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TEACHING STRATEGIES IN SWIMMING AND AQUATICS

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Abstract

Research-based instructional materials, such as course manuals, should be used to optimize the performance of instructors teaching swimming and aquatics. This study used an exploratory research design to explore the teaching strategies and challenges of ten swimming and aquatic course instructors at Bicol University through survey interviews and curriculum analysis. The study revealed that the instructors used various teaching approaches in the course, depending on the topic. Major challenges were poor facilities, overcrowded pools, and a lack of professional development. A course manual covering the eight topics of the course was developed. The manual was evaluated and scored as acceptable for use in teaching the course. It was concluded that the techniques for implementing theory-based learning and the difficulties that educators face may serve as the foundation for the development of successful teaching resources, such as books and manuals. Strong institutional support for providing adequate facilities and professional development for instructors is recommended. Use of the manual developed here is encouraged to evaluate its effectiveness.

Keywords: Aquatics; Curriculum; Instruction; Strategies; Swimming.

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1. INTRODUCTION

The instruction of students in aquatic skills is critical (Brenner et al., 2006; Pocaan, 2022a). Many students, however, do not receive proper aquatic skills education, and swimming instructors often place greater focus on reproducing classical swimming strokes than on the spectrum of abilities required to recreate safely in water (Guignard et al., 2020; Willcox-Pidgeon et al., 2021). Fundamental aquatic abilities such as buoyancy control (floating), treading water, reorienting oneself, breath control, and propulsion above and below the water surface are necessary for survival in a crisis (Asher et al., 1995; Hulteen et al., 2018; Stallman et al., 2017). As a result, aquatic abilities differ among individuals and are often rather poor. Drowning is one of the top ten causes of death for 5- to 14-year-olds globally, but it is the main cause of juvenile mortality in certain countries (World Health Organization, 2017). Globally, students from underdeveloped nations have a higher risk of drowning, particularly those who live in the Pacific Islands and the island countries of Southeast Asia (World Health Organization, 2021).

The discipline of aquatic skills education urgently needs additional evidence-based instructional materials and methodologies (Stallman et al., 2017). Teaching methods serve as the foundation for instruction and, when used effectively, may assist students in gaining a deeper knowledge of course content and foster critical thinking in addition to basic retention and surface comprehension (Persaud, 2018). In the realm of sports sciences, the quality of interdisciplinary teaching in aquatic courses is critical. Instructors in these courses should be familiar with physical education teaching models to guarantee that they have a well-thought-out strategy for implementing instructional models into their curriculum (Metzler, 2000). According to the NASPE (2013), the objective is to facilitate the ability of learners to use cognitive information to comprehend and improve motor skill learning and performance. This includes elements of motor control learning and development, sports psychology and sociology, as well as biomechanics and exercise physiology.

The Bachelor of Physical Education degree program comprises a variety of advanced courses, including swimming and aquatics. The program necessitates the scientific development of knowledge and abilities in water resource management. Swimming fundamentals are explained, as are games and other activities. The program emphasizes the importance of lifesaving skills (CHED, 2017). This is a favorable observation since experts such as Glover et al. (2005) advocate using several alternative teaching tactics to accommodate the varied learning styles of students and to satisfy the learning objectives of the teaching session. This implies that the faculty responsible for swimming and aquatic courses must use effective teaching practices to help students develop their knowledge and abilities. Teaching-learning techniques are a critical component of the avowed promotion of self-regulated learning. By participating in professional development opportunities such as in-service courses, physical education instructors may learn how and when to use effective teaching tactics (Gumbo et al., 2017; Pocaan & Pasano, 2022).

2. RESEARCH OBJECTIVES

This study addresses the following objectives:

- (1) Determine the profile of the swimming and aquatics instructors;
- (2) Determine the teaching strategies used by the instructors in swimming and aquatic classes;
- (3) Determine the challenges encountered by the instructors in teaching swimming and aquatics; and
- (4) Design teaching activities for swimming and aquatic courses.

3. LITERATURE REVIEW

A strategy is a means of converting an objective into meaning (Zelazo et al., 2003); it entails the teacher's effort to convert objectives into practice (Allen et al., 2003). Thus, teaching strategies are methods for imparting information to pupils with an emphasis on impact, meaning, or impression. Moreover, there is no one optimal technique for each teaching style; rather, methods should be chosen that best match the requirements of the educational situation, and each strategy should be tailored to the constraints of that specific style (Pocaan, 2022c). This demonstrates the need for the teacher to be well-versed in a range of teaching tactics to connect them to suitable teaching styles.

As alluded to above, various teaching strategies can be employed in teaching physical education. Such strategies include, but are not limited to, lectures, individualized instruction, cooperative learning, simulations, peer teaching, self-instruction formats, cognitive teaching, team teaching, task teaching, and teaching through questions (Glover et al., 2005). The provision of several options in teaching strategies accommodates students' diverse learning styles and meets the learning intentions of teaching sessions.

In any endeavor, it is critical to ensure that the environment is favorable (Siedentop, 1991) and that all needs are met while teaching physical education. To ensure that pupils learn effectively, it is vital to ensure that the environment is conducive to learning (Fountas & Pinnell, 2018). The two claims demonstrate that a teacher should create an atmosphere favorable to student learning.

Numerous variables that influence student learning are dependent on both the instructor and the students. While some circumstances are outside the teacher's control, the instructor remains liable for them. The instructor should be able to understand and use them effectively (Moyles et al., 2002). The spectrum allows for a great deal of flexibility and recognizes the individual teacher's ingenuity. In this regard, it is the teacher's art or ability to use a range of instructional tactics that contributes to the effectiveness of learning (Coates, 1997). As a result, successful learning depends on the mode of presentation or the manner in which subject information is communicated.

4. METHODOLOGY

4.1. Research design

This study used an exploratory research design. Exploratory research is a methodological approach for investigating research objectives that have not previously been studied in depth (George, 2021). The initial phase of this study used a survey questionnaire to determine the teaching strategies and challenges of swimming instructors, followed by an analysis of the course syllabus and instructional materials. The goal of the study is to design a learning activity for swimming and aquatic courses.

4.2. Participants

The Bicol University Institute of Physical Education, Sports and Recreation was the locus of the study, and the participants were ten professors and instructors with experience teaching swimming and aquatic courses. The study was conducted in the second semester of the 2021–2022 academic year.

4.3. Research instrument

The research instrument for the initial phase was a self-assessed electronic questionnaire. The instrument was divided into three parts: the profile of the participants, teaching strategies, and challenges in teaching swimming and aquatics. The first part of the instrument consisted of five items seeking the sex, age, academic rank, number of years teaching swimming and aquatics, and number of relevant seminars and training courses attended. The second part focused on the strategies of the participants in teaching the history and development of different swimming strokes, the meaning, objective, and importance of swimming and aquatics, swimming drills, basic swimming, the use of swimming equipment and aids, basic floating, advanced swimming, and the final practicum in swimming. The teaching strategy items were answerable on a five-level scale: 0 = never, 1 = seldom, 2 = about half an hour, 3 = usually, and 4 = always. The items on teaching challenges consisted of 18 statements that likewise were answerable on a five-level scale: 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree, and 4 = very strongly agree. In the second phase of the study, the researcher collected the course syllabus and instructional materials used by the participants in teaching the course. The test-retest reliability of the research instrument achieved a Cronbach's alpha score of 0.87, which indicates excellent internal consistency.

4.4. Data collection and analysis

The data for the initial phase of the study were the direct responses of the participants in the self-assessed interview. The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 26. The researcher employed descriptive statistics using means and standard deviations to obtain the answers to the first objective. In the second phase, the researcher gathered the learning outcomes, competencies, instructions, and activities from the course syllabus and learning materials provided by

the participants for document analysis to address the second objective of the study. The data were analyzed and corroborated in a qualitative master data sheet.

5. RESULTS AND DISCUSSION

5.1. Profile of the participants

The participants in the study were six males and four females from the Institute of Physical Education, Sports and Recreation of Bicol University. In terms of academic rank, five participants were ranked as instructor I, three were ranked as assistant professor II, one was an assistant professor III, and one was an instructor III. Five of the 10 participants spent 1 to 3 years teaching swimming and aquatics, one participant taught for 4 to 7 years, another taught for 7 to 10 years, and three participants taught for 11 years or more. The majority of the participants attended one to five seminars and training courses relevant to teaching swimming and aquatics.

5.2. Teaching strategies in swimming and aquatics

Table 1 shows the descriptive statistics for teaching strategies in swimming and aquatics. Based on the syllabus and learning materials, the course consisted of eight topics. This implies that each topic can accommodate two weeks since there are 18 weeks in each semester.

In teaching the history and development of different swimming strokes, the participants always used active (M = 3.80) and peer (M = 3.70) teaching strategies. The study of Wahab (2019) recommended using class-wide peer tutoring cooperative learning to teach backstroke swimming performance to pre-service novice students at the departments of physical education because the students in the peer tutoring group preferred active learning engagement in swimming lectures to traditional methods and had a more positive attitude toward working together. Likewise, in teaching the meaning, objectives, and importance of swimming and aquatics, the participants always used active teaching (M = 3.80), peer teaching (M = 3.70), and interactive teaching (M = 3.70). Students get more involved in learning when they are exposed to interactive approaches and strategies; they remember more knowledge and hence become happier (Senthamarai, 2018).

When it came to teaching swimming exercises, the participants consistently employed active (M = 3.80) and interactive (M = 3.80) instruction. Swimming is distinct from most other sports in that it is practiced in water, necessitating a unique training regimen (Fone & van den Tillaar, 2022). Additionally, participants confirmed that teaching fundamental swimming required the application of all teaching styles (M = 3.80). The students' swimming abilities in relation to teaching tactics in the swimming topic were excellent in terms of leadership in general (Chudam, 2021). In addition, the active teaching approach (M = 3.80), the learning contracts strategy (M = 3.70), and the peer teaching method (M = 3.70) are used in teaching the correct use of swimming equipment and aids. Aquatic educators, such as swimming instructors and lifeguards, are well aware of the influence of these methods on learning and frequently use them in the design of educational programs (Brackley et al., 2020). The participants

consistently employed active teaching (M = 3.80) and problem-solving teaching methods (M = 3.80) while teaching fundamental floating. The ability to submerge, float, and glide is the initial or most fundamental skill that may indicate if a person is able to swim naturally and can also make learning to swim simpler (Badruzaman et al., 2020). Participants in advanced swimming always employed active teaching tactics (M = 3.40), interactive teaching strategies (M = 3.40), and problem-solving teaching strategies (M = 3.40). Learning to swim in a structured program is critical for developing aquatic abilities and avoiding drowning (Peden & Franklin, 2020). At the secondary level, physical education should be included as one of the fundamental abilities (together with mathematics, reading, writing, oral communication, and digital skills) to elevate the subject's prestige and priority (Olstad et al., 2021).

Table 1. Descriptive statistics for teaching strategies in swimming and aquatics

Topic	Teaching strategy	Mean	Std. Deviation
History and Development of Different Swimming Strokes	Active Teaching	3.80	0.422
	Peer Teaching	3.70	0.483
Meaning, Objectives, and Importance of Swimming and Aquatics	Active Teaching	3.80	0.422
	Interactive Teaching	3.70	0.483
	Peer Teaching	3.70	0.483
Swimming Drills	Active Teaching	3.80	0.422
	Interactive Teaching	3.80	0.422
Basic Swimming	Active Teaching	3.80	0.422
	Lecture	3.80	0.422
	Problem Solving Teaching	3.80	0.422
	Interactive Teaching	3.80	0.422
	Peer Teaching	3.80	0.422
	Question and Answer	3.80	0.422
Proper Use of Swimming Equipment and Aids	Active Teaching	3.80	0.422
	Learning Contracts	3.70	0.483
	Peer Teaching	3.70	0.483
Basic Floating	Active Teaching	3.80	0.483
	Problem-Solving	3.80	0.483
Advanced Swimming	Active Teaching	3.40	1.265
	Interactive Teaching	3.40	1.265
	Problem Solving	3.40	1.265
Final Practicum in Swimming	Individualized Instruction	3.90	0.316
	Peer Teaching	3.90	0.316

Notes: Never = 0–0.49; Seldom = 0.50–1.49; About half an hour = 1.50–2.49; Usually = 2.5–3.49; Always = 3.50–4.0.

5.3. Challenges in teaching swimming and aquatics

Table 2 shows the descriptive statistics for challenges in teaching swimming and aquatics. The participants very strongly agreed that overcrowded pools, poor class scheduling, and a lack of equipment (M = 4.00) are challenges. They strongly agreed that the lack of conducive facilities (M = 2.80), a crowded course curriculum (M = 2.70), the absence of professional development (M = 2.60), the low priority of the course (M = 2.60), and the lack of comprehensive and standardized training programs (M = 2.50) are challenges. They agreed that minimal or no interest in the course by the students (M = 2.20), negative attitudes of colleagues, heads, and students (M = 2.00), confidence or interest in teaching swimming and aquatics (M = 1.90), lack of knowledge and creativity (M = 1.50), and negative personal experiences in the course (M = 1.50) are also challenges. This implies that challenges were seen in the teachers' capabilities, developed curriculum, facilities and equipment, and scheduling. The difficulty encountered most often in delivering a swimming lesson was selecting appropriate activities to accommodate the children's varied abilities (Bielec, 2007). The instructor must be positioned in such a manner that he or she has a clear view of the whole swimming pool and must constantly be available to help the students (Pocaan, 2022b).

Table 2. Descriptive statistics for challenges in teaching swimming and aquatics

Challenge	Indicator	Mean	Std. Deviation
Overcrowded pool, poor class scheduling, and lack of equipment	Very Strongly Agree	4.00	0.000
Lack of conducive facilities	Strongly Agree	2.80	0.789
Crowded course curriculum	Strongly Agree	2.70	1.252
Absence of professional development	Strongly Agree	2.60	0.843
Low priority of the course	Strongly Agree	2.60	1.506
No comprehensive and standardized training programs	Strongly Agree	2.50	1.354
Minimal or no interest in the course by the students	Agree	2.20	0.919
Negative attitudes of colleagues, heads, and students	Agree	2.00	1.633
Lack of confidence or interest in teaching swimming and aquatics	Agree	1.90	1.729
Lack of knowledge and creativity	Agree	1.50	1.434
Negative personal experiences in the course	Agree	1.50	1.509

Notes: Strongly Disagree = 0–0.49; Disagree = 0.50–1.49; Agree = 1.50–2.49; Strongly Agree = 2.50–3.49; Very Strongly Agree = 3.50–4.0.

5.4. Teaching activities designed for swimming and aquatic courses

Table 3 shows the learning activities designed for swimming and aquatic courses. The researcher of the study carefully analyzed the participants' responses and used the syllabus and learning materials to design teaching activities for the course. Based on the data, the designed teaching activities include the learning process, recommended learning

materials, and assessment. Aside from Table 3, the study also developed a teaching activity manual for swimming and aquatic courses.

Table 3. Teaching activities designed for swimming and aquatics

Topic	Teaching strategy	Learning process/Activity	Learning materials	Assessment
History and Development of Swimming Strokes	Peer Teaching Active Teaching	Class discussion Collaboration	Presentations, slides, and video tutorials	Quiz and Group work
Meaning, Objectives, and Importance of Swimming and Aquatics	Active Teaching Interactive Teaching Peer Teaching	Reflective discussion Recitation Collaboration and brainstorming	Presentations, slides, and video tutorials	Quiz
Swimming Drills	Active Teaching Interactive Teaching	Demonstration Guided practice	Goggles, kickboards, pull buoys, fins, and swimsuits or swimming trunks	Performance task
Basic Swimming	Active Teaching Lecture Strategy Problem Solving Teaching Interactive Teaching Peer Teaching Question and Answer	Short demonstrations followed by class discussion Task analysis and practice Guided practice Collaborative practice Recitation	Goggles, kickboards, pull buoys, fins, and swimsuits or swimming trunks	Performance task
Proper Use of Swimming Equipment and Aids	Active Teaching Learning Contracts Peer Teaching	Discussion and demonstration Teacher-student agreement Collaboration and brainstorming	Goggles, kickboards, pull buoys, fins, and swimsuits or swimming trunks	Performance task
Basic Floating	Active Teaching Problem-Solving	Discussion and demonstration Task analysis and practice	Goggles, kickboards, pull buoys, fins, and swimsuits or swimming trunks	Performance task
Advanced Swimming	Active Teaching Interactive Teaching Problem Solving	Discussion and demonstration Guided practice Task analysis and practice	Googles and swimsuits or swimming trunks	Performance task
Final Practicum in Swimming	Individualized Instruction Peer Teaching	Individual task and guidelines Coaching and brainstorming	Goggles and swimsuit or swimming trunks	Performance Task

Since the dominant teaching strategies for the history and development of swimming strokes were peer teaching and active teaching, the suggested learning processes or activities were collaboration, discussion, and demonstrations. For the second

topic, reflective discussion, recitation, collaboration, and brainstorming were recommended. In terms of teaching swimming drills, the learning process and activities such as demonstrations and guided practice were seen as effective. Since basic swimming includes all the teaching strategies, it was suggested to use short demonstrations followed by class discussion, task analysis and practice, guided practice, collaborative practice, and recitation. Discussion and demonstration, teacher-student agreement, collaboration, and brainstorming were appropriate for the topic of the proper use of swimming equipment and aids. For basic floating and advanced swimming, it was recommended to use discussion, demonstrations, task analysis, and practice. It is also significant to use individual tasks and guidelines for coaching and brainstorming in teaching the final practicum in swimming.

The recommended learning materials are innovative presentations, slides, and video tutorials. Using up-to-date resources from trusted sources is also an advantage in creating instructional materials. Assessments, such as pen-and-paper tests and performance tasks using a standardized rubric, are essential. Learning competencies and outcomes must be considered in developing an assessment for the course.

5.5. Designed teaching activity manual evaluation

Table 4. Descriptive statistics for evaluation of the manual

Criterion	N	Mean	Std. Deviation
Fit between the manual and the students	10	2.90	0.316
Fit between the manual and activities and content	10	2.80	0.422
Fit between the manual and the teachers	10	2.70	0.483
Fit between the manual and the curriculum	10	2.70	0.483
Overall fit of the manual for the course	10	2.80	0.422

As shown in Table 4, the participants affirmed that the manual was appropriate for the students. This means that the manual is considered effective for students' learning outcomes. The participants also affirmed that the activities and content fit the necessary course objectives. The alignment of the course curriculum and instructional materials needs to be reliable (Pocaan et al., 2023; Skidmore & Murakami, 2016). This means that the manual provides activities suited to its curriculum. In addition, the participants affirmed that the manual was appropriate for the teachers and the course curriculum. Textbooks and manuals are important for teachers and instructors (Savasci, 2014). Overall, the participants recommend using the manual as it fits the course (M = 2.80).

6. CONCLUSION

Teaching in highly performance-based courses such as swimming and aquatics requires a skilled and competent instructor. This study developed a manual that can guide instructors in swimming and aquatic courses. Strategies for using theory-based instruction

and challenges encountered by educators can be the basis for developing effective teaching materials such as books and manuals.

The major findings of this study revealed that overcrowded pools, poor class scheduling, a lack of equipment, and the need for professional development are the problems faced by the participants. The participants used various approaches in teaching the course. The developed rubric assessed by the participants shows a high degree of appropriateness for the course. Using practice-based evidence in developing effective teaching materials significantly supports teacher performance. Moreover, teachers should also consider the students' capabilities during the assessment.

This study only considers the experiences of ten participants, which limits the study. A larger scope would provide further essential ideas and information to be considered in developing a course manual. However, the study may guide future researchers in studying the course curriculum of swimming and aquatics and the effectiveness of the developed manual.

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