

Knowledge and Skills in Advanced Swimming and Life-Saving Techniques: A Correlational Study

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Abstract: This descriptive-correlational study was conducted to determine the relationship between the knowledge and skills of the BSMT (Bachelor of Science in Maritime Transportation) students in PE (Physical Education) 2 (Advanced Swimming and Life-saving Techniques). The respondents of the study were the 40 second year BSMT students that were taken through purposive sampling. The study utilized a researcher-made questionnaire for both knowledge and skills that had undergone validity and reliability-testing. Descriptive and inferential statistics were used to analyze the data such as mean, standard deviation, and Spearman's rho. Results revealed that their knowledge on Advanced Swimming and Life-saving Techniques was "Fair" while the skills of the second year BSMT students were "Very good". Furthermore, the knowledge of the BSMT students had a positive correlation (substantial) with their skills on Advanced Swimming and Life-saving Techniques. The second year BSMT students are encouraged to undergo trainings and upgrading to enhance their knowledge and skills in Advanced Swimming and Life-saving Techniques in order for them to become life-long learners.

Key words: Maritime education, advanced swimming, life-saving techniques, descriptive-correlational.

1. Introduction

The demand for the enhancement of maritime education and training has been a struggle for the past endeavors of different organizations ranging from institutional up to the trainings onboard vessels. Thus, as recommended by international conventions and organizations, an explicit and thorough knowledge introduction must be done on preparatory phases which involve the curricular instructions among maritime institutions and training centers. This information must not only be applied theoretically, but also practically. By all means, survival at sea is one of them [1]. Hence, PE (physical education) as a subject is necessary with regard to the application of advanced swimming and lifesaving techniques.

A physically fit person has better edge on survival matters against arduous weathers of the oceans. The

PE improves bodily functions [2-6], aesthetics, cardio-muscular endurance, flexibility, balance, and circulation [5, 7-9]. On the other hand, Pradas [10] claims that it improves cognitive output [4, 3, 11, 12], self-belief [6, 13], and incites encouragement to do a variety of activities [14].

Proper competences and skills are outlined by different international organizations on the basis of instruction as prescribed by the existing maritime conventions which govern the standards of education and training of maritime higher education institutions. At this juncture, the appropriate association of knowledge and skills was to be made successful as to ascertain that learning was thoroughly absorbed.

As part of the research agenda by the CHED (Commission on Higher Education) on maritime education and social and behavioral sciences, this study was conceptualized. This study was also aligned with the institution's IMS (Integrated Management System) Policy on its aim for the highest standards of

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quality education and training taking into account relevant educational, scientific, and technical developments, managing intellectual property, health, safety, environmental protection, pollution prevention, and social responsibility, in our consistent drive to satisfy and strive to exceed stakeholders' needs and expectations. Also, this was conceptualized on the venture of pursuing the mandates of the STCW (standards of training, certification, and watchkeeping) as amended.

An instructional material was made with the concepts of creating a fill on the gap in the lack of instructional materials on PE 2 (Advanced Swimming and Life-saving Techniques). The material was anchored accordingly to Bruner's [15] Cognitive-Development Theory and the Skill Acquisition Theory [16].

Key et al. [17] outline that STCW training is necessary for aspiring seafarers in order to be fully equipped with the right knowledge. Conceptually, this study was relatively anchored into different conventions and laws as to ascertain the compliance of the study on local and international standards. Skills and knowledge that were made input were meticulously referred to these conventions. The subject curricula were outlined under the CHED Memorandum Orders 13, 14, 27, 31, and 32 series of 2013; CMO 20 series of 2014, CMO 20 series of 2015; and CMO 67, 70, and 71 series of 2017 by the CHED [18] in cooperation with MARINA (Maritime Industry Authority).

Swimming fundamental and advanced techniques were sourced into various references and textbooks. In the aspect of seafaring, the maritime field has mandated the minimum mandatory requirements for the physical capabilities. Such includes life-saving under Chapter 3, Section V, Regulation 35 of the SOLAS (Safety of Life at Sea) Convention [1]; basic training under Table A-VI/1-1, Section A-VI/1, Regulation VI/1, Chapter VI of STCW Convention [19]; and the provisions of Part A, Part C, and Part D of Proficiency in Personal Survival Techniques of

IMO (International Maritime Organization) Model Course 1.19 [20].

Presently, the study was anchored on the Transfer of Learning Theory and Theory of Identical Elements [21, 22]. According to Perkins [23], transfer of learning is the application of accumulated skills, knowledge, and the manifestation of the psychological aspects that were learned in a situation to another instance of the learning situation. Thorndike (1923) [21], states that the Theory of Identical Elements was responsible for facilitating the assimilation of the new learning by the previous ones provided that the new task has similar elements with the previous task.

The archipelagic set up of the country has made swimming innate among Filipinos. In the application of the theories, the love of Filipinos for swimming may be recreational or competition, they benefit from the same aspect of the experience. With the facility of the instructional manual, the student's justified knowledge and skills enable them to learn the new ones more proficiently and efficiently because of carefully facilitated tasks assigned that improve their overall ability to learn [24].

The benefit of this study primarily attributes to the support of the development of the instructional guide to ascertain the correlation between the knowledge and skills of maritime students. Secondly, this study shall benefit future researches on the hope of comparing the correlation on the other topics in PE and other related maritime and non-maritime subjects. Third, this shall bridge the gap left by the lack of correlational studies of the research endeavors of the university. Fourth, this shall be a basis for further papers concerning the correlation of skills and knowledge among students of the same institution or for other institutions venturing the same concept and endeavors. Lastly, this study was conceptualized because the JBLFMU-Arevalo was given by the CHED a research grant known as DARE TO (Discovery Applied Research and Extension for Trans/Inter-Disciplinary Opportunities).

Thus, this study aimed to determine the correlation between the knowledge and skills in PE 2 (Advanced Swimming and Life-saving Techniques) of the second year BSMT students.

2. Methods

2.1 Research Design

The descriptive-correlational method of research was utilized in the study. According to Fraenkel and Wallen [25], this type of research was used to explain, analyze, and classify something through various techniques, survey, interview, questionnaire, and test. In addition, descriptive research is used to become familiar with phenomena, to gain new insight, and to formulate a more specific research problem or hypothesis. Descriptive-correlational method was used in this study to explain or determine the relationship between the knowledge and skills of the second year BSMT students in PE2 (Advanced Swimming and Life-saving Techniques).

2.2 Respondents

The respondents of the study were the 40 second year BSMT students of John B. Lacson Foundation Maritime University (Arevalo), Inc. Purposive sampling was employed in getting the respondents because they were selected based on their weight, height, and physical condition. This ensured that respondents are in good condition and do not contradict the activity. These students must have undergone PE 1 (Introduction to PE and Basic Swimming). Furthermore, a life guard was present during the conduct of the activity at the swimming pool.

2.3 Instrument

A 40-item researcher-made multiple choice and practical test that comprises topics from prelim to final topics was used in this study to measure the knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques, respectively. The topics were taken from

the prelim, midterm, and final lessons that include the following: Crawl Stroke or Forward Crawl, Breast Stroke, Elementary Back Stroke, Mechanics of Side Stroke, Life-saving Techniques, Blocks and Escape, Survival Skills, and Open Sea Survival Swim. The study was conducted from November 2018 to March 2019 of the school year 2018-2019. The questionnaire had underwent content validity and reliability-testing with Cronbach alpha coefficient of 0.88.

2.4 Data Collection

Permission to conduct the study was obtained from the Office of the Administrator of John B. Lacson Foundation Maritime University (Arevalo), Inc. A letter was also sent to the respondents to inform them about the study and requested consent for the use of the data needed for the study. After permission was granted, the researchers administered the multiple choice test and practical test to the respondents after the final exam to measure both their knowledge and skills in Advanced Swimming and Life-saving Techniques. Ethical issues were considered by the researchers in conducting the study. These are necessary for the purpose of securing the privacy of the respondents. Among these significant issues considered are consent, confidentiality, and right to privacy because these involve sensitive matters regarding the scores of the respondents.

2.5 Data Analysis

The data gathered are collected, encoded, and tabulated by means of the SPSS (Statistical Package for Social Sciences).

Mean was utilized for descriptive statistics. It was computed to determine the knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques. In order to describe the knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques the following scales were used as shown in Tables 1 and 2.

Table 1 Mean scale, description, and indicators in measuring the knowledge in Advanced Swimming and Life-saving Techniques.

Mean scale	Description	Indicators
31.01-40.0	Outstanding	Students have an exceptional information and understanding in Advanced Swimming and Life-saving Techniques.
24.01-31.0	Very Good	Students have great information and understanding in Advanced Swimming and Life-saving Techniques.
16.01-24.0	Good	Students have suitable information and understanding in Advanced Swimming and Life-saving Techniques.
8.01-16.0	Fair	Students have slight information and understanding in Advanced Swimming and Life-saving Techniques.
1.00-8.0	Poor	Students have low information and understanding in Advanced Swimming and Life-saving Techniques.

Table 2 Mean scale, description, and indicators in measuring the skills in Advanced Swimming and Life-saving Techniques.

Mean scale	Description	Indicators
4.51-5.0	Excellent	The entire mechanics are correct and the execution conforms to the standards.
3.51-4.50	Very good	Most of the mechanics are correct with slight deviation of the execution based on standards.
2.51-3.50	Good	Some of the mechanics are correct with more deviations of the execution based on standards.
1.51-2.50	Fair	Majority of the mechanics are incorrect and deviate from the standards.
1.0-1.50	Need improvement	Almost all of the mechanics are incorrect and do not conform to the standards.

Table 3 Level of correlation.

Value	Correlation
+ 0.71 to + 1.00	High to very high correlation
+ 0.61 to + 0.70	Marked correlation
+ 0.41 to + 0.60	Substantial correlation
+ 0.21 to + 0.40	Low correlation
+ 0.00 to + 0.20	Negligible correlation

To determine the correlation between the knowledge and skills in Advanced Swimming and Life-saving Techniques, the Spearman's rho was utilized set at 0.05 level of significance. The interpretation for the

level of correlation, value was based on Esteva's [26] interpretation, as shown in Table 3.

3. Results and Discussion

Table 4 shows that the knowledge in Advanced Swimming and Life-saving Techniques ($M = 15.50$, $SD = 4.10$) is "Fair". It means that majority of the mechanics are incorrect and deviate from the standards. Meanwhile, the skills in Advanced Swimming and Life-saving Techniques ($M = 3.93$, $SD = 0.60$) is "Very Good". It means that most of the mechanics are correct with slight deviation of the execution based on standards.

Table 5 shows that there is a significant relationship (positive substantial correlation) existing between the knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques, $\rho = 0.470$, $p = 0.002$. This could be attributed to the fact that though BSMT students are only "Fair" in terms of knowledge in Advanced Swimming and Life-saving Techniques but have already mastered the swimming skills and have gained fundamental knowledge on life-saving which was covered in PE 1. The acquisition of knowledge as stated above is also in conjunction with Aidoo et al. [27]; Arora et al. [28]; Fedewa and Ahn [29], and Olicia [30].

Table 4 Knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques as an entire group.

Category	N	Mean	Description	SD
Knowledge	40	15.50	Fair	4.10
Skills	40	3.93	Very Good	0.60

Table 5 Spearman's rho result for the significant relationship between knowledge and skills of the second year BSMT students in Advanced Swimming and Life-saving Techniques.

Category	Values
N	40
Correlation coefficient	0.470*
Sig. (2-tailed)	0.002

Asterisk (*) means significant relationship at 0.05 level of probability.

4. Conclusions

The knowledge of the second year BSMT students had a positive substantial correlation with their skills in Advanced Swimming and Life-saving Techniques. This simply implies that if their knowledge is higher, their skills are also better. This is in coherence with the studies of Arora et al. [28]; Gess-Newsome [31]; Kong [32]; McKenna and Newton [33], and Sitzmann et al. [34].

5. Recommendations

Based on the preceding findings and conclusions, the following recommendations were advanced: The PE instructors should be motivated to continue delivering quality instruction. At the same time, they may be further tasked to conduct more thorough and remedial classes to ensure better performance of the students' skills.

The second year BSMT students should be encouraged to undergo trainings and upgrading to enhance their knowledge and skills in order to affect productive learning and keep abreast with the present trend of education. Further, they should be aware that knowledge and skills that go hand in hand have a significant effect on the performance of training and their future career.

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