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## EXPERIENTIAL LEARNING IN MARITIME EDUCATION: MOVING BEYOND BOUNDARIES

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**Abstract.** The International Maritime Business (IMB) program at Massachusetts Maritime Academy (MMA) was recently accredited by IACBE (International Assembly of Collegiate Business Education). In their decision letter, IACBE commended the program for weaving current practice in the industry into the curriculum through various experiential learning processes. This included cooperative education, a mandatory sea term and various exchange program opportunities. As the shore based maritime jobs become more demanding with regard to proficiency in business and management strategies, information technology, safety and security related issues, environmental protection and awareness of cross cultural dynamics, such experiential learning opportunities emerge as key components in the curriculum of a maritime business program. This is also critical because, although the seafaring side of the shipping industry experiences a cultural immersion due to their job description as they visit various ports around the world, the shore side maritime professionals are generally recruited from the corporate headquarters with little cross pollination. A shore side vessel operator may have very little understanding about the cultural dimensions of a multinational crew aboard a vessel as a consequence. However, due to increasing enrollment and enhanced demand for license track majors, beginning in 2016, IMB students will no longer be able to participate in the sea term. We needed to take corrective action in the curriculum design in order to compensate this loss of an important piece of experiential learning. This paper explores the corrective strategy and evaluates the various experiential learning options that are now available to our students who end up working on the shore side of the maritime industry. Specific initiatives undertaken by the IMB program at MMA are discussed in detail.

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## 1 INTRODUCTION

Just as planes and pilots do not represent the entire commercial aviation industry, similarly, just ships and seagoing professionals do not represent the commercial maritime sector in its entirety. It is important that we recognize the role of the shore based maritime professional for the smooth functioning of this industry. Some of the key personnel on the shore side are maritime educators, shipping management professionals, brokers, freight forwarders, emergency management personnel, environmental protection experts, surveyors, loss adjustors, ship builders, naval architects, parts and repairs providers, logistics providers in ports and inland transportation etc. This is by no means an exhaustive list but provides some understanding of the significant support system that needs to exist on the shore side for the safe and efficient operation of ships. Every day, thousands of vessels sail the waterways of the world but the real journey does not begin and end in a port and on a ship. It begins with the demand for a product in one corner of the world and the supply coming from another, and is accomplished by various professionals in complementary roles involved in this journey. A manpower study in Singapore that was jointly commissioned by the Maritime and Port Authority of Singapore (MPA) and the Ministry of Manpower (MOM)/Workforce Development Agency (WDA) in June 2003, showed that there were about 116,800 persons employed in the Singapore maritime industry. Of these, about 70% were engaged in shore-based employment, while 30% were sea-going personnel. The shipping management sector, ship chartering, ship agencies and ship-broking activities, happened to be the largest employment sector, absorbing about 40% of the maritime workforce. The specific segments with the highest employment growth were considered to be shipbuilding and repair, freight forwarding, shipping management and cargo terminals. Although this is relevant for a single nation, the study demonstrated the tremendous significance of efficient shore side support for the maritime sector. Singapore happens to be a leading hub port of the world, handling 580.8 million tonnes of cargo, and a container throughput of 33.9 million TEUs in 2014 as mentioned in a report published by the Maritime and Port Authority of Singapore (2014).

In the study, 'A vision for the 21<sup>st</sup> century', the US Maritime Administration (2007) recognizes the importance of transitioning into seamless door to door service from just port to port service to meet the current demands of the marketplace. In the report, marine transportation is considered to be 'a system of systems' an integrated global network, focused on efficiency, safety, security and environmental protection.

Although these trends are quite significant, very often, when we have a discussion on maritime training and education, we focus only on the seafaring side.

Also, shipping is a truly global business. However, much of the maritime training takes place within national boundaries in a mono-cultural environment. This paper outlines the various experiential learning initiatives undertaken by the International Maritime Business program (IMB) at Massachusetts Maritime Academy (MMA) that focus on meeting the education needs of the shore based maritime professional in a truly global context.

Section 2 provides a brief background of experiential learning programs in colleges and universities in the US with a special focus on maritime colleges. Section 3 discusses the motivation behind the development of an experiential learning piece in the IMB curriculum at MMA. The existing and upcoming experiential learning initiatives are discussed. Section 4 provides conclusions.

## 2 EXPERIENTIAL LEARNING IN THE US MARITIME CONTEXT

In its simplest form, experiential learning means learning from experience or learning by doing.

"Experience and Education" (John Dewey, 1938) serves as a foundation piece of literature when discussing experiential learning. Dewey's philosophy points out that the strict authoritarian approach of traditional education was overly concerned with delivering preordained knowledge, and not focused enough on students' actual learning experiences. In Dewey's experiential learning theory, everything occurs within a social environment. Knowledge is socially constructed and based on experiences. The experiences are based on the capabilities and readiness of the learners. Upon completion of the experience, learners have the knowledge and ability to apply it to different situations, thus creating new knowledge.

The history of post secondary education in the U.S., and the role of experiential learning in its improvement are discussed in detail by Keeton (1976). Topics of discussion include: the relationship of experiential learning to individuals' information processing, the need to clarify objectives, and the potential effect of new educational objectives on teaching and institutions of higher education. The cost effectiveness of experiential learning and implications for university administration are also discussed. The book discusses the assessment of experiential learning, recommends standards for assessment, and suggests approaches for the improvement of assessment practices.

David A. Kolb, in his seminal work defined the theories and principles of experiential learning pedagogies

(Kolb, 1984) and explained the dynamic process of learning through doing. He believed that effective learning involves four different kinds of abilities—concrete experience abilities, reflective observation abilities, abstract conceptualization abilities and active experimentation abilities. In the decades since the publication of Kolb's thesis on experiential learning, there have been trends in colleges and universities in the United States that are increasingly supporting curricula and programs that promote academic experiential learning. The United States Department of Education notes that higher education credit can be awarded for experiences and training obtained outside the higher education system. Common examples include credit for military training programs, employer training and certification and refresher training done as part of the requirements of professional associations and licensing authorities. Credit can also be earned for self-study and other experiences that provide evidence of learning under some circumstances.

Many colleges and universities in the US now have Office of Experiential Learning such as the University of Central Florida where each year, over 20,000 students participate in co-op, internships and service learning. Experiential Learning collaborates with academic and student development departments on campus to provide integrated programs so that all constituencies can benefit from participation. With this approach, the academic and development needs of students, the instructional and research needs of faculty, and the workforce competency needs of employers can all be met.

The University of Denver has an Experiential Learning Center which promotes development of knowledge, skills, and values from direct experiences outside a traditional academic setting. Experiential learning encompasses a variety of activities including internships, service learning, undergraduate research, study abroad, and other creative and professional work experiences.

However, the types of experiential activities vary according to the institutional priorities, and available resources. Whether it is the 'Theory-Practice Learning' initiative at Emory University, 'Office of Service-Learning' at Bentley University, 'Office of Fieldwork' at Vassar College or 'Community Based Learning Program' at Mt. Holyoke, the trend of awarding academic credits for various initiatives where academic study is combined with real world experiences and/or service activities that address community needs, is gaining momentum.

The experiential learning piece is an integral element of the curriculum in maritime colleges in the US. The International Convention on Standards of Training, Certification and Watch-keeping for Seafarers (STCW)

1978, as amended in 1995 and again in 2010, sets standards that govern the award of certificates and controls watch-keeping arrangements. Its provisions not only apply to seafarers, but also to ship-owners, training establishments and national maritime administrations.

A maritime licensed officer must meet minimum requirements in respect of standards of competence and seagoing service time. The officer should possess a valid certificate of competence according to rank and functions on-board. Thus an experiential learning element of sea going service time in a training vessel or a commercial ship is a critical degree requirement for seagoing officers. The United States Maritime Administration (MARAD) provides limited funding to the six State Maritime Academies (SMA's): California Maritime Academy, Maine Maritime Academy, Massachusetts Maritime Academy, Great Lakes Maritime Academy, Texas A&M Maritime Academy, and the State University of New York Maritime College. It also supports the United States Merchant Marine Academy (USMMA), a federal service academy that educates and graduates licensed Merchant Marine officers. MARAD also provides training vessels to all six State maritime academies and USMMA for use in at-sea training and as shore-side laboratories. The vessels are part of the Maritime Administration's assistance to the academies to train highly qualified licensed officers.

### 3 MASSACHUSETTS MARITIME ACADEMY EXPERIENTIAL LEARNING INITIATIVES

The sea going license track students of MMA complete their sea going experiential training aboard the training vessel T.S. Kennedy and other commercial shipping voyages. A minimum of 180 sea-time training days, established by the U.S. Coast Guard (USCG), are required of all students seeking a license as a Third Assistant Engineer. The cruises are accomplished in the following order on the following vessels: Academy training ship, training or commercial ship followed by Academy training ship. The USCG 3rd Mate license candidates will be required to complete 365 days sea time. This experiential element is an integral part of the academic curriculum for the license track programs and carries credit for graduation.

However, a non license track shore based major like IMB also has a significant experiential learning component. This major prepares graduates to enter the maritime shipping and transportation industry as a business professional. The emphasis on curricular design is aligned to the educational philosophy of the Academy: Learn-Do-Learn. The original framework of the curriculum was based on the following model.

Through academic coursework, students learn the concepts and principles of international maritime business. They then apply this learning in a professional context during sea-term and internships. In order to graduate, students need to complete a minimum of two internships. Based upon that experience, students then improve and adapt their understanding of the concepts and theories of maritime business. The academic curriculum includes courses in economics, finance, accounting, business of shipping, supply chain management, chartering and brokerage, marine insurance, admiralty law, international business, negotiations and organization management. It also includes a capstone seminar in international maritime business during the senior year.

Originally, the curriculum was designed with a practical component of one freshman sea term and two internships. The common freshman sea term gave students the opportunity to cycle through the offerings of various departments so that they get the whole picture of the maritime industry. During sea term, each student took classes in Marine Transportation, Marine Engineering, International Maritime Business, Marine Safety and Environmental Protection and Emergency Management. They also stood deck and engine watch and engaged in shipboard maintenance. However, due to the increasing enrollment and enhanced demand for license track majors, beginning in 2016, non-license track majors like IMB will no longer be able to participate in the six credit sea term. This difficult yet unavoidable decision took away a critical experiential learning piece of the IMB program.

The displacement of IMB Freshman students from the common freshman sea term came at a critical juncture after a successful IACBE accreditation bid. The IMB Department had serious concerns about losing the freshman sea term as several IMB students find employment opportunities in oil drilling rigs, supply vessels, as well as several shipping companies where employers consider this experience to be critically important. However, a successful business professional always responds to change efficiently and turns it into an opportunity. As a department, we had to carefully consider restructuring our curriculum in response to this change and use input from employers, Advisory Board and the recent accreditation exercise to propose a curriculum alteration that was approved by college governance.

Given that students in the IMB program have an understanding of general business courses as well as specialized maritime business related knowledge, we have typically placed students in both maritime as well as general business sectors. The employers highly value internships. They also believe that an international experience and immersion in a foreign culture would enhance the skill set of an international business student.

A sea term is important to a shipping company that hires an IMB student. Keeping in mind this diversity in preference pattern of our employers, we proposed the following:

- An upper class maritime –OR– international experience:

Rather than a required sea term experience for all freshmen, for which there was no room on the ship, IMB students will be required to engage either in an upper class sea term experience or an upper class international experience. Both will be worth six credits.

- i. International Experience: After completing some introductory instruction and orientation, students will travel abroad for three to five weeks on a faculty-led program that introduces them to other cultures and includes visits to shipping business and maritime infrastructure in other countries. This could also include spending the time in a foreign maritime institution completing six credits of coursework.
- ii. Sea Term Experience: This program will allow a few juniors (or seniors in some cases) to sail aboard the training ship during the traditional sea term. They will be engaged in an IMB-specific training program both while underway and ashore (with visits to shipping business and maritime infrastructure in the ports of call) with faculty supervision. This program will provide them vital maritime experience that is relevant to IMB maritime related positions.

The IMB program has developed a few exciting international experiential learning opportunities and more are on the way. We believe that it would be much wiser to take smaller groups of mature students who are either juniors or seniors and have some understanding of the subject matter to have a meaningful learning experience in various capacities. Of the two options mentioned above, the international experience will require considerably more advance preparation and resources. This experience will help students develop their cross-cultural and global awareness by visiting other countries. It will also provide them an opportunity to observe international maritime business in practice at various ports and related maritime interests. It ties in nicely with MMA's Learn-Do-Learn model.

IAMU provides a wonderful platform for collaborative initiatives in this regard. As we continue to design and develop the international experiential learning piece, we can enhance our partnerships with IAMU member schools. We currently have established partnerships with Shanghai Maritime University (SMU) and Dalian Maritime University (DMU) through regular student exchange programs. Over the past year or so,

we have been working with Kobe University to develop a MIX (Maritime International Exchange) program that creates an opportunity for MMA students to work collaboratively with students from Kobe online and then meet at a location to jointly solve an applied maritime problem.

The department is also engaging its advisory board members from various segments of the industry to bolster the international experiential learning initiative. We are designing a new initiative in Calcutta and Singapore and a pilot program will start in January 2016. A faculty led student team will first stop at Calcutta to understand the workings of a very traditional riverine port that handles international cargo. It is perhaps the only one of its kind left in the world and is the major gateway to landlocked Nepal and Bhutan. We will also visit the sister port of Haldia which is further downstream and has lesser draft restrictions. Port of Singapore Authority (PSA) is managing the container berth in Calcutta which has significantly improved throughput. We will try to include a certification course for students in the Institute of Port Management in Calcutta. The next segment will be in Singapore which is a short flight away and happens to be a major global hub port. With the guidance and support of our advisory board member, we will be setting up tours of the port of Singapore and leading shipping companies in Singapore. We are trying to include a short course offered by Singapore Maritime Academy. These experiences will not only be fantastic educational opportunities for students in the IMB program, they will also pave the way for better trained and culturally sensitive prospective employees for maritime companies that have a global presence.

#### 4 CONCLUSION

Today's maritime students are exposed to a world that require considerable cross cultural understanding and recognition that education is far more than learning facts about specific disciplines while sitting in a classroom. Based on the generally accepted premise that learning occurs through experience, international experiential learning can be a critical component of education in maritime institutions. As highlighted by Montrose (2008):

The importance of an international experience for the purpose of language development, cultural immersion, service projects, discipline-specific studies, or enhancement of a student's world view cannot be underestimated. Although there is little doubt about the benefits and importance of encour-

aging students to participate in study abroad, in many cases there is a lack of integration between the experience and the learning or educational value that can be derived from it. Experiential learning is a pedagogy with a long tradition of theory, research, and practice. Although the methods are not the same as traditional educational approaches, the structured approach is significant in transforming experience into a worthwhile academic experience, deserving of academic credit.

The purpose of this paper was to demonstrate the initiatives taken by the IMB program to hone this tool in the absence of a freshman sea term. With the help of strategic partners, we have been able to identify opportunities that will strengthen the IMB program at MMA. It is my hope that this will encourage further avenues of experiential learning cooperation among IAMU member institutions. As indicated by past research, such experiential learning exposes learners to authentic, globally aware, meaningful life experiences that are more likely to engage them in socially responsible behaviors, transforming them into agents of positive social change within the global community.

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