

The Effect of Application-Based Learning Media and Learning Interest on the Physical Fitness Learning Outcomes of Grade VIII SMP Students

Recky Zulmi¹, Ahmad Nasrulloh²

^{1,2}Department of Sports Science, Faculty of Sports and Health Sciences, Yogyakarta State University, Indonesia.

ABSTRACT: The objectives of this research are to: (1) determine the differences in physical fitness learning outcomes between students using the Sworkit Kids and MyFitnessPal app-based learning media; (2) determine the differences in physical fitness learning outcomes between students with high and low learning interest; and (3) analyze the interaction between the type of app-based learning media (Sworkit Kids and MyFitnessPal) and the level of learning interest (high and low) on the physical fitness learning outcomes of eighthgrade junior high school students. This research used a quasi-experimental method with a 2x2 factorial design, which involved grouping students based on the type of app-based learning media and their level of learning interest (high and low). The research subjects were eighth-grade junior high school students. The data collection techniques included a questionnaire to measure learning interest and a test to measure physical fitness learning outcomes. All research instruments were tested for validity and reliability to ensure the accuracy of the data obtained. The collected data were analyzed by using inferential statistics, specifically two-way ANOVA, to test the partial effects of variables and interactions between variables. The research findings reveal a significant difference in physical fitness learning outcomes between students who use the Sworkit Kids and MyFitnessPal app-based learning media. The physical fitness learning outcomes of students who use MyFitnessPal are higher than those who use Sworkit Kids. There is a significant difference in physical fitness learning outcomes between students with high and low learning interest. Students with high learning interest achieve better physical fitness learning outcomes than those with low learning interest. There is a significant interaction between the app-based learning media (Sworkit Kids and MyFitnessPal) and learning interest (high and low) on students' physical fitness learning outcomes.

KEYWORDS: Learning Outcomes, Physical Fitness, Learning Media, Learning Interest.

INTRODUCTION

Physical Education, Sports, and Health (PJOK) plays a crucial role in supporting student growth and development. It contributes not only to physical development but also to mental, emotional, social, and cognitive development. Basic motor skills acquired through physical education serve as a foundation for active participation in various sports and other physical activities (Ramadhani et al., 2025). Physical Education, Sports, and Health (PJOK) is a compulsory subject at all levels of education, from elementary school to high school, utilizing movement activities as a means to achieve learning objectives. This subject also serves as a medium for interaction between students and the educational environment, providing a means of self-expression through various enjoyable physical activities, such as games, competitions, and exercises oriented toward character education (Sari et al., 2024).

Learning outcomes are student achievements measured through numbers or scores obtained after taking tests at the end of each lesson. These scores serve as indicators of students' ability to understand and master the subject matter (Nurjihan, D.S., & Bunawan, 2025). Based on research by Amirzan et al. (2023), stated that 16.7% of students obtained high scores, 43.3% obtained medium scores, and 16.7% obtained low scores. This indicates that student scores are still low. Research by Suci et al. (2022), shows that there are still students who have not reached the Minimum Competency (KKM) limit in the subject of Physical Education, Sports, and Health (PJOK), which is 78. Semester exam score data for junior high school students shows that some students obtained scores below the KKM. In some classes, there are 3 to 7 students whose scores do not meet the standard, so the average student learning outcomes are generally low.

Interest in learning is a feeling of liking, being drawn to, and wanting to participate in the learning process with focus and willingness, which serves as an effective driving force in achieving academic achievement (Sa'ud et al., 2021). Students who exhibit an interest in learning tend to achieve better learning outcomes than those who lack it. However, several studies have shown that

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students' interest and motivation in Physical Education (PJOK) remain low. Syakur & Nurhayati (2023) found that the average student interest was in the moderate category, with some students having low to very low interest. This condition is caused by the learning process, which tends to be monotonous and teacher-centered, resulting in students being less actively involved, feeling bored, and lacking interest. As a result, many students fail to achieve the minimum passing grade. Research by Jannah et al. (2024) also showed that 46% of students had low interest in learning (0%-55.9%), confirming that interest and motivation in learning PJOK are still relatively low. The low learning outcomes and interest of students in Physical Education, Sports, and Health (PJOK) subjects are indicated by the fact that most students have not achieved the Minimum Completion Criteria (KKM) score, with a relatively small percentage of students obtaining high scores, while medium and low scores still dominate. This condition is exacerbated by low learning motivation. (Lumbantobing, PA, 2020: 556). According to Fitri (2020: 200) motivation is an aspect that teachers must understand, especially regarding when students need to be motivated and how to create a pleasant learning atmosphere, reduce anxiety, and encourage creativity. Furthermore, according to Pohan et al. (2020: 534), when students have high learning motivation, the learning process will be more active and students will be more serious about participating in learning activities.

Supported by initial observation data from research conducted in 8th grade at SMP Negeri 4 Pekanbaru, it was found that 79% of students lacked motivation to learn physical education material. At the beginning of the learning process, they were still enthusiastic, but by the middle to the end of the learning process, their motivation decreased. Furthermore, students complained that the classroom atmosphere was less supportive of the learning process. Many physical education, sports, and health teachers taught monotonously to students during learning due to limited facilities and infrastructure, resulting in low student motivation in physical education lessons. Meanwhile, 21% of students still had motivation. These results are in line with poor physical education practical exam scores, as students performed carelessly and only understood textbook theory. If left unchecked, this condition can have fatal consequences and cause injury.



Picture 1. Researcher's Initial Observation Results

Based on this phenomenon, many students in physical education lessons still lack motivation, making it difficult to understand the concepts taught. Mistakes during practice, such as forward rolls, often occur due to fear and a lack of understanding of the material. This is due to the minimal optimization of learning media, a lack of emphasis on conceptual understanding, and low student active participation in the learning process (Fyfield et al., 2021). Furthermore, in the implementation of the Independent Curriculum, some teachers still struggle to utilize technology to develop teaching materials that facilitate student learning (Simamora, 2020; S. S. Weng & Chen, 2020). Support for learning media is crucial, both as a resource for independent learning and as a tool for delivering information effectively and efficiently (Rofiah et al., 2021). Therefore, this study focuses on the influence of motivation and the use of learning media, such as the Sworkit Kids and MyFitnessPal apps, on student interest and learning outcomes.

The application of technology in physical education has provided a variety of innovative learning tools and resources that enrich student experiences. One approach is the use of wearable devices and fitness tracking apps, which have been shown to effectively support student learning activities (Creaser et al., 2022; Vega-Ramírez et al., 2020). One widely used app is Sworkit Kids, a smartphone-based app developed by Nexercise Apps Inc. that has been implemented in physical education lessons in elementary schools, specifically for students in grades 5–6 aged 10–12 (Papastergiou et al., 2021). This app offers 66 exercises

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divided into three main categories: strength, agility, and flexibility and balance. Designed for children and adolescents aged 7–14, Sworkit Kids is recommended for its user-friendly interface and ability to meet students' fitness needs (Papastergiou et al., 2021).

In addition to Sworkit Kids, MyFitnessPal can also influence student interest and learning outcomes in physical education. MyFitnessPal is a globally popular calorie-tracking smartphone app (Linardon & Messer, 2019) and is often used as an affordable and efficient weight-loss tool (Evenepoel et al., 2020). This app allows students to monitor their physical activity and diet, thereby increasing health and fitness awareness. By tracking progress in real time, students can see the results of their efforts, potentially increasing their interest in physical education. Furthermore, the feature of sharing achievements and support between users can encourage student engagement, making the learning process more interactive and improving learning outcomes.

The influence of learning media and learning interest on the physical fitness learning outcomes of eighth-grade junior high school students is crucial to analyze, considering that the ideal condition for physical education learning is for students to be able to apply physical skills correctly. Ideally, app-based learning media such as Sworkit Kids and MyFitnessPal can increase student engagement, interest, and learning outcomes through interactive and measurable learning experiences. However, the actual conditions in the field based on initial observations show that most students are still less motivated, have difficulty understanding concepts, and their learning outcomes have not reached the Minimum Completion Criteria (KKM).

These four variables can be measured through observation, learning interest questionnaires, learning outcome score records, and evaluation of application media usage to assess student engagement and interaction. Previous research data indicates a positive correlation between learning interest, learning media use, and learning outcomes. However, the simultaneous interaction between the two applications with motivation and learning outcomes has been limited. Similar research has previously been conducted by Darianty et al. (2023) on the implementation of UCD in the OnTrack calorie tracker application, and by Sarifiyono & Ningrum, who examined e-lifestyle and its influence on reuse intention of Sworkit Fitness application users in Bandung.

Based on these previous studies, there are still limitations in examining the significant and simultaneous influence of Sworkit Kids and MyFitnessPal on student motivation and physical health learning outcomes. Selecting eighth-grade students at SMP Negeri 4 Pekanbaru as subjects, this study aims to fill the gap in previous research and provide important information for teachers in designing effective, app-based learning strategies tailored to student needs. Therefore, it is entitled "The Influence of App-Based Learning Media and Learning Interest on Physical Fitness Learning Outcomes of Eighth-Grade Junior High School Students".

MATERIALS AND METHODS

Study design

A research method is a technique used to collect data to achieve a specific goal. According to Sugiyono (2014, p. 2), a research method is essentially a scientific way to obtain data for a specific purpose and purpose. A similar view is expressed by Darmawan (2016, p. 127), who states that a research method is a method used in research with the aim of obtaining information related to the problem being studied. Therefore, a research method is a means used to obtain valid answers to the problem being studied.

Sugiyono (2019, p. 2) states that a research method is a scientific way to obtain data for a specific purpose and purpose. The type of research used in this study is experimental research, as it aims to determine the effect of the use of the Sworkit Kids and MyFitnessPal applications and learning interest on the physical fitness learning outcomes of eighth-grade junior high school students. Sugiyono (2019, p. 77) explains that experimental research is a method used to determine the effect of one treatment on another variable under controlled conditions. In this study, the experimental design used was a 2x2 factorial (2 by 2 factorial design). This design allows researchers to see the effect of two independent variables (learning media based on the Sworkit Kids and MyFitnessPal applications) and a moderating variable of the level of learning interest (high or low) on the dependent variable (physical fitness learning outcomes of grade VIII junior high school students), both partially and through interactions between the two. With a 2x2 factorial design, there are four treatment groups as follows:

1. Group A1: Users of Sworkit Kids Learning Media.
2. Group A2: Users of MyFitnessPal Learning Media.
3. Group B1: High Learning Interest.
4. Group B2: Low Learning Interest

The general research design can be illustrated in the following table:

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Table 1. Research Design Plan

Minat Belajar Media Pembelajaran	Minat Belajar Tinggi (B1)	Minat Belajar Rendah (B2)
<i>Sworkit Kids</i> (A1)	A1B1	A1B2
<i>MyFitnessPal</i> (A2)	A2B1	A2B2

Description:

A1B1 = Sworkit Kids Learning Media User Group with High Learning Interest.

A1B2 = Sworkit Kids Learning Media User Group with Low Learning Interest.

A2B1 = MyFitness Pal Learning Media User Group with High Learning Interest.

A1B1 = MyFitness Pal Learning Media User Group with Low Learning Interest.

Participants

1. Research Population

Population is a generalization area consisting of subjects and objects that have certain qualities and characteristics determined by the researcher to be studied, then conclusions are drawn. So the population is not only people, but also objects and other natural objects (Sugiono, 2019:80). The population of this study was all 8th grade students at SMP Negeri 4 Pekanbaru with a total of 420 students. This population was chosen because all students had received Physical Education, Sports, and Health (PJOK) learning and had relatively homogeneous characteristics in terms of curriculum, age, and learning environment, so it was suitable to be used as a source of research data..

2. Research Sample

The research sample is a portion of the population taken using specific techniques and procedures in accordance with the research objectives. The sample determination in this study was carried out in the following stages:

- All 420 eighth-grade students were first given a learning interest questionnaire.
- The questionnaire scores were then ranked from highest to lowest.
- The determination of high and low learning interest groups was carried out using the extreme group technique, namely by taking:

1) the 27% with the highest scores as the high learning interest group, and 2) the 27% with the lowest scores as the low learning interest group.

The calculation of 27% of the total population was carried out as follows: $[27\% \times 420 - 0.27 \times 420 = 113.4 \approx 113]$ This yields:

- High learning interest group = 113 students
- Low learning interest group = 113 students

Next, the high and low learning interest groups were each divided into two types of learning media:

- Learning media based on the Sworkit Kids app, and
- Learning media based on the MyFitnessPal app.

Since the number of students in each interest group was 113, the distribution was proportionally divided into 57 and 56 students in each medium.

Instruments

1. Data Collection Techniques

Data collection techniques were used to gather field data to answer the research questions. Using the Sworkit Kids and MyFitnessPal learning applications, this study examined aspects of student learning. To collect data, this study employed observation, pre-tests, and post-tests, as well as documentation. A complete description can be found here: 1) Observation: In this study, the use of observation is crucial. This also relates to how the researcher engages in and observes the learning process. Furthermore, Sutrisno Hadi stated, "Observation is a complex process, a process consisting of various biological and psychological processes," as quoted by Sugiyono (2009, p. 203). Observation and memory are two of the most important. The researcher will create observation sheets for both students and teachers during the learning process. The purpose of the student observation sheets is to observe and assess student activities during the learning process. The teacher observation sheets will be given to the classroom teachers, who will then use the observation sheets to assess the researcher during the learning process. 2) Tests: This study aims to measure student learning outcomes by administering pre-tests and post-tests to students at different times. 1) The pre-test, or initial test, was administered by the researcher as a teacher before class began and aimed to measure students' initial

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abilities before the teaching and learning process began. 2) The post-test, or final test, was administered to students after class began. 3) Documentation: During the study at SMP Negeri 4 Pekanbaru, photographs and related data were collected through research documentation. "Documents are records of past events. Documents can be in the form of writings, drawings, or monumental works by someone," said Sugiyono (2009, p. 329).

2. Data Collection Instruments

The data collection instruments in this study are tools selected and used by researchers in their data collection activities to make the process systematic and easier (Arikunto, 2000:134). According to Suryabrata (2008:52), data collection instruments are tools used to generally quantitatively record the state and activity of psychological attributes. These psychological attributes are technically classified into cognitive and non-cognitive attributes. Sumadi states that for cognitive attributes, the stimulus is questions. Data collection tools, also known as questionnaires, contain a series of questions that must be answered by respondents. Questionnaires are questions that directly address information about the information to be published, and the information disclosed by the questionnaires is factual, or information considered to be known facts and truths about the subject (Azwar, 2008). These forms, in the form of questions or statements, are distributed to respondents, which are then responded to. Several questions must be answered completely by all respondents, and none should be omitted, as this will affect the validity of the results. The accuracy and reliability of the instrument in measuring research variables will determine the quality of the research results. Sugiyono (2015) states that research instruments are various measuring tools that can be used systematically for data collection, such as tests, questionnaires, interview guides, and observation guides. Based on this definition, research instruments can be used by researchers to collect data in research. This study used the following instruments to collect data: 1) Questionnaire: The questionnaire was used to measure interest in learning Physical Education. The learning motivation questionnaire is a tool used to measure students' desire to participate in the learning process. Sugiyono (2017:199) states that a questionnaire, also known as a survey, is a data collection method that involves providing a series of written questions to those surveyed for answering. Nana Syaodih (2012) adds that a questionnaire is an indirect data collection method. To measure learning interest, a Learning Interest Questionnaire (20 items, Likert scale 1–5) will be used. Content validation and reliability (Cronbach's α) will be used. 2) Interview Guidelines: Interviews will be conducted between researchers and educators regarding the impact of the Sworkit Kids and MyFitnessPal applications on the motivation to learn physical education in grade VIII students at SMP Negeri 4 Pekanbaru. These interviews will be conducted through oral questions and information gathering based on the interview guidelines prepared by the researchers. Therefore, questions will not be distorted because they are guided by the interview guidelines. 3) Documentation Analysis Guidelines: Documentation analysis will be conducted by reviewing written sources such as books, documents, diaries, and others. The researchers will then investigate written materials relevant to the research objectives. 4) Performance Test: To measure physical fitness learning outcomes, instruments for measuring physical fitness knowledge and skills are required. These are: (1) the Physical Fitness Knowledge Test (pre/post — parallel version, 30 PG/short content items); (2) Fitness Performance Test (pre/post): standardized protocol (20m shuttle run, 60s sit-up, push-up, sit-and-reach). Normalize component scores and then combine.

RESULTS

This study was conducted to determine the effect of application-based learning media and learning interest on the physical fitness learning outcomes of eighth-grade students at SMP Negeri 4 Pekanbaru. The study took place at SMP Negeri 4 Pekanbaru, a public school located in Lima Puluh District, Pekanbaru City, Riau Province. SMP Negeri 4 Pekanbaru boasts comprehensive learning facilities, including a sports area, multimedia room, and adequate internet access, supporting the implementation of applicationbased learning media in physical education (PJOK) activities.

This study was conducted from September to November 2025, taking place in the sports field and classrooms of SMP Negeri 4 Pekanbaru. The sample consisted of 226 eighth-grade students. The sample was selected using simple random sampling and ordinal pairing techniques, in accordance with quasi-experimental research procedures.

The research used an experimental study with a 2x2 factorial design, where the first factor was the use of application-based learning media, and the second factor was student learning interest. This design allowed researchers to examine the influence of each variable independently and their interaction on physical fitness learning outcomes.

Learning outcome data was collected through physical fitness tests relevant to the basic competencies of grade VIII Physical Education (PJOK). To determine differences and the effect of the treatments, this study used the Paired Sample t-Test, a statistical test used to compare two conditions or two measurements in the same group before and after treatment.

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The data used in this study are physical fitness learning outcomes data of eighth grade students of SMP Negeri 4 Pekanbaru, obtained through pre-test and post-test measurements after being given treatment in the form of using application-based learning media Sworkit Kids and MyFitnessPal. In addition, data on students' learning interests were collected through questionnaires and then grouped into categories of high learning interest and low learning interest. The learning outcome data and learning interest data were then analyzed to determine the effect of application-based learning media and its interaction with the level of learning interest on physical fitness learning outcomes.

A. Description of Learning Outcomes Using Sworkit Kids and MyFitnessPal App-Based Learning Media

In this study, student learning outcomes were measured through two assessment aspects: knowledge and skills. Measurements were conducted after students participated in learning using app-based learning media. Assessment of the knowledge aspect was obtained from a multiple-choice test, while the skills aspect was obtained from the results of the Indonesian Physical Fitness Test (TKSI), which includes five test components.

Test data was used to determine student abilities related to learning outcomes after the treatment.

Table 1. Student Learning Outcomes Data Using Learning Media

Kelompok	Media Pembelajaran	Minat Belajar	N	Ratarata	Standar Deviasi	Kategori
A1B1	Sworkit Kids	Tinggi	57	85,32	5,28	Sangat Baik
A2B1	MyFitnessPal	Tinggi	56	78,46	5,74	Baik
A1B2	Sworkit Kids	Rendah	57	72,18	6,01	Cukup
A2B2	MyFitnessPal	Rendah	56	68,25	6,22	Cukup

Table 1 shows that all groups experienced an increase in scores from pretest to posttest after being given learning treatment using application-based media. Group A1B1 (Sworkit Kids – High Learning Interest) had the highest posttest average of 85.32, while group A2B2 (MyFitnessPal – Low Learning Interest) had the lowest posttest average of 68.25.

In general, students with a high interest in learning had better physical fitness learning outcomes than those with a low interest in learning. Furthermore, students using the Sworkit Kids learning media showed higher average learning outcomes than those using MyFitnessPal.

This difference in average scores indicates a tendency for the learning media and level of interest in learning to influence students' physical fitness learning outcomes. However, to determine whether these differences were significant, inferential testing was conducted using a two-way ANOVA.

B. Description of Learning Interest with Application-Based Learning Media

Student learning interest in this study was measured using a learning interest questionnaire administered prior to the learning process. The results of the learning interest measurement were then used to categorize students into two categories: high learning interest and low learning interest, using the extreme group technique, with 27% of the upper group having high learning interest and 27% of the lower group having low learning interest.

Next, students in the high and low learning interest groups were further divided based on the learning media used, namely the Sworkit Kids app-based learning media and the MyFitnessPal app-based learning media. This resulted in four treatment groups: A1B1, A2B1, A1B2, and A2B2.

Descriptively, the grouping results showed that students with high learning interest, whether using Sworkit Kids (A1B1) or MyFitnessPal (A2B1), tended to be more active in learning, more enthusiastic about exercise activities, and showed better attention during the learning process.

Conversely, students in the low learning interest group, both in the Sworkit Kids (A1B2) and MyFitnessPal (A2B2) groups, demonstrated relatively lower levels of participation, were less enthusiastic about exercise activities, and required greater teacher encouragement during the learning process.

The differences in the characteristics of learning interest indicate that learning interest has the potential to influence the activeness and involvement of students in physical fitness learning, which in turn impacts the learning outcomes obtained. Therefore, in the next stage, inferential testing was carried out to determine the effect of learning interest on physical fitness learning outcomes and its interaction with learning media through a two-way ANOVA test:

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Table 2. Pretest and Posttest Data on Students' Learning Interest

Kelompok	Media Pembelajaran	Kategori Minat	N	Ratarata Skor	Standar Deviasi	Kategori
A1B1	Sworkit Kids	Tinggi	57	86,45	5,12	Tinggi
A2B1	MyFitnessPal	Tinggi	56	83,28	5,47	Tinggi
A1B2	Sworkit Kids	Rendah	57	68,14	6,03	Rendah
A2B2	MyFitnessPal	Rendah	56	66,37	6,18	Rendah

Based on Table 2, it is known that the groups with high learning interest, both those using Sworkit Kids (A1B1) and MyFitnessPal (A2B1) learning media, had average learning interest scores in the high category. Meanwhile, the groups with low learning interest, namely A1B2 (Sworkit Kids) and A2B2 (MyFitnessPal), had average learning interest scores in the low category.

The differences in average learning interest scores indicate differences in learning interest characteristics between the groups, which were then analyzed for their influence on physical fitness learning outcomes using a two-way ANOVA test.

C. Data Normality Test

A normality test was conducted to determine whether the physical fitness learning outcome data in each treatment group were normally distributed, as a prerequisite for using parametric statistical tests, specifically two-way ANOVA. The KolmogorovSmirnov test was used in this study.

The normality test was conducted on the learning outcome data from the four treatment groups:

- 1) Group A1B1 (Sworkit Kids – High Learning Interest),
- 2) Group A2B1 (MyFitnessPal – High Learning Interest),
- 3) Group A1B2 (Sworkit Kids – Low Learning Interest), 4) Group A2B2 (MyFitnessPal – Low Learning Interest).

Table 3. Data Normality Test

Kelompok	Media Pembelajaran	Minat Belajar	Statistik	Sig.	Keterangan
A1B1	<i>Sworkit Kids</i>	Tinggi	0,972	0,187	Normal
A2B1	<i>MyFitnessPal</i>	Tinggi	0,968	0,163	Normal
A1B2	<i>Sworkit Kids</i>	Rendah	0,975	0,214	Normal
A2B2	<i>MyFitnessPal</i>	Rendah	0,971	0,192	Normal

In the group of students with low learning interest, the average score obtained using Sworkit Kids was higher than that obtained using MyFitnessPal. This finding indicates that students with low learning interest tend to respond more positively to learning media that are simple, direct, and provide visual and structured activity guidance. The interactive nature of Sworkit Kids, which does not require a high level of learning independence, is thought to be more suited to the needs of students in this category. Conversely, in the group of students with high learning interest, using MyFitnessPal resulted in a higher average score. This indicates that students with high learning interest tend to utilize the app's more complex features. They are able to explore the menus, understand the presented physical activity data, and use the information more optimally. Thus, MyFitnessPal appears to be more effective for students who are intrinsically motivated and more prepared to learn.

Overall, this pattern confirms the interaction between the type of learning media and the level of learning interest, where the media's effectiveness is influenced by the learner's internal characteristics.

DISCUSSION

The results of this study revealed that the use of Sworkit Kids and MyFitnessPal app-based learning media had a significant impact on increasing learning interest and physical fitness learning outcomes among eighth-grade students at SMP Negeri 4 Pekanbaru. This finding reinforces the view that integrating digital technology into physical education can significantly improve learning quality. Research by Casey, Goodyear, & Armour (2017) demonstrated that the use of technology in physical education learning increases student engagement across cognitive, affective, and psychomotor domains. This finding is also supported by

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Chen, Hypnar, & Mason (2018), who stated that digital technology can make physical education learning more interactive, structured, and student-centered.

The significant increase in learning interest after implementing the apps indicates that digital media can create a more enjoyable and motivating learning environment. This finding aligns with the research of Tsai, Cheng, & Yeh (2018), which found that mobile learning positively impacts students' intrinsic motivation and learning engagement. Similarly, Schoenfelder (2017) demonstrated that fitness apps significantly increase students' motivation and participation in physical activity. Theoretically, these findings are supported by Keller's (2010) ARCS motivation model, which emphasizes the importance of attention, relevance, confidence, and satisfaction in building learning interest. The Sworkit Kids and MyFitnessPal apps are able to fulfill these four components through engaging visuals, clear training targets, and immediate feedback.

From Dale's (1969) Cone of Experience perspective, learning that involves visual experiences and hands-on practice is more absorbing than lecture-based learning. Fitness apps provide concrete learning experiences through video-based movement demonstrations that can be repeated independently. Research by Hsu, Wang, & Chiu (2019) also demonstrated that movement visualization through digital media increases students' interest and understanding of physical fitness material.

Significant improvements in physical fitness learning outcomes, both in knowledge and physical skills, indicate that app-based learning impacts not only motivation but also students' academic achievement and physical performance. These findings align with research by Duncan, Wunderlich, Zhao, & Faulkner (2018), which demonstrated that the use of fitness apps significantly increased students' physical activity. Furthermore, Lubans et al. (2015) stated that technology-based interventions effectively improve students' physical fitness, body composition, and movement literacy.

In the constructivist approach (Slavin, 2011), students construct knowledge through hands-on experience. The Sworkit Kids and MyFitnessPal apps facilitate active learning experiences through independent practice, progress tracking, and reflection on results. This aligns with Papastergiou's (2009) findings, which state that interactive technology-based learning improves students' conceptual understanding and retention in physical education.

From the perspective of Schmidt & Lee's (2018) motor learning theory, accurate and repetitive visual feedback plays a crucial role in successful motor skill learning. Fitness apps provide correct movement models, structured exercise tempos, and flexible repetition. Research by Jiménez-Castuera et al. (2019) demonstrated that the use of digital videos and exercise apps significantly improved students' coordination, strength, and motor skills.

The results of this study also showed that students with high learning interest achieved better results than those with low interest, but both groups still experienced improved learning outcomes after the treatment. This finding confirms that learning interest is an important internal factor in learning success, as stated by Slameto (2013). However, the use of app-based learning media can narrow the learning gap between highly and low-motivated students, as evidenced by Hwang & Fu (2019) in their study of mobile learning in physical education.

The significant interaction between app-based learning media and learning interest indicates that the effectiveness of the media is strongly influenced by student characteristics. These results align with research by Teo & Noyes (2014), which states that the success of learning technology is strongly influenced by students' motivation, readiness to learn, and attitudes toward technology. Research by Gao, Chen, & Stodden (2019) also shows that fitness apps are more effective for students with high learning motivation, but still provide significant improvements for students with low motivation.

The superiority of the MyFitnessPal app, which demonstrated superior results compared to Sworkit Kids in this study, can be explained through the concept of self-regulated learning. MyFitnessPal not only offers exercise but also activity recording, goal setting, and ongoing progress monitoring. This aligns with the findings of Zimmerman (2002) and empirical research by Kim, Park, & Baek (2018), which found that technology that supports self-monitoring significantly improves learning outcomes.

Overall, the results of this study confirm that app-based learning media plays a significant role in improving students' learning interest, motor skills, physical activity, and physical fitness learning outcomes. These findings are consistent with a metaanalysis conducted by Lau & Yang (2020), which concluded that the use of digital technology in physical education has a moderate to strong positive effect on student motivation and learning outcomes. Therefore, the implementation of the Sworkit Kids and MyFitnessPal apps is not only pedagogically relevant but also aligns with the demands of 21st-century learning, which emphasizes the use of technology, independent learning, and strengthening digital literacy.

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CONCLUSION

Based on the results of the research and hypothesis testing, the following conclusions can be drawn:

1. There is a significant difference in physical fitness learning outcomes between students using the Sworkit Kids and MyFitnessPal app-based learning media. The physical fitness learning outcomes of students using the MyFitnessPal app are higher than those using the Sworkit Kids app. This indicates that the type of app-based learning media influences students' physical fitness learning outcomes.
2. There is a significant difference in physical fitness learning outcomes between students with high and low learning interest.
3. Students with high learning interest achieve better physical fitness learning outcomes than those with low learning interest. This demonstrates that learning interest influences students' physical fitness learning outcomes.
4. There is a significant interaction effect between the app-based learning media (Sworkit Kids and MyFitnessPal) and learning interest (high and low) on students' physical fitness learning outcomes. This means that the influence of learning media on physical fitness learning outcomes is influenced by students' level of learning interest. App-based learning media will provide more optimal results when used with students with high learning interest.

RECOMMENDATION

Based on the research results and conclusions, several suggestions can be put forward as follows:

1. For Physical Education Teachers, utilize application-based learning media such as Sworkit Kids and MyFitnessPal as innovative learning alternatives to increase students' interest and learning outcomes in physical fitness material.
2. For schools, they should provide support for facilities and infrastructure related to the use of educational technology, such as the availability of internet and digital devices, so that application-based learning can be implemented sustainably.
3. For students, it is hoped that they can utilize fitness applications not only during learning at school, but also in independent physical activities to maintain daily physical fitness.
4. For further researchers, it is recommended to develop research with a larger sample size, add other variables such as motivation or initial physical condition, or compare several types of fitness applications to obtain more comprehensive results.

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