcomer of navigational work, the change from campus life to life at sea is meant to be significant, and it is also no simple matter to adjust oneself. Of course those interns aboard ocean-going ships have to face the adjustment of life pattern change as well, but their lives tend to be more regular as the ship sails across the ocean. Thus, generally speaking, their fatigues are not as serious as that of seafarers on the ships of domestic or near-sea routes. It is worth mentioning that high pay is one of the key incentives pushing seafarers to work at sea (Guo and Liang, 2009), and usually the salary for those to serve in an ocean-going route is much higher than other routes. In addition, as ocean-going ships are often larger in size, the living space for seafarers is relatively more comfortable than that on

domestic and near-sea sailing ships. To sum up, interns aboard ships of ocean-going route have higher intentions to remain in the same shipping company to serve than those peers having internships on domestic and near-sea sailing ships.

### **2.2.2 Internship length**

Nowadays to work at sea is not as easy and happy as in the old days (Guo et al., 2006). In other words, the current seafaring provides a work environment not easy for seafarers to adjust. From the viewpoint of the P-E fit, it is not easy to achieve a high level fit between an individual and seafaring environment unless there is a very strong motive to support from behind (such as to improve family livelihood). However, regardless of having a strong motive or not, each intern must face the work context at sea which is so much different from that at land. De Cooman et al. (2009) pointed out that the longer one stays in an organization, the higher compatibility one feels in the organization. Therefore, it can be concluded that the longer the internship term for navigational students, the more familiar they become with the shipping company's culture and property. This would further enhance their recognition of fitting into the shipping company. To sum up, interns with six months internship term would have higher intentions to remain in the same company to serve than peers with two months internship term.

### **2.2.3 Ship type**

Merchant ships have different types including container ships, bulk cargo ships, oil tankers, chemical tankers, general cargo ships and passenger ships. Different ships operate somewhat differently which in turn affects seafarers' life style. For example, Alderton and Winchester (2002) pointed out that in recent years the appearance of container ships has the most significant impact on the work pattern of seafarers. As ships spend much less time to stay in ports, seafarers' works are highly concentrated during the berthing period. Also as large oil tankers have a deep draft, most oil loading/discharging operation is done offshore and seafarers

have less opportunity to go on shore to enjoy leisure time than peers working on other types of ships. Based on this, it is concluded that ship type is probably a factor to affect interns' work attitude on ships.

According to the statistic of the Institute of Shipping Economical and Logistics (ISL), the cargo loading capacity of container fleet owned by Taiwan's shipping company ranks as high as the top 5 globally. This indicates the superiority of Taiwan's container shipping companies. Among them, Evergreen, Yang Ming and Wan Hai are the three most famous ones. Unsurprisingly, the salary for seafarers working on a container ship is higher than their peers working on other types of ships. Therefore, most navigational students would choose to work on container ships as their priority (Lin et al., 2007). After all, people choosing to work on ships mainly consider earning a better salary than what a job at land can offer (Alderton and Winchester, 2002). In other words, salary is a very important factor for seafarers to choose a shipping company. Thus, we infer that interns working on container ships would have higher intentions to remain in the same company to serve than their peers working on other types of ships.

#### **2.2.4 Ship age**

Ship age implies the good or bad living condition on a ship. Older ships offer worse living facilities, and even the safety of crew members is likely to be threatened. Over the past two decades, as the socio-economic standard improved in Taiwan, young men's will to work on a ship is very much less than before. Even if they choose to do so, their spirit in taking on hardship is also worse than their predecessors (Tian and Yeh, 2007). When a student is assigned to have internship on an aged merchant ship, the old living space plus a work environment that has a potential safety threat would make the student feel that he/she is deeply incompatible with the shipping company's property and in turn the student's intentions to remain in that company after graduation may not be too high. This



situation is consistent with De Cooman et al. (2009), who suggested that, when the sense of value of a newcomer does not fit into that of an organization, it is very probable that he/she would leave the organization. Based on the above, we infer that interns working on aged ships would have fewer intentions to remain in the internship company to serve after graduation than their peers working on newer ships.

### **2.2.5 Seafaring diversity**

As indicated by Guo, Liang, and Ye (2005), the shipping industry in Taiwan has broken its past pattern of recruiting seafarers of single nationality, and has followed the trend of traditional maritime countries to have a job market pattern composed of seafarers of multiple nationalities. For navigational students having being in a campus environment, to work in an environment mixed with seafarers of multiple nationalities is such an experience that they've never had before. Therefore, when a navigational student enters the internship site composed of crew members of multiple nationalities, the impact of reacting to social intercourse and adapting to the scenarios on the scene is nothing small particularly situated on a ship with more foreign crew members. As mentioned before, even though newcomers tend to choose environments more compatible with themselves when they search for jobs (Cable and Judge, 1996), for navigational students, however, it is not their say as to which ship to board for their internship term. That is, there is no way for them to tell whether they would fit into the work environment before they really enter the site. Thus, if students feel that they are not compatible with the environment, their work attitude on the ship would probably be affected (Cable and Judge, 1996), and consequently, this negative interaction may affect students' intentions to remain in the internship company to serve in the future.

To sum up, we infer that work context including route, internship length, ship type, ship age and seafaring diversity would all affect interns on their intentions to

remain in the internship company to serve. Thus, the following hypothesis is proposed:

H2: Interns working on ships of ocean-going route, container ships, newer ships, ships with less seafaring diversity and working for a longer internship term are likely to have higher intentions to remain in the internship company to serve than those working on ships of domestic and near-sea route, non-container ships, older ships, ships with more seafaring diversity and working for a shorter internship term.

### **2.3 Organizational socialization and intentions to remain**

Taormina (1994, 1997) defined the organizational socialization as “the process by which a person secures relevant job skills, acquires a functional level of organizational understanding, attains supportive social interactions with coworkers, and generally accepts the established ways of a particular organization”. When a staff enters an organization, the socialization process would continue to affect the P-O fit (Kristof, 1996). For a navigational intern, the socialization process experienced on the ship would probably also affect one’s recognition as to whether one fits the environment and further affect one’s intentions to remain in the internship company after graduation. In other words, the better the socialization process one experiences on the ship during internship term, the stronger one’s intention to remain in the internship company to serve after graduation. This inference can be supported from the research results of Guo et al. (2006). That is to say, shipping company’s recruitment reputation would affect seafarers’ organizational commitment, and their intentions to stay would also be influenced

indirectly through their organizational commitment.

Schneider's (1987) Attraction-Selection-Attrition (ASA) model pointed out that people are not being randomly placed in an organization, but rather it is people's choice whether to enter or leave the organization. In other words, people would choose to stay in a work environment that fits oneself (Cable and Judge, 1996). However, currently navigational students in Taiwan are not able to choose a shipping company for internship at one's will. Therefore, interns sitting in different companies and different ships are very likely to experience different interaction and therefore different levels of socialization. To sum up, the reason for interns who encounter different work context on different ships to have certain various levels of intentions to remain in the internship company is partly due to this socialization mechanism. Thus, the following hypothesis is proposed:

H3: Organizational socialization would mediate the relationship of work context with intentions to remain

#### **2.4 Organizational socialization, seafaring commitment and intentions to remain**

According to the vocational development theory (Super, 1953), people would choose a career that matches one's self-concepts. Holland (1973) considered that the fit between one's character and work environment is the basis for one to choose a career. Obviously, the fit between one's character and work environment may be able to predict one's career choice, however, one's recognition to the fit between one's character and work environment may be affected by the organizational socialization process one experiences. That is, when one has a poor interaction with

people and things in a work environment, one may have a self consciousness of incompatibility with the property in that environment particularly in the seafaring which is a special field entirely different from vocations at land. Living in a narrow space, seafarers may receive even stronger impact of the socialization process than that from a work at land. For example, when an intern does not get along with some crew members, he/she may have a negative view about the seafaring career. On the other hand, when an intern gets along very well with people and things aboard, his/her intentions to go on with the seafaring career after graduation is probably much higher than the former example. Thus, the following hypothesis is proposed:

H4: The better organizational socialization process an intern experiences aboard, the higher the intern's seafaring commitment

Moreover, since person-vocation fit (P-V fit) is the important antecedent of person-organization fit (P-O fit) (Feldman and Ng, 2007), hence, we infer that seafaring commitment (sign of P-V fit) for navigational students affect their intentions to remain (sign of P-O fit). As mentioned above, the socialization process interns experience on ships would also affect their seafaring commitment. Therefore, we argue that the relationship of navigational students' intentions to remain in the internship company after graduation with the organizational socialization process may be partly mediated by seafaring commitment. Thus, the following hypothesis is proposed:

H5: Seafaring commitment would mediate the effect of organizational socialization on intentions to remain

### III. Method

Based on the literature reviews and hypotheses, the proposed model of this study is illustrated as Figure 1. Our main assumption is that organizational socialization mediates the relationship of work context with seafaring commitment as well as intentions to remain. In addition, we also posit that seafaring commitment mediates the relationship of organizational socialization with intentions to remain.

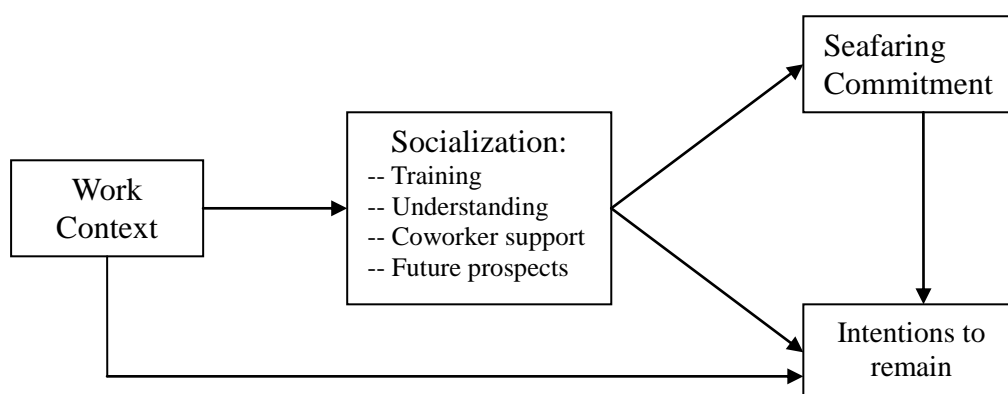


Figure 1 Proposed Model

#### 3.1 Sample and data collection

Our sample consisted of 127 navigation students from National Taiwan Ocean University. Because the shipboard internship opportunities offered by shipping companies aren't enough for all navigation students, a part of navigation students, therefore, were dispatched to land-based internships. According to internship mode and length, our sample could be divided into three groups: shipboard internship (6 months), shipboard internship (2 months) and land-based internship (2 months). As shown in Table 1, 94 students practiced their internships onboard ships in our sample, and, among them, 75 students' internships lasted for 6 months. Those who

accomplish shipboard internships with 6 months could obtain 9 credits. On the contrary, those who have only 2-month internships in the summer vacations don't gain any credits, because the internship for a minimum of two months is one of basic requirements for graduation. In addition, Table 1 presents that there are 33 navigational students have 2-month land-based internships in shipping-related companies or organizations which they look for themselves or be dispatched to by the internship department in NTOU.

In the processes of constructing the questionnaire used to collect data by this study, the author discussed frequently with two scholars who are familiar with the seafaring. Moreover, we had ever conducted the pretest for this questionnaire in one class. Thus, the questionnaire used in this study has content validity. The distributions and recovers of questionnaires were commissioned to the representatives of navigational students who had good interactions with the authors in May of 2009. In addition, we present a stationary gift for every respondent.

Table 1 Characteristics of the sample

<b>Gender</b>		<b>Ship type</b>	
Male	76 (59.8%)	Container ship	51 (54.3%)
Female	51 (40.2%)	Non-container ship	43 (45.7%)
<b>Department</b>		<b>Route</b>	
Deck	116 (91.3%)	Ocean-going	54 (57.4%)
Engine	11 ( 8.7%)	Other routes	40 (42.6%)
<b>Learning scheme</b>		<b>Ship age (years)</b>	
General	78 (61.4%)	< 6	19 (20.2%)
Vocational	49 (38.6%)	6~10	33 (35.1%)
		> 11	34 (36.2%)
<b>Internship mode</b>		N.A.	8 ( 8.5%)
Ship-based (6 months)	75 (59.1%)		
Land-based (2 months)	19 (15.0%)		
Land-based (2months)	33 (26.0%)		

N.A.: No answer for the internship ship's age.

### 3.2 Measures

#### 3.2.1 Dependent variables

The main purpose of this study is to investigate the effects of work context and organizational socialization on seafaring commitment as well as intentions to remain. Thus, our dependent variables include seafaring commitment and intentions to remain. It is worth noting that we use “intentions to work onboard ships” as the proxy of seafaring commitment. We followed Guo et al. (2006) using a single item to measure navigational students' intentions to work onboard ships and their intentions to remain in the internship company. Both dependent variables were assessed on scales of one (0% likelihood) to eleven (100% likelihood).

#### 3.2.2 Independent variables

We included five work context factors (i.e. route, internship length, ship type, ship age, and seafaring diversity) as independent variables. Route, internship length, and ship type were measured as dichotomous variables, with 1 designating ocean-going routes, container ships, and 6-month internships at sea and with 0 designating domestic or near ocean routes, non-container ships, and 2-month internships at sea. With regard to ships' ages, we requested respondents to write down the exact ages of ships they interned aboard on the questionnaires. Regarding the measurement of seafaring diversity, we imitated the method used by Guo et al. (2005). It is the square root of the summed differences between an intern's nationality and his/her core colleagues' nationalities (i.e. deck officers or engineers). The following formula was used for this calculation:

$$\left[ \frac{N_f}{N_d + N_f} \right]^{1/2}$$

Where  $N_d$  is the number of Taiwanese core seafarers (i.e. deck officers or engineers) including interns and  $N_f$  is the number of non-Taiwanese core

seafarers. For example, an intern on a ship of two Taiwanese core officers (Master and Chief Officer) with two Filipino deck officers (Second and Third Officer) would have a seafaring diversity score of .632.

### 3.2.3 Mediators

Organizational socialization is a mediator in this study. That is, we posit that work contexts are associated with organizational socialization, and then both seafaring commitment and intentions to remain are affected by work contexts via organizational socialization. We used the Organizational Socialization Inventory (OSI) developed by Taormina (1994) to measure organizational socialization onboard ships. The OSI has four dimensions: training, understanding, coworker support, and future prospects. There are five items in each dimension. In conformity to the seafaring nature, we made some minor modifications with words in measurement items under original essences.

The definitions of four dimensions in organizational socialization are as follows (Taormina, 1997). Training is defined as the act, process or method by which one acquires any type of functional skill or ability that is required to perform a specific job. A sample item is: "There are very good internship trainings onboard ships". Understanding refers to the extent to which an employee fully comprehends and can apply knowledge about his or her job, the organization, its people and its culture. "I know how to act myself as an intern" presents subscale items. Coworker Support is defined as the emotional, moral or instrumental substance which is provided without financial compensation by other employees in the organization in which one works with the objective of alleviating anxiety, fear or doubt. A sample item is: "Coworkers instruct me through various methods". Future prospects are defined as the extent to which an employee anticipates having a rewarding career within his or her employing organization. "I anticipate I can remain in the internship company in the future" presents subscale items. Responses ranged from 1 (strongly disagree) to 5 (strongly agree).



### **3.2.4 Control variables**

We included several control variables (i.e. gender, department, learning scheme, and negative affectivity) that prior research has identified as associated with seafaring commitment and intentions to remain. As revealed by Lin et al. (2007), male navigational students' intentions to work onboard ships are higher than their female colleagues. The study of Chen (2001) showed that deck students have higher intentions to work onboard ships than engineering students in Taiwan. Moreover, Guo and Liang's research (2009) found that female navigational students in vocational scheme had stronger motivations than their colleagues in general scheme in Taiwan. Gender, department, and learning scheme were measured as dichotomous variables, with 1 designating male, deck department, and general scheme and 0 designating female, engineering department, and vocational scheme.

In addition, researchers (Burke, Brief, and George, 1993; Podsakoff, MacKenzie, Lee, and Podsakoff, 2003) have argued that affectivity can affect self-report perceptions of organizational phenomenon. More specifically, negative affectivity (NA) often appears along with different constructs in the measurement process, therefore it is considered one of the causes resulting in common method variance (CMV) (Payne, 2000). Reasonably, researchers (Payne, 1988; Schroeder and Costa, 1984) advocated partialing out the effects of affectivity before testing hypotheses assessing the impact of environmental stimuli on affective reactions. Based on the above mentions, we included the NA measurement in questionnaire, so as to deal with potential CMV effects. We used a seven-item scale developed by Levin and Stokes (1989) to measure negative affectivity ( $\alpha = 0.69$ ). "The great majorities of results happening around me don't respond to my expectations" and "I will feel nervous when I meet with strangers" represent scale items. Responses ranged from 1 (strongly disagree) to 5 (strongly agree).

### **3.3 Data analysis**

We conducted hierarchical multiple regression analyses (Cohen and Cohen, 1983) to examine the mediating role of organizational socialization on the work context–seafaring commitment relationship as well as the work context–intentions to remain relationship. In addition, we also investigate the mediating effect of seafaring commitment on the relationship of organizational socialization with intentions to remain. Gender, department, learning scheme, and negative affectivity (NA) were entered in the first step to control for their potentially spurious effect. The main effect terms were entered in step 2. In step 3 and step 4, we entered mediators into regression modes. It is worth noting that the mediating effects must base on the suggestions of Baron and Kenny (1986).

We also provide collinearity diagnostics. Specifically, this study calculated variance inflation factor (VIF) scores, which measure the extent to which collinearity among predictors affects the precision of regression model in each step. Variation inflation is the consequence of multi-collinearity. VIF scores less than 10 are typically considered acceptable (Hair, Anderson, Tatham, and Black, 1998). Through collinearity diagnostics, VIF scores of all predictors in Table 4 are less than 3. It signifies that there isn't any multi-collinearity in the regression models.

## **IV. Results**

### **4.1 The relationships among internship modes, seafaring commitment and intentions to Remain**

As shown in Table 2, these mean seafaring commitment of navigational students who participated in different internship modes are 7.73, 7.16 and 5.88, respectively. The ANOVA results reveal that these mean seafaring commitment of navigational students mentioned above are significantly different indeed ( $F=5.087$ ,  $p=0.008$ ). Through the Post Hoc analysis, results show that these seafaring commitments of navigational students who participated in 6-month shipboard

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internships are significantly higher than those participated in land-based internships; however, there's no significant difference in terms of seafaring commitment between 6-month and 2-month shipboard interns. Moreover, T-test results show that the mean seafaring commitment of navigational students who participated in shipboard internships is significantly higher than those participated in land-based internships ( $p=0.002$ ). In sum, the above analysis results basically support the Hypothesis 1.

In addition, this study compares shipboard interns' seafaring commitments to their intentions to remain (in the internship companies). The analysis results (Table 2) show that seafaring commitment of navigational students participated in 6-month shipboard internships is higher than their intentions to remain, though the difference doesn't reach significant level. However, the seafaring commitment of those experienced 2-month shipboard internships is almost significantly higher than their intention to remain ( $p=0.06$ ). The analysis results appear as though shipboard internships bring negative effects on navigational students' views regarding their internship companies. This also signifies navigational students' socializations aboard result in different effects between their seafaring commitment and intentions to remain. That is to say, interns' perceived fit with seafaring (P-V fit) and internship companies (P-O fit) are influenced differently by their socializations aboard.

Table 2 Comparisons of Seafaring commitment and Intentions to remain

Internship mode		Seafaring commitment		Intentions to remain		T test
		<i>M</i>	<i>S.D.</i>	<i>M</i>	<i>S.D.</i>	Mean Diff.( <i>P</i> -value)
Ship	6 months	7.73 (a)	2.517	7.64 (d)	2.497	a-d: 0.09 (0.69)
	2 months	7.16 (b)	3.270	5.11 (e)	3.695	b-e: 2.05 (0.06)
Land	2 months	5.88 (c)	3.059	---	---	---
Post Hoc test	Mean Diff. ( <i>P</i> -value)	a-b: 0.57 (0.724)		d-e: 2.54 (0.01)		---
		a-c: 1.85 (0.008)				
		b-c: 1.28 (0.284)				

### 4.2 The relationships among work context, seafaring commitment and intentions to remain

Table 3 presents the means, standard deviations, and correlations among the study variables. Results show that all correlation coefficients between intentions to remain and four work context variables (i.e. route, internship length, ship type, and ship age) are significant ( $p < 0.05$ ). These correlation coefficients are positive except the coefficient between intentions to remain and ship age. This result basically reveals that intentions to remain of navigational students who interned on ocean-going routes, containerized and new ships as well as who had 6-month shipboard internships are higher than those possessed by other interns. In addition, Table 3 also shows that seafaring commitment significantly related to ship type (one of these four work context variables) ( $p < 0.01$ ); however, there aren't any significant relationships between seafaring commitment and the other three variables of work context. This result preliminarily implies that seafaring commitment of navigational students interned on container ships are higher than those possessed by other interns. Moreover, there aren't differences regarding seafaring commitment among navigational students who interned onboard ships of different routes and ages, as well as had different internship lengths. Further, these correlation coefficients between seafaring diversity and intentions to remain as well as seafaring commitment aren't significant. It seems that navigational interns' work-related attitudes aren't influenced by seafaring diversity aboard.

To further investigate the effect of work context upon interns' seafaring commitment as well as intentions to remain, we conduct it through hierarchical regression analysis. As shown in Table 4, we use intentions to remain as dependent variable. The control variables (i.e. gender, department, learning scheme, and negative affectivity) were entered first, then added the work context variables (i.e. route, internship length, ship type, ship age, and seafaring diversity) as independent variables in step 2. As shown in model 6, results present that the coefficients for route and ship type both reach significant levels ( $p < 0.01$ ). The results imply that intentions to remain of navigation students interned on ocean-going and container ships are higher than those possessed by other interns partialling out the effects of

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gender, department, learning scheme, and negative affectivity. With regard to the effects of internship length and ship age, they doesn't significantly relate to interns' intentions to remain. In sum, the results mentioned above partly support the Hypothesis 2.

Additionally, we use seafaring commitment as dependent variable. The control variables were entered first, and then added work context variables as independent variables in step 2. As shown in model 5, results show that the regression models' F values of step 1 & 2 aren't significant ( $p > 0.05$ ). Therefore, even though the coefficient of ship type in step 2 reach significant level ( $p < 0.05$ ), there aren't any statistical meanings overall. That is, no matter what kind of work context navigation students were dispatched to, there aren't significant differences among their seafaring commitment revealed after the accomplishment of shipboard internships.

### **4.3 Effects of organizational socialization on intentions to remain**

Table 3 shows that correlation coefficients between four dimensions of organizational socialization (i.e. training, understanding, coworker support, and future prospects) and intentions to remain are 0.27, 0.21, 0.30, and 0.66, respectively, and all these coefficients reach significant levels ( $p < .05$ ). The results preliminarily reveal that the better navigation students undergo organizational socialization aboard, the higher they possess intentions to remain in the internship companies after graduations.

Table 3 Means, Standard Deviations, and Correlations<sup>a</sup>

	<i>M</i>	<i>S.D.</i>	$\alpha$	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Gender	.60	.49															
2.Department	.99	.94		-.18*													
3.Learning Scheme	.61	.49		-.03	.19*												
4.Negative Affectivity	3.13	.55	.69	.08	-.09	-.09											
5.Route	.57	.50	---	-.24*	-.05	-.31**	.02										
6.Intern length	.80	.40	---	-.18	-.19	-.48**	.08	.26*									
7.Ship type	.46	.50	---	-.36**	-.07	-.06	-.03	-.16	.25*								
8.Ship age	10.22	6.18	---	.12	.16	.23*	.16	-.45**	-.14	-.34**							
9.Diversity	.16	.23	---	.01	-.13	-.14	.30	-.01	.13	.07	-.10						
10.Training	3.37	.62	.77	.02	-.11	-.07	-.23*	.20	.18	.16	-.31**	.08					
11.Understanding	3.66	.50	.57	-.04	-.08	-.17	.04	-.01	.21*	.07	-.10	-.04	.33**				
12.Coworker support	3.96	.53	.84	-.19	-.06	-.02	-.12	-.07	.02	.17	-.03	.02	.37**	.33**			
13.Future Prospects	3.21	.72	.75	-.15	-.11	-.16	-.13	.11	.17	.40**	-.21*	.10	.34**	.19	.30**		
14. Intentions to remain	7.13	2.94	---	-.31**	-.17	-.15	-.01	.26*	.35**	.52**	-.25**	.10	.27*	.21*	.30**	.66**	
15. Seafaring commitment	7.17	2.87	---	-.01	-.06	-.10	.05	-.01	.09	.24**	.05	.03	.21*	.06	.35**	.46**	.51**

<sup>a</sup>  $N = 94\sim 127$ ; \*  $p < .05$ ; \*\*  $p < .01$ .

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Table 4 Results of Regression Analysis<sup>a</sup>

Independent Variables	Model 1: Training		Model 2: Understanding		Model 3: Coworker Support		Model 4: Future Prospects		Model 5: Seafaring Commitment			Model 6: Intentions to Remain				
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 4	
<b>Step 1: Controls</b>																
Gender	.01	.16	.02	.03	-.23 <sup>+</sup>	-.15	-.21 <sup>+</sup>	.05	-.29*	-.14	-.13	-.36**	-.04	-.04	.00	
Department	-.09	-.02	.00	.02	-.15	-.10	-.16	-.06	-.14	-.10	-.05	-.27*	-.17	-.12	-.01	
Learning Scheme	-.08	.04	-.17	-.10	.06	.02	-.08	-.10	.15	.11	.13	.03	.09	.14	.11	
Negative Affectivity	-.28*	-.24*	-.01	.02	-.10	-.12	-.16	-.17 <sup>+</sup>	.10	.06	.18 <sup>+</sup>	-.04	-.05	.05	.00	
<b>Step 2: Main effects</b>																
Route		.20		-.16		-.02		.26 <sup>+</sup>		.16	.03		.38**	.26*	.25**	
Intern length		.13		.23 <sup>+</sup>		-.02		-.06		-.02	.01		.09	.12	.11	
Ship type		.19		-.04		.21		.56**		.35*	.06		.60**	.30*	.28*	
Ship age		-.14		-.14		.08		.13		.24	.16		.16	.08	.03	
Diversity		.05		-.07		.10		.10		.08	.03		.06	.00	.00	
<b>Step 3: Mediators-1</b>																
Training											.10			-.02	-.05	
Understanding											-.09			.04	.07	
Coworker support											.24*			.17 <sup>+</sup>	.10	
Future Prospects											.39**			.49**	.38**	
<b>Step 4: Mediators-2</b>																
Seafaring commitment																.29**
<i>F</i>	1.83	2.12*	.58	.78	1.32	1.00	2.09 <sup>+</sup>	3.19**	1.65	1.44	3.10**	3.32*	5.29**	9.30**	10.73**	
Adj. R <sup>2</sup>	.04	.11	----	----	.02	----	.05	.19	.03	.05	.25	.10	.32	.57	.62	
Δ R <sup>2</sup>		.07 <sup>+</sup>		----		----		.14**		.01	.20**		.25**	.25**	.05**	

<sup>a</sup> N = 94; <sup>+</sup> p < .1; \* p < .05; \*\* p < .01.

This study further investigates the effect of organizational socialization upon intentions to remain. As shown in model 6 (Table 4), we enter together the four dimensions of socialization into the regression model in step 3. Results reveal that the standardized regression correlations of two dimensions of socialization (i.e. future prospects and coworker support) are 0.49 ( $p < .01$ ) and 0.17 ( $p < .1$ ), respectively. This implies that navigation students have higher future prospects upon internship companies as well as get more coworkers' supports aboard, and then they would possess the stronger intentions to remain in the internship companies after graduations.

We further verify the mediate effect of socialization on the relationship between work context and intentions to remain. According to the study of Baron and Kenny (1986), the mediate effect of socialization must base on the following three conditions: (1) The effect of work context on intentions to remain is significant; (2) The effect of work context on socialization is significant; (3) The effect of socialization on intentions to remain is significant while socialization is added together with work context as independent variables, and then reduce the effect of work context on intentions to remain. Thus, we test gradually these conditions mentioned above.

Firstly, as shown in model 6 (Table 4), the effects of route and ship type on navigational students' intentions to remain are significant while the standardized regression coefficients are 0.38 ( $p < 0.01$ ) and 0.60 ( $p < 0.01$ ), respectively. The results correspond with the first condition mentioned above. Secondly, as shown in model 4 (Table 4), the effects of route and ship type on the 'future prospects' dimension of socialization are significant while the standardized regression coefficients are 0.26 ( $p < .1$ ) and 0.56 ( $p < .01$ ), respectively. This corresponds with the second condition mentioned above. Finally, as shown in step 3 (model 6), the standardized regression coefficient of the 'future prospects' dimension is 0.49 ( $p < .01$ ) when four dimensions of socialization are added together with work context



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as independent variables. Moreover, the 'route' variable's standardized coefficient reduces from 0.38 (step 2) to 0.26 (step 3) in the meanwhile the 'ship type' variable's standardized coefficient reduces from 0.60 (step 2) to 0.30 (step 3). The results correspond with the third condition mentioned above.

In sum, the analysis results reveal that the 'future prospects' dimension of socialization could partially mediate the relationship between work context (i.e. route and ship type) and intentions to remain. That is, the partial reasons why navigation students interned on ocean-going routes and container ships have stronger intentions to remain in the internship companies after graduations are they have more future prospects upon promotions, salaries and career developments in those companies. In short, the analysis results mentioned above basically support the Hypothesis 3.

### **4.4 The mediate effect of seafaring commitment**

Table 3 presents that correlation coefficients between four dimensions of organizational socialization (i.e. training, understanding, coworker support, and future prospects ) and seafaring commitment are 0.21, 0.06, 0.35 and 0.46, respectively, while all these coefficients are significant ( $p < .05$ ) except for the dimension 'understanding'. The result preliminarily shows that organizational socializations onboard internship ships could influence navigation students' seafaring commitment. We further investigate the exact effects of organizational socializations on seafaring commitment. As shown in Model 5 (Table 4), we enter the four dimensions of organizational socialization into regression model in step 3. Results reveal that the standardized coefficients of 'coworker support' and 'future prospects' are 0.24 ( $p < .05$ ) and 0.39 ( $p < .01$ ), respectively. This implies that navigational students who had more coworkers' supports and possessed higher future prospects upon internship companies could have stronger seafaring commitment, even though partialling out the effects of individuals' characteristics and work context. That is, the analysis results basically support the Hypothesis 4.

It is worth noting that, as shown in the step 2 of Model 5 (Table 4), there aren't significant effects of work context on seafaring commitments. Therefore, according to the study of Baron and Kenny (1986), the effect of organizational socialization doesn't influence the relationship between work context and seafaring commitment. In other words, no mediate effects of organizational socialization exist between work context and seafaring commitment.

Then we enter seafaring commitment into regression model, as shown in the step 4 of Model 6 (Table 4). The result reveals that the standardized regression coefficient of seafaring commitment is 0.29 ( $p < .01$ ), in the meanwhile the standardized coefficients of 'coworker support' and 'future prospects' reduce from 0.17 ( $p < .1$ ) to 0.10 ( $p > .1$ ) and from 0.49 ( $p < .01$ ) to 0.38 ( $p < .01$ ), respectively, in step 3. Moreover, as shown in the step 3 of Model 5 (Table 4), the standardized coefficient of 'coworker support' and 'future prospects' upon seafaring commitment are 0.24 ( $p < .01$ ) and 0.39 ( $p < .01$ ), respectively. In short, the mediator's role of 'seafaring commitment' on the relationship between work context ('coworker support' and 'future prospects') and 'intentions to remain' correspond to the requirements suggested by Baron and Kenny (1986). In the meanwhile, the analysis results discussed above basically support the Hypothesis 5.

## V. Discussion

Internship is a socialization process for school students to experience before entering the job market. Through internship, students may better understand whether they are suitable for the vocational field. This paper explores the mechanism that affects navigation students' seafaring commitment as well as their intentions to remain in the internship company by looking into the work context and organizational socialization process that interns experience aboard. Empirical analysis results largely support the hypotheses proposed in this paper. The research results are briefly described in the following five conclusions: (1) Those having

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completed internship at sea have higher seafaring commitment than peers participating in land-based internships, however, there is no significant difference in terms of seafaring commitment between an internship term of two months and six months; (2) Compared with peers working on ships of other routes and non-container ships, interns working on ships of ocean-going route and container ships have higher intentions to remain in the internship company after graduation; (3) Interns working on ships of ocean-going route and container ships have higher future prospects on the shipping company which in turn raises their intentions to remain in the internship company after graduation; (4) Interns receiving more supports from coworkers during internship term and having higher future prospects on the internship company have higher seafaring commitment; (5) Navigation students' seafaring commitment mediate the effect of organizational socialization (coworkers' support and future prospects) on their intentions to remain after graduations.

This study found that navigation students interned on ocean-going route and container ships have higher intentions to remain in the same company to serve than peers interned on other routes and non-container ships. Even the influence of socialization mechanism has been considered, route and ship type are still the two most significant factors to affect navigational students' intentions to remain after graduation. It is obviously enough that companies running ocean-going routes and container shipment would have better chance than other shipping companies to recruit maritime talents required. This may partly results from a higher salary offered to work on ships of ocean-going route and container ships. But as the research results of Guo et al. (2006) indicated, a good recruitment reputation of a shipping company would increase seafarers' organizational commitment and their intentions to stay. Therefore, those shipping companies not running ocean-going routes or container shipment may start to raise their recruitment reputation in order to steer their way out of the predicament of serious domestic seafarer shortage.

As indicated by De Cooman et al. (2009), the socialization process is to describe a force that promotes self-perception of adjustment. This study found that students receiving more support from coworkers aboard ship and having higher future prospects on the shipping company not only have higher seafaring commitment, but also have higher intentions to remain in the same company to serve after graduation. This research result implies that if a shipping company wants to avoid the problem of a low return rate from interns, it may try in two ways: one is to build a friendly work environment for newcomers (interns). A mentor system could be one of the measures to take; another is to raise recruitment reputation so that newcomers have higher future prospects on the company's promotion, salary and career development systems.

In addition, we confirmed that students' seafaring commitment will mediate the effect of organizational socialization on their intentions to remain in the same company to serve. This result implies that if a shipping company wants to facilitate interns to come back and serve after graduation, besides offering good salary, friendly work environment and fine recruitment reputation, it can also start from selecting students who have higher seafaring commitment. As pointed out in prior study (Guo et al., 2006), to improve family livelihood is a key motive for navigational students to choose to work aboard ships, therefore, to select students who have higher consciousness for home financial improvement should be an effective way for shipping companies to make up the domestic seafaring manpower shortage.

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