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| **RESEARCH ARTICLE**

Assessing University Students' Abilities and Challenges While Learning to Swim

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| **ABSTRACT**

Swimming as a modern exercise has several health benefits for both healthy and unhealthy people, including improved psychological health, improved life satisfaction and self-perception of health, physical health, reducing stress, anxiety, tension, and sadness when compared to other exercises. Despite the benefits, fear and anxiety prevent many university students from enjoying the many relaxing benefits of swimming. As a result, the purpose of the study was to assess university students' abilities and challenges while learning to swim. The study took the form of a quantitative approach while utilizing a longitudinal cohort survey design. The sampling technique that was utilized is a census approach (complete enumeration) to select all 40 students that were enrolled in four occurrences of Learn to Swim during semester 2, 2022, at the University of Technology, Jamaica (UTech. Ja.). The results of the study revealed that 72% of the participants had some level of fear in water or deep water, resulting from students' lack of knowledge and practical experience in swimming. Additionally, when comparing the pre-and post-practical assessments, there was a 36% overall improvement in terms of participants' ability to swim, with only 23% of the participants still fearing water or deep water. This led to 82% of the participants obtaining a passing grade for the course. Furthermore, the reduced level of fear and anxiety of participants was attributed to exposure to deep water, the lecturer's method of teaching, more knowledge of swimming, and improved practical skills. The results have great implications for the swimming abilities of university students in Jamaica. It shows that enough exposure to swimming can reduce fear and anxiety and improve swimming abilities.

| **KEYWORDS**

Learn to swim, university students, fear of swimming

| **ARTICLE INFORMATION**

1. Introduction

Many studies have demonstrated that swimming has a favorable influence on the physical and functional status of healthy university students and other populations (Dorofieieva et al., 2019). According to Dorofieieva et al. (2019), many authors believe that recreational swimming has a positive impact on students' objective health indicators, such as the normalization of their cardiovascular systems, as well as on trainees' subjective health; claims of vegetative disorders and psycho-emotional de-adaptation decrease, and self-estimation of one's own health improves. Köroğlu and Yiğiter's (2016) study also corroborated these results with findings that indicated swimming from a psychological standpoint minimizes mental tensions and anxiety generated by ordinary stress and competitiveness while also avoiding antagonism and anger in life. Swimming is also a pleasant way to unwind after a long day at work. Water contact is quite good and aids in the relaxation of both the body and the psyche (Köroğlu & Yiğiter, 2016). The steady rhythm of the stroke, the absorption in the water, and the focus on the technique rapidly become soothing water meditation (Köroğlu & Yiğiter, 2016). Swimming is beneficial to your entire health. Swimming is a great workout for your heart and circulation because you use your entire body, and your heart needs to work harder to pump blood to your arms and legs than it would otherwise (Köroğlu & Yiğiter, 2016).

Additionally, Misimi et al. (2020) study indicated that swimming abilities are important not only for drowning prevention but also for the development and maintenance of overall fitness. Learning to swim is a cultural as well as a physical accomplishment. However, Misimi et al. (2020) further added that many children and adults could not swim because of many barriers, including aquaphobia, thalassophobia, racial and ethnic characteristics such as hair care, the discomfort of being seen in swimwear, parents whose fear of water may prevent their children from learning to swim, accidents that have occurred to family and friends, drowning, illness, and/or unpleasant experiences. Furthermore, it must be understood that the fear of water is a phobia known as aquaphobia. According to Bakar and Bakar (2017), this is an unjustified and persistent fear of water, even if it poses no real threat to the individual. Someone may be considered to have aquaphobia if they are experiencing anxiety when their bodies make contact with water. The bodies of water that trigger this level of fear include but are not limited to pools, ponds, seas, and even hot tubs (Bakar & Bakar, 2017)

Aquaphobia is frequently traced back to a single occurrence in which a person panicked while swimming (Bakar & Bakar, 2017). From being thrown into the deep end of a pool as a youngster to surviving the sinking of a seagoing vessel as an adult, personal horror stories abound. Adults who cannot swim are more likely to have at least one parent who suffers from aquaphobia, and they may have received standard swimming classes as a child but were never comfortable in the water for whatever reason (Bakar & Bakar, 2017). Bakar and Bakar (2017) further explained that the fear of water could be a physical reaction to the fear of drowning, and practically everyone who suffers from aquaphobia has a severe reaction when they fear they will drown. Nausea, dizziness, numbness, hyperventilation or shortness of breath, rapid heartbeat, perspiration, and shivering are some of the bodily reactions to aquaphobia. Overcoming aquaphobia means having a supportive person at the swimmer's side, helping the students to simply stay calm in the water, helping students learn the correct breathing and relaxation, helping the students to gain confidence, mirror the movements that students need to learn, move well in water and improve flexibility and begin with simple tasks before gradually moving on to more difficult ones (Bakar & Bakar, 2017).

On the other hand, Pan et al. (2018) indicated that the fear of water can also be classified as thalassophobia. This is the fear of the ocean or other huge bodies of water. Thalassophobia can manifest in a variety of ways; some people may be modestly fearful of deep water or the ocean, while others may experience panic when they see the ocean or see photos of it. According to Jamieson et al. (2020), a lot of causes may contribute to this fear of the water and sea. Thalassophobia, like other forms of phobias, is likely caused by a mix of nature and upbringing. Evolution and genetics may have a function to play in nature; our forefathers, who were warier of deep bodies of water, were more likely to survive and pass on these scary genes to their descendants (Jamieson et al., 2020). This phobia may have been partially learned as a result of past experiences with water. Being scared by anything while swimming, for example, might be a source of this form of terror. Observing other individuals with a fear of deep water, particularly parental figures and other powerful adults might potentially play a role (Jamieson et al., 2020).

Despite the phobias of water, Franklin et al. (2015) believed that life skills such as swimming and water safety are essential for 21st-century children and adults. These water safety abilities serve as a basis for future aquatic activity. Children's water safety abilities are developed through a learning framework that includes active participation from adults and peers with more knowledge and skills. Swimming entrance and exit skills, floating abilities, and understanding of safe behaviors are all part of the development of water safety skills (Franklin et al., 2015). According to the WHO (2021), the lack of ability to swim and the lack of implementation of safety procedures, and the development of safety skills are among some of the main causes of drowning globally. WHO (2021) pointed out that over 236 000 people worldwide die from drowning, establishing it as a serious threat to public health. In 2019, 8% of the world's mortality was linked to swimming-related injuries. Among the top causes of death worldwide, drowning is ranked as the third most common cause of unintentional death, which accounted for 7% of all injury-related deaths (WHO, 2021). The revelation by WHO (2021) that 91% of drowning death worldwide occurs in low- and middle-income countries highlights the need for more infrastructure and measures to educate people about swimming and drowning while reducing aquaphobia and thalassophobia.

Drowning deaths in Jamaica reached 23 in 2018, accounting for 0.13 percent of all deaths, according to the most recent WHO data (WHO, 2021). With an age-adjusted death rate of 0.34 per 100,000 people, Jamaica is ranked 182 in the world with respect to drowning (WHO, 2021). Even though Jamaica does not have a high drowning rate when compared to other countries, the fact that the country is a tropical island also means that it is totally encircled by the stunning Caribbean Sea, which you would think offers some hope that swimming is a major part of the culture. Jamaica features some of the world's greatest white-sand, pristine beaches. However, while there is no accurate data on the number of Jamaicans that cannot swim, it is feared that about 75% of the population cannot swim and have symptoms of aquaphobia or thalassophobia (Chateau, 2016). According to the WHO (2020), some of the major causes of drowning and fear of water in low- and middle-income countries are access to water, traveling on water, inability to swim, and poor infrastructure development and training. These results were corroborated by Arnold (2020) in a story published in the Jamaica Gleaner that spoke to the underdevelopment and lack of swimming facilities that are available on the island of Jamaica to promote swimming.

At UTech, Ja., many of the students that are enrolled in the module Learn to Swim cannot swim and show symptoms of aquaphobia or thalassophobia. The students are afraid of submerging; they are uncomfortable in the water, they are not relaxed enough to float, and they have anxiety attacks when they approach the deep end of the pool; some students begin to shake uncontrollable, while other students are unable to overcome their fear of the water and withdraw from the module every year. As a result, the purpose of this study was to assess university students' abilities and challenges while learning to swim. This study can act as a catalyst for greater studies on swimming abilities and water phobia in Jamaica. This study can significantly help swimming lecturers and coaches who teach adults with aquaphobia and thalassophobia to have a better understanding of some of the basic swimming familiarization drills that can be used to overcome the fear of water.

2. Methodology
Many university students enrolled in the module Learn to Swim at UTech, Ja. over the years have displayed phobias that have triggered fear, anxiety, and distress when they are engaged in swimming. As a result, this study sought to assess university students' abilities and challenges while learning to swim. This section describes the methodological approach that was used to conduct the study.

2.1 Research Approach and Design
This study took the form of a quantitative approach while utilizing a longitudinal cohort survey design to collect data. According to Daniel (2016), the quantitative research approach is research that focuses on numbers and figures in the collection and analysis of data. Additionally, quantitative research approaches can be considered scientific in nature, using statistical data to describe and analyze a study to reduce the effort researchers spend explaining the results (Daniel, 2016). Data (numbers, percentages, and measurable numbers) can be calculated and executed on a computer using the Social Science Statistics Package (SPSS).

This approach also allowed the researcher to survey a larger number of students enrolled in different occurrences for greater generalization of data. Daniel (2016) also concurred that those scientific methods of data collection and analysis allow generalization with such an approach, and interactions with groups can also be generalized. Similarities and interpretations of research results need not be considered pure coincidence. Quantifying trends in human behavior, explaining the development of life events, identifying patterns of behavioral change, testing theories, and justifying interventions to prevent human and social ills (Wang et al., 2017). The primary use of this longitudinal cohort survey design is to track the level of fear and its relationship to improved swimming skills. This type of design is often considered superior to cross-section design because it can identify the process and causes of change within and between individuals (Wang et al., 2017). Wang et al. (2017) further explained that in longitudinal studies, the interest is in conceptualizing and evaluating changes over time that may occur in one or more important variables. The primary variable represents a measure of the putative construct of interest in the study. This is the main variable you want to track changes in over time, such as the reduced levels of fear and improved swimming skills in this study.

2.2 Population and Sample
UTech, Ja. had more than 12,900 students that are enrolled in over 18 schools and colleges before the pandemic. As part of the requirement to graduate, many schools and colleges require students to pass at least one elective offered in different departments, schools, or colleges. One such elective that students are able to choose from is Learn to Swim, offered by the Caribbean School of Sports Sciences. On average, this elective has four major occurrences where students can choose a suitable time for their classes. As it relates to the number of students, this module is oversubscribed every semester, with well over 60 students vying for 60 slots within four occurrences. The majority of students who normally enroll in Learn to Swim are students from various schools and colleges who have little to no knowledge or practical skills in swimming, hoping to develop basic skills.

The sampling technique that was utilized is a census approach (complete enumeration) to select all the students that were enrolled in all four occurrences. So, a total of 40 participants were used as the sample size for this study; as shown in Table 1, the class sizes were reduced because of the pandemic during the 2022 period. The census method is also referred to as a complete enumeration survey technique in which each and every item in the targeted population is selected for data collection. Whenever the entire population is studied to collect detailed data about every unit, then the census method is applied. The reason for using this method is to maximize the small sample population available to the researcher. The fact that the module Learn to Swim is capped at 60 participants on average, the population available to select participants is very small, and the researcher wanted to ensure the results represent what actually exists within the university.

Table 1. The Demographic Breakdown of the Participants.

Gender	Age	Year Group	Faculty/College	Parishes	Total Participants
Females- 57% Males-43%	18-21 years- 45% 22-25 years-45% 26-30 years- 5% 36 and above- 5%	Year 1- 8% Year 2- 45% Year 3- 19% Year 4- 28%	COHS- 25% COBAM- 17% FENC- 17% JOINT COLLEGES OF MOHVS- 15% FELS- 10% FOBE- 8% FOL- 3% FOSS- 3% SCIT- 2%	St. Catherine- 25% Clarendon- 20% Kingston- 17% St. Elizabeth- 12% St. Andrew- 10% Manchester- 8% Portland- 5% Westmoreland- 3%	40

2.3 Procedure and Data Collection

This researcher complied with all the protocols established in the research and by the university's ethics committee. The researcher first submitted a research proposal to the university's ethics committee for approval. Once approval was granted, the researcher proceeded to collect the first set of data. However, before the data was collected, students were given a letter seeking their participation in the study. Once the students agreed to participate by way of verbal and written consent, the first phase of the data collection began. Moreover, this research is a longitudinal study that required students to participate in the class activities and complete a questionnaire at the start and at the end of the 13 weeks semester.

The instruments that were used to collect the data were an assessment sheet and a questionnaire that was created using SurveyMonkey, which meant students were required to provide a digital response to the questions on both occasions. The questionnaire instrument that was used is a modified version of Misimi et al. (2020) Fear of Water Assessment Questionnaire (FWAQ), as seen in Table 2. The questionnaire included 29 questions in total that were broken down into five demographic questions, 20 questions from the FWAQ (water environment contact and motion control in water), and four questions on the student's ability to swim. The questionnaire was mostly Likert-type and multiple-choice items that required participants to use five minutes to complete. The same questionnaire was used at the start and end of the semester to assess the level of fear students had and their ability to swim. For the FWAQ part of the questionnaire, students were given a five-point Likert scale to score their answers after visualizing themselves in a water-area scenario. On the subjective rating scale, those who score "Completely Disagree" or "Completely Agree" would be classed as having "No fear of water," while those who scored 4 or 5 were classified as "With a fear of water."

Table 2. The Fear of Water modified questionnaire developed by Misimi et al. (2020)

When I am in the pool, I am afraid to swim when I am alone
 When I am in the pool, I am afraid to swim when I see a lot of people
When I am in the pool, I am afraid to put my face in the water
I cannot swim without goggles
When I am in the pool, I am afraid to see how far the finish edge is
When I am in the pool, I am afraid to open my eyes in water
I am afraid when I lift my legs and float on the surface
I need stairs or shallow water to enter the water
I did not learn how to swim because my home is far away from:
Swimming pool, lake, river, or sea
 When I see waves, I get scared
When I see open water on the sea, I feel fear
I think I could get lost in the sea during swimming
When I am in a pool, I am afraid when I am not in contact with floor
I am afraid when the water is deep
I could not swim in the river because of water
When my legs sink, I am afraid
I am able to jump legs first into the water from starting block
I am able to jump head first into the water from starting block
I am able to pick up things from the bottom of the shallow pool
Out of 10, with 1 as the lowest and 10 as the highest, how well can you now swim?

When compared to the first day of class, with 1 as the lowest and 10 as the highest, how much have you improved?

What are the feelings or reactions you now get when you are in or near deep water?

What do you think has contributed to you feeling more relaxed and comfortable in the pool?

The students were introduced to 13 weeks of practical drills for 3 hours per week in three categories: basics, freestyle, and breaststroke swimming, as seen in Table 3. The basics of swimming included safe entry and exit of the pool, submerging, bobbing, retrieving objects from the bottom of the pool, starfish float, and gliding. While the freestyle looked at basic leg movement, gliding and kicking with a kickboard, basic arm movement (pull and recovery), arm movement with aids such as a pull buoy and noodles, body positioning in the water, alternating breathing, and combining the skills to swim the freestyle. Also, the breaststroke included an introduction to frog kicks, kicking with a kick board, streamlining, an introduction to arm movement, pulling with a pull buoy, getting the sequencing right, and combining the skills to swim breaststroke.

Table 3. Summary of the Practical Activities and Assessments for the 13 Weeks

Pre-Assessments	Mid-Semester Assessment	Post-Assessment
Basics of Swimming activities (3 weeks)	Freestyle Swimming and Treading (5 weeks)	Breaststroke Swimming and Diving (5 weeks)
• Submerging • Retrieving objects • Bobbing • Starfish float front and back • Streamline front and back • Turtle float • Survival float • Safe entry and exit of the pool	**Freestyle** • Leg movement (kick) • Body alignment • Arm movement • Breathing techniques **Treading** • Sculling • Frog kick • Eggbeater	**Breaststroke** • Leg movement • Body alignment • Arm movement • Breathing rhythm • Streamline **Diving** • Pencil dive • Forward dive

2.4 Data Analysis

The data from the questionnaire were tabulated using IBM SPSS statistics 22, and the analysis of the data was expressed using descriptive statistics. Additionally, the researcher conducted a comparative analysis to determine the changes in students' responses at the start and at the end of the semester. A correlation analysis was also done to determine if there is a relationship between the level of fear students have for deep water and their ability to swim. A one-way ANOVA test was also done to determine the significant level of fear that students have at the start of the semester and at the end. A crosstab analysis was done to determine if experiences (childhood trauma) with swimming had affected the level of fear, anxiety, and swimming ability of students. After the analysis of the data, the results were presented and reported using graphs and tables with a description of each.

2.5 Ethical Issues

Participants' safety and privacy must be handled with care because ethics is such an important aspect of research. All ethical standards specified in the research, as well as those established by the university's ethics committee, were followed in this study. Individual privacy, as well as consent to participate, are major difficulties that normally emerge throughout this type of study. The researcher took all reasonable steps to ensure that participants agreed to participate (permission was required before the survey proceeded to the questions) and that no personally identifiable information was requested or gathered from individuals. All responses were kept confidential, and the researcher ensured that the data collected were encrypted and stored on a password-protected device. The participants were also told that participation was voluntary, that they could choose not to participate, and they would not be discriminated against in any way. The study data will be kept for up to five years before being purged or destroyed.

3. Results

3.1 Pre-Participation Assessment

The participants were asked a series of questions taken from Misimi et al. (2020) fear of water assessment questionnaire, which revealed that 72% of the participants had a fear of water or deep water. The participants indicated that several factors, as seen in Table 4, contributed to their fear of water or deep water. The most significant factors that were indicated by participants were the lack of knowledge of swimming (25%) and the lack of practical experience with swimming.

Table 4. Factors that Contributed to Participants' Water Phobia Perception

Factors	Percentages
Lack of knowledge of swimming	25%
Lack of practical experience with swimming	17%
Stories from other people	7%
Traumatic childhood events- nearly drowned	5%
Bad experience with swimming	5%
My perception of swimming	8%
Knowledge of a family member that drowned	5%
No fear/phobia of water	28%

The 72% of the participants who indicated some level of fear in water or near deep water also indicated that they get certain feelings and reactions, including feelings of anxiety (28%) and an extremely fearful reaction (18%), as seen in Figure 1. Based on the fear of water and the feelings most participants get when they are in the water or near deep water, they were asked about their ability to swim, with 1 as the lowest and 10 as the highest on the scale. The majority of the participants (70%) indicated that they were swimming at 5 or lower on the scale, which meant that their swimming ability was very low.
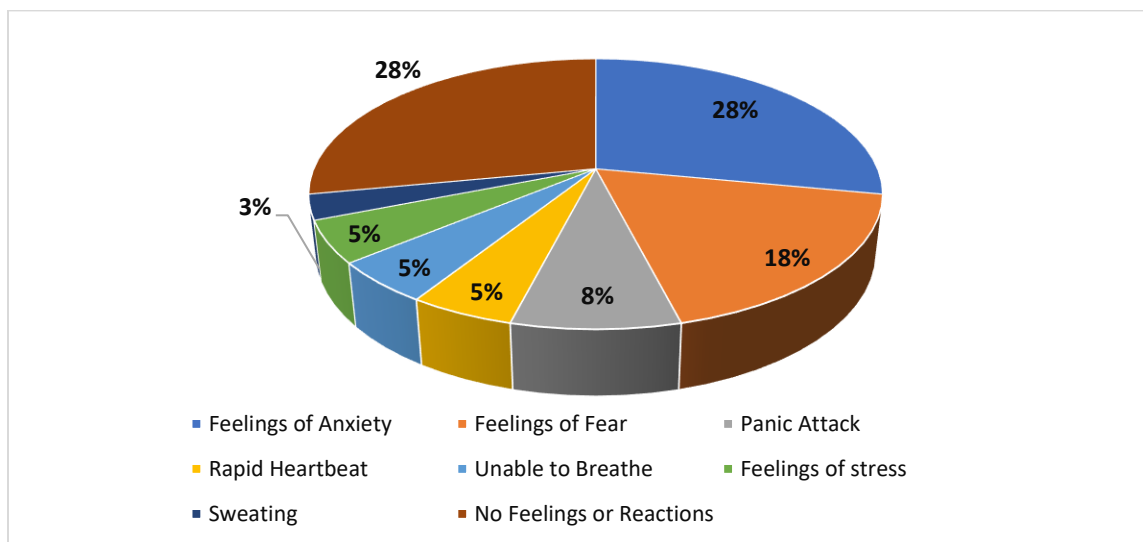

Figure 1. Feelings and Reactions of Participants in Water or Near Deep Water

3.2 The Relationship Between Participants' Ability to Swim and Their Fear of Deep Water

The results revealed that there is no relationship-based evidence from the statistical analysis (r= -0.021, p=0.900). The result indicated sig. 0.900, p>0.005; as a result, the null hypothesis states that there is no relationship between fear of swimming and students' ability to swim, as shown in Table 5. The alternative hypothesis that stated there is a relationship between the fear of swimming and students' ability to swim has been rejected. The Pearson correlation is 0.900 in relation to fear of swimming and students' ability to swim, which means there is some relationship but not a significant one. The researcher has concluded that (r= -0.021, p=0.900, p>0.005) there is no significant relationship between the fear of swimming and students' ability to swim, as indicated in the statistics obtained. Additionally, the correlation test that was done after the 13 weeks also showed that there was no significant relationship between students' improved swimming ability and their fear of water. The test also showed that there was no significant relationship between the gender, age, faculty, or parish of participants and their ability to swim.

Table 5. Pearson Correlation test between participants' ability to swim and their fear of deep water

Correlations		Out of 10, with 1 as the lowest and 10 as the highest, how well can you swim?	What are the feelings or reactions you get when you are in or near deep water?
Out of 10, with 1 as the lowest and 10 as the highest, how well can you swim?	Pearson Correlation	1	-.021
	Sig. (2-tailed)		.900
	N	40	40
What are the feelings or reactions you get when you are in or near deep water?	Pearson Correlation	-.021	1
	Sig. (2-tailed)	.900	
	N	40	41

3.3 Post-Participation Assessment

In the post-assessment questionnaire, after 13 weeks of swimming drills and strokes, there were 77% of the participants felt more comfortable in the water or had reduced levels of fear of the water when swimming. There was a 42% reduction in the level of fear participants experienced when they were in the water or near deep water, as shown in Table 6.

Table 6. The level of fear pre and post assessment

Periods of Assessment	Level of Fear
Pre-Assessment	72%
Post-Assessment	23%
Total Reduction in Fear	**42%**

When asked about their ability to swim at the end of the 13 weeks, with 1 as the lowest and 10 as the highest, there were 98% of the participants believed they were swimming between 5 and 10 on the scale.

**Table 7.** Factors that contributed to reduced levels of fear in the pool

Factors that contributed to reduced levels of fear	Percentages
The class exposed me to deep water	30%
The lecturer's method of teaching	20%
More knowledgeable and improved practical skills	12%
I had no choice; I wanted to pass the course	10%
I made up my mind to overcome the fear	7%
Individual attention and supervision	5%
The safety equipment used helped me to feel safe and comfortable	5%
The different familiarization (basics of swimming) drills	3%
Your level of comfort did not improve or decrease	8%

Additionally, as seen in Table 7, there were several factors that the participants contributed to them feeling more relaxed and comfortable in the pool. The two most significant factors were the controlled exposure that students got in the deep end of the pool, which was never available before (30%) and the teaching methods (simple to complex drills and breaking down each stroke into manageable parts) that the lecturer employed during the classes (20%) contributed to less fear of the water.

3.4 Practical Assessments

The pre-practical assessment (basics of swimming, as seen in Figure 1) showed that 78 % of the participants fell in the category of basic and below basic and were unable to execute the swimming basics and were not able to swim 10 meters of the pool using either freestyle or breaststroke techniques. Additionally, the participants struggled to execute drills and other activities under the heading basics of swimming. The mid-semester assessment that focused on freestyle swimming and treading showed an increase of 25% in the proficiency level and an increase in the below basic level by 22% (more students were performing below the required level). The post-assessment showed an increase in the proficiency level by 10% and basic level by 14% when compared to the mid-semester assessment.

Figure 2. The Practical Assessments
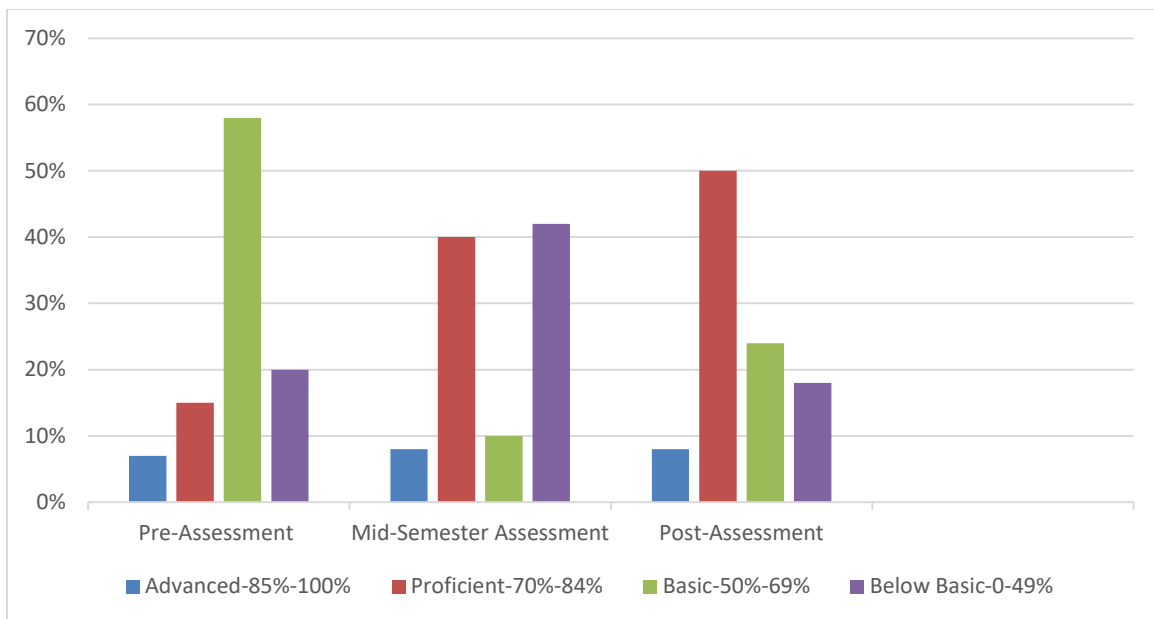
Overall, when comparing the pre and post-practical assessment, there was a 36% improvement in terms of the participants' ability to swim. At the end of the 13 weeks semester, 82% of the participants met the passing grade of 50 and above, as shown in Table 8. Based on the participants' perceived improvements in their own swimming ability when compared to the pre-assessment, the researcher can conclude that participants were more relaxed in the water and near deep water at the end of the semester. Additionally, Table 8 also shows that the participants' perceptions of their ability to swim were not very far from what was seen in the practical assessments.

Table 8. The comparison between perceived and actual swimming abilities.

	Participants Perceived Ability	Participants Practically Assessed Ability
Pre-Assessment	70% - 5 or lower on the scale	78 % - basic and below basic
Post-Assessment	98% - between 5 and 10 on the scale	82% - advanced and basic

4. Discussion

4.1 Water Phobia and Participants' Swimming Level

The results of the study revealed that 72% of the participants had a fear of water or deep water. The participants indicated that the most significant factors that contributed to their fear of water or deep water were the lack of knowledge and practical experience with swimming. Zhao (2020) explained that students who have experienced drowning before would develop varying degrees of water phobia and psychological barriers, which will be detrimental to the teaching of swimming. In this study, the participants were not comfortable and were unsure of what to do in the water, so many students tended to panic while others were not sure how to physically maneuver the water to get directional thrust. According to Muhamad (2013), the number of college students who refuse to engage in swimming classes or who actively avoid them has risen in recent years. Contact with water causes stress and aversion in many students and, in some cases, extreme fear (Adnan et al., 2019; Muhamad, 2013).

The results of this study also indicated that the participants who were fearful when they were in the water or near deep water also indicated feelings of anxiety and were extremely fearful. The anxiety college students faced when swimming was the focus of Muhamad's (2013) study, which found the fear of drowning to be one of the most common causes of anxiety when learning to

swim. It appears that identifying the stimuli that accompany swimming makes determining the true cause of anxiety difficult, especially given the issue's complexity. Negative emotions, such as anxiousness, obstruct the learning process of swimming (Adnan et al., 2019; Muhamad, 2013). Muhamad's (2013) results and observations support a strong link between an experimental group's anxiety level and their swimming ability. Swimming had a considerable impact on the anxiety levels of college students. Additionally, Zhao (2020) found that many schools and universities that provide swimming lessons have issues such as outdated teaching equipment and insufficient safety precautions. This instils anxiety in the students before they begin the swimming course, and this psychology is carried over into the actual study, negatively impacting the teaching quality and the advancement of students' swimming skills (Zhao, 2020). Lack of self-confidence is another major issue that contributes to students' anxiety about swimming classes.

The results of this study also found that the majority of the participants (70%) were swimming at 5 or lower on the established scale, which meant that their swimming ability was very low. A Pearson correlation test was done to determine if there was a relationship between the fear that participants had and their ability to swim. The test revealed that (r= -0.021, p=0.900, p>0.005) there is no significant relationship between the fear of swimming and students' ability to swim, as indicated in the statistics obtained. However, Muhamad's (2013) study found that students with a higher level of anxiousness, particularly during the first swimming course, scored lower on the swimming skill assessments (as confirmed by the qualitative analysis). Despite a gradual increase in swimming ability, college students' average anxiety level was reduced (Adnan et al., 2019; Muhamad, 2013).

After 13 weeks of swimming drills and strokes in this study, there were 77% of the participants felt more comfortable in the water or had reduced their level of fear and anxiety when swimming. Additionally, there was a 42% reduction in the level of fear and anxiety participants were experiencing when they were in the water or near deep water after 13 weeks of drills and strokes in the pool. However, Olaves et al. (2019) study revealed that when it comes to drowning in swimming pools, African Americans have a ten-fold greater rate than their white counterparts. Many hurdles have been identified as having an influence on African Americans' learning to swim, including fear, motivation, accessibility, social limitations, and institutional racism (Olaves et al., 2019). Many of these barriers lead to justifications for not learning how to swim, resulting in a high rate of drowning among African Americans and a lack of exposure and education in the field of aquatics and water safety (Olaves et al., 2019).

The reduced level of fear and anxiety of participants seen in this study were attributed to exposure to deep water, the lecturer's method of teaching (simple to complex drills and breaking down each stroke into manageable parts), and more knowledge of swimming and improved practical skills. Adnan et al. (2019) and Muhamad (2013) corroborated this result by explaining that progress in learning to swim is based on the systematic repeating of a series of exercises, no different sooner or later, which achieves the desired result (i.e., acquisition of basic swimming skills), which, in turn, indicates a lower degree of fear. Additionally, Stillwell (2011), in an article titled "Best Practices for Teaching Those Afraid in Water", found that the concept of progressive desensitization has a lot of promise, and once it's perfected, it might be used by educators to supplement existing swimming lessons and eventually help to eliminate needless drownings. When participants in this study were asked about their ability to swim at the end of the 13 weeks, with 1 as the lowest and 10 as the highest on the rating scale, there were 98% of the participants believed they were swimming between 5 and 10 on the scale. When compared to 70% in the pre-preparation assessment who believed they were swimming between 1 and 5 on the rating scale.

4.2 Participants' Practical Ability

The practical results revealed that the pre-practical assessment showed that 78% of the participants fell in the category of basic and below basic and were unable to coordinate and swim 10 meters of the pool using either freestyle or breaststroke techniques. Misimi et al. (2020) study corroborated the results of Stillwell (2011), indicating that fear of water is the most powerful predictor of no or limited swimming abilities. Misimi et al. (2020) believed that some people would never Learn to Swim because they are afraid of water, while others may have problems learning because they are unable to relax their bodies sufficiently to allow them to float or swim. As a result, it's critical to identify these individuals and develop effective teaching tactics that will best serve this demographic. To identify these individuals, Misimi et al. (2020) believed that there is an obvious need for a tool that can assist swim teachers and coaches in identifying persons who have a fear of water.

Additionally, the mid-semester practical assessment in this study that focused on freestyle swimming and treading showed an increase of 25% in the proficiency level and an increase in the below basic level by 22%. While more students became proficient when compared to the first assessment, it also showed that more students fell below the basic level. The results also found that the post-practical assessment showed an increase in the proficiency level by 10% and the basic level by 14%. Overall, when comparing the pre and post-practical assessments, there was a 36% improvement in participants' ability to swim. At the end of the 13 weeks semester, 82% of the participants met the passing grade of 50 and above. Stillwell (2011) found that tactics to help people who were frightened of water, such as individualized instruction and breaking abilities down into digestible chunks, were most effective. However, specialized training would be most beneficial. These tactics can be implemented in a group setting by

assigning students to individual or group hierarchies and allowing them to rehearse each circumstance without experiencing any anxiety, fear, or panic (Stillwell, 2011).

5. Conclusion

The majority of the participants that chose to Learn to Swim had a fear of water or deep water. Also, most of the participants believed that the contributing factors that led to fear and anxiety about water or deep water were the lack of knowledge and practical experience with swimming. Additionally, the majority of the participants, when in water or near deep water, had feelings of anxiety and extreme fear. Despite the fear expressed by the participants, a Pearson correlation test found that there was no significant relationship between the fear of swimming and students' ability to swim, as indicated in the statistics obtained. The study found that reduced levels of fear and anxiety of participants were attributed to exposure to deep water, the lecturer's method of teaching (simple to complex drills and breaking down each stroke into manageable parts), and more knowledge of swimming and improved practical skills. When comparing the pre and post-practical assessments, there was a 36% improvement in the participants' ability to swim. At the end of the 13 weeks semester, 82% of the participants met the passing grade of 50 and above.

Despite the results of this study, there were some limitations and delimitations to consider. Only eight of the 14 parishes in Jamaica were represented, and only students who enrolled in Learn to Swim during January to April 2022 semester participated in the study. Additionally, the study was only limited to a quantitative approach and did not facilitate any additional help that students needed outside of the three hours per week. A study such as this can be expanded to get a better understanding of the ability of Jamaicans to swim and their level of fear in water or deep water. This study can have great implications for lecturers or others teaching or learning how to swim at the university or other levels to get a better understanding of strategies to reduce fear and anxiety in students.

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