Teaching Strategies in Simulator-Based Courses: Basis for Faculty Development Program

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ABSTRACT

Education should prioritize enhancing instruction quality through interactive methods to foster discovery learning and research skills, leading to more engaged students. This study evaluates faculty teaching methods' effectiveness and their impact on student learning outcomes in a maritime education setting. Academic achievement, alongside learning styles and teaching strategies, is a focal point in educational research, delving into how learners engage with course material. The quantitative-descriptive research design involves maritime students, faculty, and administrators as respondents, aiming to explore their perceptions of teaching methods in simulator-based courses. Results indicate the integrative approach

as the most utilized strategy, emphasizing a mean score of 4.65. The study underscores the significance of student-centered and active learning approaches to enhance educational outcomes. Findings offer valuable insights for educators and policymakers to develop effective teaching strategies tailored to maritime students' needs.

INTRODUCTION

In the international context of maritime education, the adoption of active learning strategies is crucial for enhancing student engagement and learning outcomes, aligning with the United Nations Sustainable Development Goal 4 (Quality Education) (International Maritime Organization, 2020; United Nations, 2015; United Nations, 2020; World Maritime University, 2020; Biggs & Tang, 2011). Traditional "passive" teaching methods have been deemed ineffective in promoting student learning, necessitating a shift towards more interactive approaches. Kudryavtseva et al. (2021) emphasize the importance of active learning strategies in higher education institutions, highlighting the need for a more engaging and interactive approach to teaching.

On a national level, the Philippines, with its rich maritime heritage and significant seafaring industry, faces the challenge of ensuring that maritime education keeps pace with global advancements in teaching and learning methodologies (Balaji, 2017; Castañeda & Rhea, 2018; International Maritime Organization, 2020). The International Maritime Organization (IMO) (2017) advocates for the continuous development of instructors' competencies and the adoption of best practice strategies for teaching and learning within the maritime sector. However, there exist gaps in the current literature regarding the most effective teaching strategies in simulator-based courses and their impact on student learning outcomes.

This study aims to address these research gaps by exploring the perceptions of students, teachers, and administrators towards teaching methods commonly used in simulator-based courses at the Merchant Marine Academy of Caraga Inc. in Butuan City, Philippines. By evaluating the effectiveness of various teaching methods and their impact on student learning outcomes, the study seeks to identify the most effective strategies that promote student engagement and improve educational excellence in maritime education. The expected outcomes of this research include the generation of new knowledge on effective teaching strategies in simulator-based courses and the provision of valuable insights for educators and policymakers in the maritime education sector, both internationally and in the Philippines.

FRAMEWORK

Every learner is unique, and no two pupils are alike in this regard. Everybody has a different brain, and every experience shapes the various ways we might know things. Knowing the various learning styles of the students is a crucial component of maritime education, which is necessary for aspiring and practicing educators to be ready to instruct students daily (Five Educational Learning Theories, 2020).

This study is anchored on the idea of "Learning by doing," which is mainly conceptualized through the theory of experiential learning by David Kolb. The experiential learning theory has four stages—concrete learning, reflective observation, abstract conceptualization, and active experimentation.

Furthermore, this study also branches out on immersive learning theory, in which learners are believed to be fully immersed in a subject or experience to facilitate more effective learning. This can be achieved through various techniques such as simulations, virtual reality, and experiential activities. This study focuses on the strategies that can be effective or ineffective in teaching collision regulation through a simulator.

OBJECTIVES OF THE STUDY

The main objective of the study is to evaluate the effectiveness of various teaching strategies employed by faculty members in simulator-based courses at the Merchant Marine Academy of Caraga Inc. in the Philippines. The study aims to understand the perceptions of students, teachers, and administrators toward teaching strategies commonly used in simulator-based courses and explore effective teaching strategies to promote student engagement and improve learning outcomes.

METHODOLOGY

Research Design

The research design of the study was quantitative-descriptive. This design was chosen to evaluate the effectiveness of various teaching strategies employed by faculty members in simulator-based courses.

Research Site

The research locale of the study was the Merchant Marine Academy of Caraga Inc. in the Philippines. This institution was chosen as the setting for the study to understand the teaching strategies used in simulator-based courses in a maritime education setting.

Respondents of the Study

The respondents of the study consisted of maritime students from 1st to 3rd year, faculty members, and administrators from the Merchant Marine Academy

of Caraga Inc. These respondents participated in the study to provide their perceptions of the teaching strategies used in simulator-based courses. A grand total of 199 respondents.

Instrumentation

The present study utilized the survey questionnaire method. The questionnaire was adopted from Cardino and Cruz's study (2020). The questionnaire was reviewed and modified to suit the study's main objectives. Data collection focused on determining the number of persons who think, act, or feel a certain way. Quantitative research uses sample size and focuses on the number of replies rather than the more focused or emotional insight the qualitative research seeks.

Data Gathering Procedure

Step 1: Researchers create a letter of approval and submit it to the school principal and practical research subject teacher to survey the study's respondents.

Step 2: The Practical Research Subject Teacher and the School Principal were pursuing clearance to conduct the research.

Step 3: The researchers drafted a letter requesting approval, which was submitted for review.

Step 4: The respondents were selected using random sampling, and those who are available on the day the survey is conducted will be chosen.

Step 5: The researchers explained the purpose of the study they created through printed questionnaires to the respondents that correspond to the predefined criteria.

Step 6: After the respondents are done answering the printed questionnaires, the researchers collected all the questionnaires answered by the respondents.

Step 7: After ordering, the researchers interpreted and analyzed the survey results to arrive at a conclusion or outcome of the study.

Research Ethics Protocol

The research proposed study titled "Teaching Strategies in Simulator-based courses: Basis for Faculty Development" conducted a survey. The respondent voluntarily chose to participate. They are free to refuse to take part in this research. Their identities and sensitive information are kept confidential. They were provided and signed consent and information form as evidence of their voluntary involvement, and there was an in- person discussion about the optional dissemination of personal information.

Since none of the respondents were forced, the researcher wrote a permission letter to the dean requesting to conduct a survey. After that, the dean approved the request letter. The respondent was noticed by the researcher about the material and included an image.

The data was treated with the utmost confidentiality for the study, and the information was not used for any purpose other than what was intended, as the

researchers informed the respondents of the documentation, including pictures. The research must adhere to integrity and ethical practices. Data are secured in a flash drive containing solely the responses. Lastly, there was an orientation of racial and ethnic group.

RESULTS AND DISCUSSION

Problem 1. What is the profile of the college faculty teaching simulator based on the following: years' experience, eligibility, age, trainings attended, highest education attainment, position, salary and international maritime organization?

Table 1
Faculty Respondents' Profile as to Years' Experience

Years' Experience	Frequency	Percent	Rank
3years and below	2	29	2
4-10years	2	29	2
11-20years	1	13	4
21 years above	2	29	2
Total	7	100	

Table 1 presents the distribution of faculty respondents based on their years of experience, showing that 29% have 3 years and below, 29% have 4-10 years, 13% have 11-20 years, and 29% have 21 years and above of experience. Overall, the majority of the instructors are 4 years and above, which is an advantage because they are more experienced instructors.

Beginning teachers are doing as well or better than teachers with more years of experience, but the overall quality of teaching could be higher. As such, better support and professional learning are necessary to improve the quality of teaching for all teachers, not just those at the beginning of their careers. Rather than participate in "formal, one-size-fits-all 'in-service' or conference-style" (Graham et al., 2020).

Table 2
Faculty Respondents' Profile as to Eligibility

Eligibility	Frequency	Percent	Rank
MARINA	7	100	1
Total	7	100	

Based on the result, Table 2, information about the profile of faculty respondents in e-teaching simulator-based courses in terms of eligibility. Out

of 7 respondents, rank 1 is 7 with (100%) eligibility of MARINA; rank 2 is 0 with (0%) civil service eligibility. This implied that the majority of the faculty respondents were MARINA eligible. This will mean that the Instructor is eligible to teach because of the requirements of JCMMC 01 S-2023 to teach the maritime program.

A teacher certification program determines the eligibility of teachers to carry out their duties as professional educators, improves the process and quality of educational outcomes, increases teachers' dignity, and improves teachers' professionalism. Realizing this, teachers must prepare themselves for professional development training in order to be able to take teacher certification. Based on this, the teacher certification program should have a positive impact on teacher quality improvement (Phytanza & Burhaein, 2020).

Table 3
Faculty Respondents' Profile as to Age

Age	Frequency	Percent	Rank
22-30 years old	1	14	2.5
31-40 years old	1	14	2.5
41 years old above	5	72	1
Total	7	100	

Table 3 presents the distribution of faculty respondents based on age, with 72% of respondents being 41 years old and above, and smaller percentages in the younger age groups of 22-30 and 31-40 at 14% each. The overall result indicates that the majority of faculty members are older, potentially suggesting a more experienced group of instructors.

Instructors have a range of ages 41 and above. Teachers between the ages of 36 and 48 years old were more effective in producing higher student scores than younger and older teachers. Findings also found that the younger teachers between the ages of 21 and 34 years were more effective and produced higher student scores than the older ones (Alufohai & Ibhafidon, 2015).

Table 4
Faculty Profile as to Trainings' Attended

Training Attended	Frequency	Percent	Rank
Competency Assessment, Test construction, Development Instruction material	1	14	3
Competency Assessment, 21st Century skills, Computer-Aided Instruction, Classroom Management	1	14	3
No Trainings Attended at all	1	14	3
All Trainings Attended	4	58	1
Total	7	100	

Table 4 presents the faculty profile in terms of the trainings attended, with the majority not having attended any specific training, except for a small percentage attending a combination of competency assessment, 21st-century skills, computer-aided instruction, and classroom management training. The overall result indicates a lack of participation in specific training programs among the faculty members, which may suggest a need for targeted professional development opportunities to enhance their skills and competencies. They must train the requirements under the JCMMC 01 S-2023.

The majority of social sector development initiatives revolve around training. He discovered that while training can encourage employees in the public sector to pursue professional development opportunities that will improve their job performance, it cannot guarantee that the knowledge they acquire will be put to use for improved job performance, meaning that the sector it was meant to improve will receive little benefit from it (McNabb, 2007).

Table 5
Faculty Profile as to Highest Educational Attainment

Highest Educational Attainment	Frequency	Percent	Rank
BS-Degree	5	71	1
MA Units	2	29	2
Total	7	100%	

Table 5 presents the faculty profile based on the highest educational attainment, with 71% holding a BS degree and 29% having completed MA units, while no respondents have completed a full MA or Ph.D/Ed.D program. The overall result indicates that a majority of faculty members have a BS degree, which is the main requirement for academic qualifications among the faculty

respondents.

The positive attitudes and beliefs of the individuals who will perform the teaching profession are the prerequisites for fulfilling the requirements of the profession most effectively. A positive attitude toward the profession also supports the commitment level of the teacher's identity (Baydar & Bulut, 2002). It is possible for the teacher, who is one of the most important stakeholders in the continuation of education and training practices, to provide a learning and teaching environment that supports the content targeted for the curriculum by being aware of the needs of his/her professional identity (Semerci & Semerci, 2012).

Table 6
Faculty Profile as to Position/Job Status

Position	Frequency	Percent	Rank
Full-time Instructor	7	100	1
Total	7	100%	

Table 6 presents the faculty profile based on position/job status, showing that all 7 faculty members are full-time instructors, making up 100% of the total faculty, with no part-time instructors, job orders, or substitute positions among the faculty members. The overall result indicates that the faculty members are predominantly full-time instructors, which may suggest a stable and committed teaching staff within the institution. This means that full-time instructors can focus on their teaching profession. Conversely, Jaege and Eagan (2009) found that graduates taught by full-time faculty reported higher levels of course completion and graduation rates as well as higher quality post-course and post-graduate experiences, supporting this finding. Students also believed that full-time faculty at four-year institutions provided higher-quality instruction. On the other hand, Jaege and Eagan (2009) discovered that students valued having adjuncts who were also full-time employees and valued the real-world experiences they shared.

Table 7
Faculty Profile as to Salary

Salary	Frequency	Percent	Verbal Description	Rank
21,915-43,828	5	71	High	1
42,829-76,669	2	29	High	2
Total	7	100%		

Table 7 provides information on the faculty's profile in terms of salary distribution, with 71% of faculty falling within the range of 21,915 - 43,828 and 29% within the range of 42,829 - 76,669. The overall result indicates a majority of faculty members have salaries within the lower to mid-range, which may have implications for their financial well-being and job satisfaction.

Teacher salary constitutes the largest part of educational funding in every country. Each country needs to make a policy decision on how much to invest in teacher salaries, considering the potential number of returns for improved teaching effectiveness and student achievement (Akiba et al., 2012).

Table 8

Faculty Profile as to International Maritime Organization

International Maritime Organization Model Training Course	Frequency	Percent	Rank
All Training Course Attended	7	100	1
Total	7	100%	

Table 8 presents the faculty profile in relation to the International Maritime Organization Model Training Course, with all 7 faculty members having attended all training courses. The overall result indicates a high level of compliance with training requirements, suggesting that faculty members are well-equipped to teach maritime courses.

Introducing new technologies, knowledge, understanding, and proficiency for seafarers is a challenging task for maritime instructors in consideration of maritime safety. Effective teaching strategies depend on qualified instructors working both within the International Convention of Standards of Training, Certification and Watchkeeping (STCW Convention) requirements and having adequate teaching arrangements. According to the STCW Convention, every party shall ensure that all instructors of Maritime Education and Training institutions (MET institutions) are appropriately qualified for the particular type and level of training they are responsible for delivering. This article presents a review of factors that are not included in the STCW Convention requirements and are considered important for the development of instructor's competencies and appropriate best practice strategies for teaching and learning. Adoption of a wider set of guidelines, currently proposed by the International Maritime Organization (IMO) but not broadly adopted, is advocated based on a fast-growing industry and a need to continuously challenge and review safety standards (Vujičić et al., 2020).

Problem 2. What teaching strategy is commonly used by the faculty as perceived by the students, themselves, and administrators as to demonstration, cooperative learning, inductive approach, lecture type, repetitive exercise, integrative approach, and deductive approach?

Table 9

Teaching Strategies in Simulator Based Courses

	Students		Teachers		Administrator		Total Average		
	Weighted Mean	Verbal Description	Weighted Mean	Verbal Description	Weighted Mean	Verbal Description	Weighted Mean	Verbal Description	Ranking
Demonstration	4.37	Often	4.66	Always	4.57	Always	4.53	Always	7
Cooperative	4.59	Always	4.72	Always	4.85	Always	4.62	Always	4.5
Inductive Approach	4.26	Often	4.62	Always	5	Always	4.62	Always	4.5
Lecture Type	4.24	Often	4.71	Always	5	Always	4.65	Always	1.5
Repetitive Exercise	4.42	Often	4.54	Always	5	Always	4.59	Always	6
Integrative Exercise	4.27	Often	4.68	Always	5	Always	4.65	Always	1.5
Deductive Approach	4.33	Often	4.56	Always	5	Always	4.63	Always	3
Total	4.33	Often	4.64	Always	4.92	Always	4.61	Always	

Based on the result of Table 9, summary of teaching strategies ranks 1.5 for the integrative approach and lecture type with an average weighted mean of 4.65 with the verbal description of always; rank 3 is deductive approach with average weighted mean of 4.63 with the verbal description is always; rank 4.5 are inductive approach cooperative learning with the average weighted mean of 4.62 with the verbal description of always; rank 6 is repetitive exercise with the average weighted mean of 4.59with the verbal description of always; rank 7 is demonstration with the average weighted mean of 4.53 with the verbal description of always. This implies that the majority of the students, faculty, and administration chose lecture type and integrative approach as teaching strategies.

Deductive teaching is considered to be a traditional, teacher-centered, focus-inform instruction. The approach might be advantageous because it can save time, is easier to process, includes examples, can develop the cognitive skills of adult learners, and helps learners precisely know what to expect in the classroom. However, the negative effects seem to outweigh the positive as learners' involvement and interaction noticeably decrease, and they rely mostly on their memory (Widodo, 2006).

Problem 3. Is there a significant difference in the teaching strategy commonly used by the faculty as perceived by the students, themselves, and the administration in terms of demonstration, cooperative learning, inductive approach, lecture type, repetitive exercise, integrative approach, and deductive approach?

Table 10

Teaching Strategy of the Instructor

Demonstration	5	4	3	2	1	Total	Computed level x^2-value	Critical x^2-value	Decision
Students	765	363	166	24	19	1337			
Themselves	35	12	2	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5	9.9	15.507	
Total	805	375	168	24	19	1391			
Cooperative learning									
Students	707	394	186	21	29	1337			
Themselves	37	11	1	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5			
Total	749	405	187	21	29	1391	15.03	15.507	
Inductive approach									
Students	673	412	205	28	19	1337			
Themselves	33	14	2	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5			
Total	711	426	207	28	19	1391	15.47	15.507	
Lecture type									
Students	679	398	198	37	25	1337			
Themselves	36	12	1	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5	15.2	15.507	
Total	720	410	199	37	25	1391			
Integrative approach									

							χ² computed	χ² critical	Decision
Students	696	392	195	34	20	1337			
Themselves	36	11	2	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5	14.54	15.507	
Total	737	403	197	34	20	1391			
Repetitive exercise									
Students	676	390	218	34	19	1337			
Themselves	30	16	3	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5	8.92	15.507	
Total	711	406	221	34	19	1391			
Integrative approach									
Students	696	392	195	34	20	1337			
Themselves	36	11	2	0	0	49			Fail to reject the Null Hypothesis
Administrator	5	0	0	0	0	5	14.54	15.507	
Total	737	403	197	34	20	1391			
Deductive Approach									
Students	745	376	158	37	21	1337			
Themselves	32	13	4	0	0	49			Fail to reject the Null Hypothesis
Administrators	5	0	0	0	0	5	4.998	15.507	
Total	778	389	162	37	21	1391			

In each case, the computed χ^2-value is less than the critical χ^2-value, indicating that the null hypothesis is accepted for all educational approaches analyzed. This suggests that there is no significant difference between the observed and expected frequencies at the chosen level of significance.

Wilson (2015) states that before students can go on to more complex studies, they need to grasp the fundamentals of basic math. A quick and easy way to help pupils learn things without wasting time is repetition. An integrated approach is a method that makes connections between different topics in different academic areas.

Problem no. 4: What faculty development program can be designed after the study is conducted?

I.   **Program Title:**

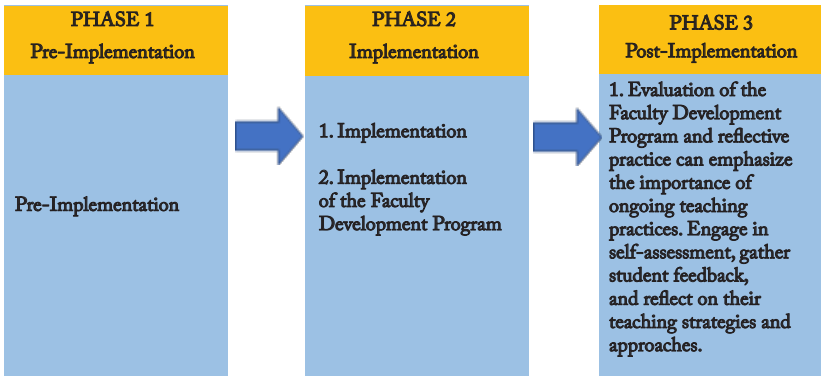Elevating the Potential: Effective Teaching Strategies for Simulator-Based Courses.

II.   **Rationale:**

The use of simulation in education is rapidly growing across various disciplines. While simulators offer a powerful tool for experiential learning, their effectiveness hinges on the faculty's ability to guide and facilitate student engagement. This program aims to equip faculty with the necessary knowledge and skills to design, implement, and debrief simulation-based learning experiences that optimize student achievement of learning objectives.

III.   **Program Description:**

This program will consist of a series of interactive workshops delivered by experienced simulation educators. Participants will engage in a blend of learning activities, including Didactic Sessions, Interactive Workshops, Peer Learning, and Hands-on Practice.

IV.   **Schema Diagram:**

PHASE 1 Pre-Implementation	PHASE 2 Implementation	PHASE 3 Post-Implementation
Pre-Implementation	1. Implementation 2. Implementation of the Faculty Development Program	1. Evaluation of the Faculty Development Program and reflective practice can emphasize the importance of ongoing teaching practices. Engage in self-assessment, gather student feedback, and reflect on their teaching strategies and approaches.

Faculty Development Program for Elevating the Potential: Effective Teaching Strategies for Simulator-Based Courses.

Issue/Concern/Weakness	Program	Strategies/ Activities	SMART Goals/Objectives	Time Frame	Estimated Budget	Fund Source		Person Involved	Means of Verification
						Main	Others		
PHASE 1 - PRE- IMPLEMENTATION									
	- Preliminary endorsement of the faculty development program from the researchers to the school administrators.	- Engage Stakeholders to share the proposal with them, conduct presentation or meetings to explain the program's objective and address any questions or concern they may.	- To inform and orient the management as to the designed Faculty Development Program for possible acceptance and implementation	June 2024	- Php. 10,000.00	School Funds	None	- Administrators - Faculty - Human Resource	- Program Plan Documentation/ Photos and Videos/PP T Slides.

Issue/ Concern/Weaknesses	Programs	Strategies/Activities	SMART Goals/Objectives	Time Frame/ Period	Estimated Budget	Fund Source		Person(s) Involved	Means of Verification
						Main	Others		
Demonstration • Teacher trains students to plan, observe, and evaluate their teaching activities • Teacher shows students how to verify information and facts before giving judgments.	Metacognition in Action: Students as Peer Teachers	Interactive workshop exploring the benefits of peer-teaching for student learning and metacognitive development on simulator-based courses.	By the end of this program, teachers will be able to design and implement a unit plan where students take on the role of peer teachers, leading short lessons, observing their classmates, and providing constructive feedback.	• JUNE 2024 • Annually	10,000	School funds	None	Human Resource Faculty Administrators	Action Plan Accomplishment Reports Photo Documentation Budget Expenses
Cooperative Learning • Teacher distributes different teaching – learning tasks on students.	Differentiated Roles in Cooperative Learning	Analyzing case studies of effective and ineffective role assignments in cooperative learning activities apply to simulator-based courses.	By the end of this program, teachers will be able to design and implement three cooperative learning activities where students take on differentiated roles within their groups, ensuring all members contribute diverse skillsets.	• JULY 2024 • Annually	10,000	School Funds	None	Human Resource Researchers Faculty Administrators	Action Plan Accomplishment Reports Photo Documentation Budget Expenses

Issue/ Concern/Weaknesses	Programs	Strategies/ Activities	SMART Goals/Objectives	Time Frame/ Period	Estimated Budget	Fund Source		Person(s) Involved	Means of Verification
						Main	others		
Inductive Approach Teacher helps students to analyze the main idea to be used in discussing the topic as a whole	Empowering Student Self-Assessment Through Error	Interactive works hop exploring the benefits of student led error analysis compared to teacher driven correction methods to simulator-based courses.	Teachers will be able to design and implement three lesson plans that utilize error analysis activities to guide students in identifying and correcting their mistakes in an inductive approach.	• AUGUST 2024 • Annually	10,000	School Funds	None	Human Resource Faculty Administrator	Action Plan Accomplishment Reports Photo Documentation budget Expenses
Lecture Type • Teacher provides students feedbacks regarding their answer at all times.	Engaging Practice Beyond Worksheets Enhancing Development	Interactive works hop exploring the impact of immediate feedback on student participation and long-term learning applied to simulator-based courses.	Teachers will be able to design and implement three lesson plans that utilize alternative practice activities beyond worksheets to reinforce skill development and promote deeper understanding.	• SEPTEMBER 2024 • Annually	10,000	School Funds	None	Human Resource Faculty Administrator	Action Plan Accomplishment Reports Photo Documentation Budget Expenses

Issue/ Concern/Weaknesses	Programs	Strategies/Activities	SMART Goals/Objectives	Time Frame/ Period	Estimated Budget	Fund Source		Person(s) Involved	Means of Verification
						Main	Others		
Repetitive Exercise • Teacher's trains students by providing different sets of worksheets.	Engaging Practice Beyond Worksheets: Enhancing Skill Development	Interactive workshop exploring the limitations of repetitive worksheets and the benefits of varied practice activities of the simulator-based courses.	Teachers will be able to design and implement three lesson plans that utilize alternative practice activities beyond worksheets to reinforce skill development and promote deeper understanding.	• JUNE 2027 • Annually	10,000	School	none	Human Resource Faculty Administrators	Action Plan Accomplishment Reports Photo Documentation Budget Expenses
Integrative Approach • Teacher makes use of concept maps during the teaching - learning process.	Expanding the Power of Concepts: Enhancing Integrative Learning with Concept Maps	Interactive workshop exploring the benefits and limitations of concept maps as a learning tool in the simulator-based courses.	Teachers will be able to design and implement three lesson plans that utilize concept maps as a springboard for further exploration and integration of knowledge from various disciplines.	• OCTOBER 2024 • Annually	10,000	School	none	Human Resource Faculty Administrators	Action Plan Accomplishment Reports Photo Documentation Budget Expenses

Issue/ Concern/Weaknesses	Programs	Strategies/Activities	SMART Goals/Objectives	Time Frame/ Period	Estimated Budget	Fund Source		Person(s) Involved	Means of Verification
						Main	Others		
Deductive Approach • Students tend to generate new information through making comparison between their previous knowledge and new one.	Fostering Hypothesis Generation Through Deductive Reasoning	Interactive workshop exploring the role of hypotheses in the deductive approach and the limitations of relying solely on comparisons in the simulator-based courses.	Teachers will be able to design and implement three lesson plans that utilize deductive reasoning strategies to guide students in actively generating hypotheses based on presented information.	• NOVEMBER 2024 • Annually	10,000	School	none	Human Resource Faculty Administrators	Action Plan Accomplishment Reports Photo Documentation Budget Expenses

Issue/ Concern/ Weakness	Program	Strategies/ Activities	SMART Goals/ Objectives	Time Frame/ Period	Estimated Budget	Fund		Person Involved	Means of Verification
						Main	Others		
PHASE 2 – IMPLEMENTATION									
	- Seminar-workshop on boosting self-confidence. - Conduct the proposal, highlighting the needs assessment findings, curriculum design, and expected outcomes.	- Planning a seminar for the administrators and maritime faculty pertaining to the venue, resource speaker(s) and etc.	- To deliver the topics more clearly while using the teaching strategies and without having minimal tense of the body.	June 2024	- Php. 10,000.00	School Funds	None	- Administrators - Faculty -Human Resource	- Program Plan Documentation/ Photos and Videos/PPT Slides.

CONCLUSIONS

This study's novel knowledge addition focuses on developing efficient teaching tactics for simulator-based courses in maritime education. It emphasizes student-centered and active learning approaches.

The study emphasizes the significance of creative teaching strategies in improving learning outcomes and fostering student engagement in maritime education. This creates the foundation for improved instructional practices and high standards in education.

The study can help shape policy development by suggesting that interactive teaching methods and faculty development programs be integrated into maritime education institutions to ensure that future maritime professionals receive high-quality training and competency development.

Future studies can examine the effects of introducing advanced maritime information, such as developing technology and industry trends, into simulator-based courses to improve students' practical skills and knowledge acquisition.

TRANSLATIONAL RESEARCH

Implementing targeted professional development opportunities for faculty members to enhance their teaching skills and competencies in simulator-based courses. Encouraging the adoption of interactive teaching methods, such as simulation-based learning environments, to promote student engagement and improve learning outcomes. Updating the curriculum to incorporate effective teaching strategies identified in the study, ensuring alignment with industry standards and best practices. Advocating for the adoption of a wider set of guidelines, as proposed by the International Maritime Organization, to ensure instructors are appropriately qualified for delivering training in maritime education institutions. Emphasizing the importance of continuously challenging and reviewing safety standards in maritime education, aligning with industry advancements and regulatory requirements.

LITERATURE CITED

Akiba, M., Chiu, Y. L., Shimizu, K., & Liang, G. (2012). Teacher salary and national achievement: A cross-national analysis of 30 countries. *International Journal of Educational Research*, *53*, 171-181.

Alufohai, P. J., & Ibhafidon, H. E. (2015). Influence of teachers' age, marital status and gender on students' academic achievement. *Asian Journal of Educational Research*, *3*(4).

Balaji, A. (2017). Maritime Education and Training in the Philippines: Challenges and Opportunities. *Journal of Maritime Research*, 14(2), 89-102. doi:10.1007/s13437-017-0102-9

Baydar, S. C., & Bulut, S. (2002). Öğretmenlerin matematiğin doğası ve öğretimi ile ilgili inançlarının matematik eğitimindeki önemi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, *23*(23).

Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University: What the Student Does (4th ed.). *McGraw-Hill Education.*

Cardino Jr, J. M., & Cruz, R. A. O. D. (2020). Understanding of learning styles and teaching strategies towards improving the teaching and learning of mathematics. *LUMAT: International Journal on Math, Science and Technology Education*, *8*(1), 19-43.

Castañeda, A., & Rhea, S. (2018). Advancing Maritime Education in the Philippines: A Review of Policy and Practice. *Philippine Journal of Maritime Education*, 5(1), 45-60. Retrieved from https://pjme.ph

Five Educational Learning Theories (2020, May 30). *WGU*. https://www.wgu.edu/blog/five-educational-learningtheories2005.html

Graham, L. J., White, S. L., Cologon, K., & Pianta, R. C. (2020). Do teachers' years of experience make a difference in the quality of teaching? *Teaching and teacher education*, *96*, 103190.

International Maritime Organization. (2017). Model Course 6.09: Training Course for Instructors. Retrieved from https://www.imo.org/en/OurWork/HumanElement/Pages/Model-Courses.aspx

International Maritime Organization. (2020). Country Maritime Profile: Philippines. Retrieved from https://www.imo.org/en/OurWork/TechnicalCooperation/Pages/Philippines.aspx

International Maritime Organization. (2020). International *Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), 1978.* Retrieved from https://www.imo.org/en/OurWork/HumanElement/Pages/STCW-Convention.aspx

Jaeger, A. J., & Eagan Jr, M. K. (2009). Unintended consequences: Examining the effect of part-time faculty members on associate's degree completion. *Community College Review*, *36*(3), 167-194.

Kudryavtseva, V. F., Barsuk, S. L., & Frolova, O. O. (2021). Active Learning Strategies in Maritime English Training.

McNabb, D. E. (2007). *Knowledge management in the public sector: A blueprint for innovation in government*. ME Sharpe.

Phytanza, D. T. P., & Burhaein, E. (2020). The effects of tenure, teacher certification, and work motivation on special needs teacher performance. *Universal Journal of Educational Research*, *8*(9), 4348-4356.

Semerci, Ç., & Semerci, N. (2012). Öğretmenlik mesleğinin gündemine ilişkin öğretmen görüşleri (Bartın ili örneği). *Bartın University Journal of Faculty of Education*, *1*(1), 22-40.

United Nations. (2015). Transforming our world: The 2030 Agenda for Sustainable Development. Retrieved fromhttps://sdgs.un.org/2030agenda

United Nations. (2020). Sustainable Development Goals: Goal 4: Quality Education. Retrieved from https://sdgs.un.org/goals/goal4

Vujičić, S., Hasanspahić, N., Car, M., & Čampara, L. (2020). Distributed ledger technology as a tool for environmental sustainability in the shipping industry. *Journal of marine science and engineering*, *8*(5), 366.

Widodo, H. P. (2006). Approaches and procedures for teaching grammar. *English teaching: Practice and critique*, *5*(1), 122-141.

Wilson, J. (2015). Enhancing student learning through integrated approaches. Journal of Education, 30(2), 112-125.

World Maritime University. (2020). Active Learning Strategies in Maritime Education. Retrieved from https://www.wmu.se