

The effect of a life skill-based learning model on improving students' basic ability to survive in water for 60 minutes through swimming

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ABSTRACT

The purpose of this study was to analyze the effect of a life-skills-based learning model on improving students' basic swimming skills to survive 60 minutes in water. This study used a pre-experimental method with a single-group pre-test-post-test study design. A total of 80 male and female students, aged 19-21 years, body mass index 19-24 kg/m², normal blood pressure (110/70 – 120/80 mmHg), normal resting heart rate (60-80 bpm), did not have a history of chronic disease and then were divided into two groups. The intervention was carried out by providing a life skill-based swimming learning program with a training time of 60 minutes/for each meeting, and a frequency of 1x/week for 16 weeks. Data collection to measure the essential ability to swim to survive in water for 60 minutes was carried out before and after giving a life skill-based swimming learning program for 16 weeks using a test of surviving in water for 60 minutes with a score range between 3 to 60. The data analysis technique used an Independent Samples t-Test with a significant level of 5%. The results showed that there was a significant difference in the average score of the essential swimming ability to survive in water for 60 minutes between G1 with G2 at the observation point after the intervention (51.70±15.68 vs. 16.93±7.22 score, ($p \leq 0.001$)), and delta (22.05±5.23 vs. 3.55±1.75 score, ($p \leq 0.001$)). Based on the results of the study, it can be concluded that the provision of a life skill-based swimming learning program can improve the basic ability to swim to survive in water for 60 minutes students compared to conventional swimming programs.

KEYWORDS

Learning Model; Life Skill; Conventional; Ability; Swimming

1. INTRODUCTION

Swimming is a popular sport and has the potential to improve health but has received less scientific attention compared to other sports modes (Lahart & Metsios, 2018). In addition, swimming competitions have a long history and are currently one of the largest Olympic sports, with 16 swimming events (Aspenes & Karlsen, 2012). Swimming is a highly technical sport that requires athletes to perform in very specific and unusual environments for humankind. Because water reduces movement efficiency compared to land movers (Born et al., 2022; Zamparo et al., 2020). In the realm of education, swimming is a subject that must be taken by Physical Education and Health students. However, there may be students who have difficulty taking swimming courses. Fear of water was the strongest predictor of no or low swimming competence. Some individuals will never learn to swim because they completely avoid water, whereas others may have learning difficulties because they are unable to relax enough when floating in water or swimming (Misimi et al., 2020).

Life skills as the core of competence and educational outcomes are skills possessed by a person to dare to face the problems of life and life naturally without feeling pressured, then proactively and creatively seek and find solutions so that they are finally able to overcome them (Fadum et al., 2021). With this, life skills or life skills have an important role in the development of a learning process that has the nature of solving problems within a person (Tiwari et al., 2020). Unesco explained that there are four pillars in supporting life skills, namely in learning or education, learning to know (learning to know), learning to do or work (learning to do), learning to become an identity (learning to be), and learning to socialize (learning to live together). To achieve these four things, life skills are needed. Based on these limitations, life skills-oriented education is defined as education to improve the abilities, abilities, and skills needed by a person to maintain his survival and self-development (Depdiknas, 2002).

Surviving in water is learning life skills in swimming because it takes the ability to overcome problems in him to be able to survive in water with swimming abilities (van Duijn, 2021). The ability to survive in water must be possessed by every student of physical education and health as the basis for achieving the goal of being skilled in swimming. On the other hand, these abilities must be learned so that students dare to face emergencies in the water (Knechtle et al., 2020). These conditions such as floods, tsunamis, overturned ships or boats, and so on. When students experience this incident, they will need the ability to survive in water to stay alive until they wait for help to arrive. Therefore, this study aims to analyze the effect of the life skills-based learning model on increasing the ability to survive in water for 60 minutes in students.

2. METHODS

This study used a pre-experimental method with a single-group pretest-posttest research design. A total of 80 male and female students, aged 19-21 years, body mass index (BMI) of 19-24 kg/m², normal blood pressure (110/70 mmHg – 120/80 mmHg), normal resting heart rate (60-80 bpm), do not have a history of chronic disease divided into 2 groups, namely G1 (n=40; conventional group), and G2 (n=40; experimental group). All procedures performed in our study comply with the Declaration of the Helsinki World Medical Association on the ethical conduct of research involving human subjects.

Data collection for height measurement using Stadiometer (Seca Corporation, CHINO, California, USA). Body weight was measured using a digital scale (OMRON HN-289, Osaka, JAPAN). BMI is calculated by dividing body weight (BW) (kg) by body height (BH) (m²) (Raharjo et al., 2021). Measurement of blood pressure and resting heart rate using a digital sphygmomanometer (OMRON Model Deluxe HEM-8712 BASIC, JAPAN) on the non-dominant hand 3 times in a row with a 2-minute rest interval between the two measurements then the average value of the three measurements is taken (Andiana et al., 2023).

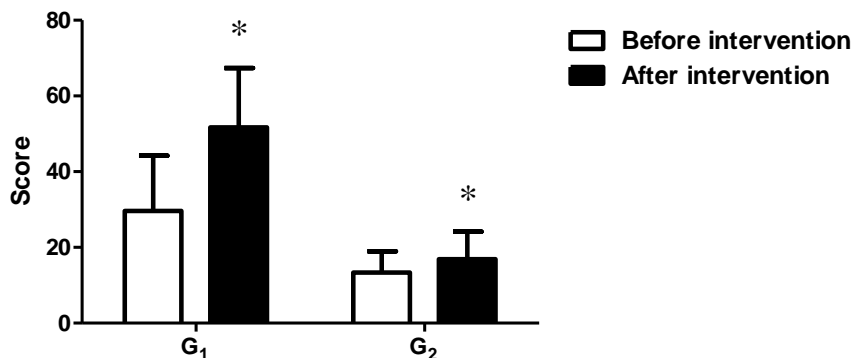
The intervention was carried out by providing life skill-based swimming learning programs such as jellyfish floats, face down floats, back floats, surviving in the water in groups, surviving in the water with a starfish model, and surviving in the water by swimming in a circle using the breaststroke which was carried out for 60 minutes/each meeting, and the frequency was 1x/week for 16 weeks. Stretching and cooling down were each performed at low intensity (50% HR_{max}) for 5 minutes. Data collection to measure the essential ability to swim to survive in water for 60 minutes was carried out before and after the provision of a life skill-based swimming learning program for 16 weeks using a test of surviving in water for 60 minutes with scores ranging from 3 to 60.

Data analysis used the Statistical Package for Social Science (SPSS) version 21 software. The Shapiro-Wilk test was used for normality test analysis with a significant level ($p \geq 0.05$). Different tests using Paired Sample t-Test and Independent Samples t-Test with significant level ($p \leq 0.05$). Data is displayed with Mean \pm Standard Deviation (SD).

3. RESULTS

Based on the analysis of the Paired Sample t-Test, there was a significant difference in the average score of basic swimming skills to survive in water for 60 minutes between before and after

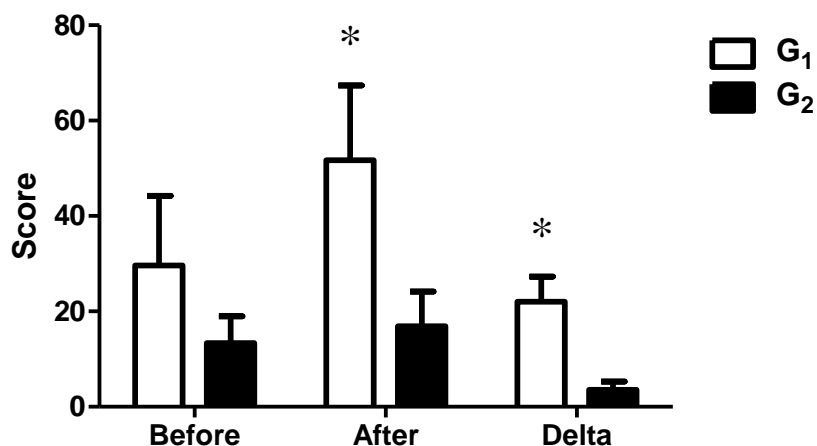
the intervention in the two groups, namely G1 (29.65±14.59 vs. 51.70±15.68 score, ($p \leq 0.001$)), and G2 (13.38±5.57 vs. 16.93±7.22 score, ($p \leq 0.001$)) (Figure 1).



Note: (*) significant before intervention ($p \leq 0.001$).

Figure 1. An average score of basic swimming ability to survive in water for 60 minutes before and after the intervention. Description: (*) significant before intervention ($p \leq 0.001$).

Based on the Independent Samples T-test analysis, there was a significant difference in the average score of the basic swimming ability to survive in water for 60 minutes between G1 with G2 at the observation point after the intervention (51.70±15.68 vs. 16.93±7.22 score, ($p \leq 0.001$)), and delta (22.05±5.23 vs. 3.55±1.75 score, ($p \leq 0.001$)), while before the intervention there was no significant difference (29.65±14.59 vs. 13.38±5.57 score, ($p \geq 0.05$)) (Figure 2).



Note: (*) significant with G₂ ($p \leq 0.001$).

Figure 2. The average score of basic swimming ability to survive in water for 60 minutes between G₁ and G₂.

4. DISCUSSION

Our findings show that there is an effect of the life skills-based learning model on the ability to survive in water for 60 minutes in students majoring in physical education and health. Based on the results of the 60-minute water survival skill test, showed that there was a change in the ability to survive in water in the posttest compared to the pretest. Previously, students felt less confident, and they were afraid of whether they would be able to survive in the water or not. Therefore, life skills are considered as something that is important for individuals to succeed in different environments, such as schools, homes, neighborhoods, and communities (Danish, 1996). The World Health Organization (WHO) (1994) explains that life skills are the ability to be able to adapt and behave positively, which enables a person to be able to deal with various demands and challenges in everyday life more effectively. WHO has also identified five basic areas of life skills, including decision-making and problem-solving, creative thinking and critical thinking, effective communication and interpersonal relationship skills, self-awareness and empathy, and coping with emotions and stress (WHO, 2003; UNICEF, 2012).

The application of life skills-based education has proven to be effective as a way to promote positive behavior and act as a buffer against risk-taking behavior for adolescents in both developed and developing countries (Nasheeda et al., 2019). Thus, physical education students after receiving life skill-based swimming lessons can be used as one of the teaching materials, especially for learning to swim (Chan et al., 2020). To be skilled in swimming, it is not enough for students to only learn with existing styles, but can be added by learning based on life skills so that students can solve their problems will be more confident in accepting all the material in learning to swim (Peden et al., 2020).

The success of professional swimming athletes in a swimming championship can be achieved, one of which is the ability to float. Therefore, floating is very important in swimming. Factors that affect buoyancy are body shape, bone size, muscle development, the weight of each body segment, fat composition, and lung capacity (Thomas, 2002). Based on this opinion, floating is much influenced by each individual, ranging from own abilities and skills to the shape and capacity of the body to receive a response from water. There are three ways to float, namely jellyfish floats, stomach floats, and back floats (Balltore et al., 1990). Floating jellyfish is the simplest type of float from other types of float, with a body position like a jellyfish with both legs, held close to the stomach. The prone float is the basic position of the most popular swimming stroke positions, such as the freestyle, breaststroke, and butterfly. Floating with the stomach, the most important thing is to hold your breath

deeply and long so that the floating position in a nearly horizontal position can be achieved. Supine floats are the most difficult type of float compared to jellyfish floats and stomach floats. This is because the position of the body floating on your back is different from other swimming styles (Suryatna & Suherman, 2001). Factors that affect buoyancy are the density of bones, muscles, and other body tissues. If the density of the organ tissue is denser, then the person is easier to float (Cortesi et al., 2020). From this statement, it can be concluded that humans can float in water but if we are relaxed, weak, and people who have fat bodies it will be easier to learn to float.

A life skill is a form of skill possessed by every individual. Brolin (1989) suggests that life skills are the interaction of various knowledge and skills that are very important for a person to have. Davis (2000) also suggests that life skills are a "personal manual" for one's body. According to WHO (1994), life skills are in the form of various skills or abilities to be able to adapt and behave positively, which allows a person to be able to face various demands and challenges in his daily life effectively. Based on this theory, it can be concluded that life skills are skills that must be possessed by a person or individual so that they can solve their problems based on their abilities of the individual. Therefore, in learning, especially physical education carried out in the physical education department, health, and recreation, especially swimming courses, students are expected to be able to solve their problems in dealing with the environment, namely in the form of water.

5. CONCLUSIONS

Based on the formulation of the problem and the results of the research that has been done, this study concludes that there is an effect of life skill-based swimming learning in surviving 60 minutes in water for students of the Department of Physical Education and Health, Faculty of Sports Science, State University of Malang. The application of swimming learning that is oriented to ability and maturity in solving problems will give students the confidence to always be ready to accept swimming lessons.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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