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Effectiveness of Android-Based Learning Media "7 Minutes Workout" on the Motivation and Activity of Junior High School Students

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Abstract: This study examines how the "7 Minutes Workout" application affects students' motivation and activity levels at SMP Negeri 1 Semboro, Jember Regency. This study used a quasi-experimental design with a control group and an intervention group. The intervention group used the application for structured exercise, while the control group followed the traditional learning method. Student activity data were collected using ATA (Total Active Activity) and SDE (Effective Duration Session) metrics and analyzed using the Friedman test to identify significant differences across time. The results showed that the application significantly increased motivation and participation in physical activity among students in the intervention group, while the control group showed no increase. These results support the idea of the effectiveness of using ICT learning media on a material that focuses on students' active involvement in learning. This study suggests the use of fitness applications in the curriculum to encourage a healthy and active lifestyle for students.

Keywords: Activity; ICT learning media; Motivation

Introduction

The The current condition in Indonesia regarding the adaptation of digital technology has improved, especially since the COVID-19 pandemic. However, there is still an educational gap between schools in urban and rural areas (Subroto et al., 2023). Not all schools or students have adequate access to the technology needed to use Android applications. Inadequate infrastructure, such as unstable internet connections or outdated hardware, can also be a barrier. Schools or areas with financial constraints may not be able to adopt or update the necessary devices and applications regularly (Widjayanti et al., 2024). Sports subjects play an important role in national education because they promote physical fitness, develop motor skills, and improve education in Indonesia (Marani, 2024). The success of sports in schools depends on various factors, especially teacher creativity, which is very important to motivate students (Raibowo et al., 2020). The teaching approach chosen must be in accordance with the material being taught, because the use of inappropriate methods and media can have a negative impact on learning outcomes (Fauzan et al., 2023). The results of interviews with sports teachers at SMP Negeri 1 Semboro revealed that sports teachers were the ones who least often used technology-based media during lessons. This is due to the lack of facilities and infrastructure that support technology-based learning in sports education. The learning process remains conventional, making sports education less varied and limited to following teacher instructions. The same learning process every time can quickly make students feel bored and less motivated, leading to poor learning outcomes. Arisman (2021) noted that low student performance in sports subjects is due to limitations and lack of interesting learning media. A preliminary study

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of 30 students in grades VII and VIII at SMP Negeri 1 Semboro found that 50% had low motivation to exercise.

Android fitness apps help users improve their fitness, manage their health, and stay motivated to be active (Antoni et al., 2019). One useful Android fitness app for beginners is "7 Minutes Workout," which supports improving health and fitness. According to Halodoc, this app offers six workout features: classic workout, abdominal workout, glute workout, leg workout, arm workout, and evening stretch (Makarim, 2022). This app can record the day and duration of the workout, weight, and Body Mass Index (BMI). This workout requires no equipment and only takes 7 minutes per session, making it ideal for busy people, including students (Makarim, 2022).

The "7 Minutes Workout" app includes high-intensity interval training (HIIT), where an exercise is performed for 30 seconds followed by a 10-second rest. The app offers a variety of exercises, including jumping jacks, wall sits, push-ups, crunches, step-ups, squats, chair dips, planks, high knees, lunges, and side planks. The app is user-friendly and provides voice instructions for each exercise that guides users throughout their session. Additionally, the visualizations in the app consist of animations or videos that show how to perform each movement correctly. The app keeps track of completed workout sessions and reminds users to exercise daily. Users can also adjust the workout duration and rest intervals according to their needs and fitness level.

The "7 Minutes Workout" app is very useful for exercise because it is quick and easy to use. The 7-minute duration allows students to fit the workout into their daily routine, whether at school or at home. Additionally, most of the exercises offered do not require special equipment, so they can be done anywhere. The app includes daily reminders and progress tracking, helping students develop healthy habits and feel a sense of accomplishment after a workout, increasing their motivation to stay active. The audio and visual instructions in this app make the exercises more engaging and easier for students to follow. Achievements and progress statistics serve as a strong motivational driver, encouraging individuals to maintain their exercise routine through engaging gamification elements. Students can perform the exercises independently, increasing their responsibility for their health and fitness. The ability to track and view their own progress helps students understand the importance of physical activity (self-monitoring). The "7 Minutes Workout" app will be used in physical education, in the classroom, and as a fitness program in schools. Teachers can use the app for warm-up or cool-down sessions and to assign home exercises, tracking students' progress through weekly reports. Schools can use the app to organize fitness challenges, motivating students to complete a certain number of sessions in a certain time. The app can also be integrated into the curriculum, making physical activity an essential part of the physical education curriculum.

The "7 Minutes Workout" app can effectively motivate and help develop healthy habits. Motivation is a psychological process in which individuals engage in behaviors that they consider important for their personal growth (Sierra-Díaz et al., 2019). Motivation drives behavior towards achieving goals in exercise, playing a key role in initiating and maintaining activity. Motivation increases human energy, influences psychology, feelings, and emotions to pursue goals, needs, and desires (Muhammedi, 2017). Factors that influence sports motivation in students include gender—men often consider sports as something fun, while women focus more on fitness and body shape—, family influence, and the role of sports teachers (Portela-Pino et al., 2020). Another benefit of using the Android-based fitness application "7 Minutes Workout" is the increase in student activity in sports learning (Makarim, 2022). Student activities provide more opportunities to gain new experiences and knowledge. Successful learning requires a variety of activities, because student engagement is essential for effective learning. Both physical and psychological engagement create a positive atmosphere that helps achieve learning goals (Darmawan, 2020). Kurnain et al. (2019) suggest that activeness is indicated by factors such as student-centered learning, clear goals, problem solving, encouraging inquiry, fostering new perceptions, promoting openness, and students' awareness of responsibility. It involves physical and mental engagement, a positive atmosphere, and feedback.

This study anticipates that the "7 Minutes Workout" application will significantly increase students' motivation and engagement in actively participating in their physical education. With increased motivation and activeness in exercising, it is expected that students' health and physical fitness will also improve. This study aims to show how technology, especially fitness applications, can promote innovative physical education teaching methods, improve the skills of physical education teachers, and improve the quality of physical education. The efficient and practical aspects of the Android fitness application "7 Minutes Workout," including its convenience and benefits, support the objectives of this study. This study is entitled "The Effectiveness of Android-Based Learning Media "7 Minutes Workout" on Students' Motivation and Activeness in Physical Education, Sports, and Health".

Method

This study examines the impact of the Android application "7 Minutes Workout" on the motivation and activity level of junior high school students at SMP Negeri 1 Semboro, Jember Regency. This study involved 784 junior high school students, with a sample of 176 determined using G*Power software. The sample was divided into two groups: one group used the application for learning, while the other group continued with the traditional method. The students selected for this study did not participate in extracurricular activities related to sports, so that the application's effects could be measured accurately.

This study used a questionnaire based on the ARCS (Attention, Relevance, Confidence, Satisfaction) theory to measure students' motivation before and after the intervention. The Focus Proportion Analysis (FPA) tool was used to assess students' engagement. The FPA was developed by the Physical Education Subject Team at the Center for Policy Research and Innovation at the Department of National Education, which includes indicators of Active Time Allotment (ATA) and Student Direct Engagement (SDE).

Data were analyzed using descriptive and inferential statistics, with the Friedman test used to detect significant changes in student engagement in the intervention group over time. Comparison with the control group provided insight into the effectiveness of the application compared to conventional methods. The data collected were not normally distributed, so this analysis is expected to provide valid information. The results of the study were validated through seven weeks of observation and systematic data collection, ensuring reliability and accuracy, with the researcher monitoring the process.

Result and Discussion

The intervention group showed a significant increase in daily exercise motivation, with a chi-square value of 5883.004 and a p-value of 0.000. This indicates that the intervention given successfully increased exercise motivation consistently. In the control group, exercise motivation did not change significantly (chi-square 8.149, p-value 0.320), indicating that without intervention, students' motivation to exercise remained stable. In the intervention group, the ATA indicator increased significantly, with a chi-square value of 602.896 and a p-value of 0.000. Likewise, the SDE indicator also increased significantly, with a chi-square value of 611.008 and a p-value of 0.000. In the control group, there was no significant change in the ATA indicator (chi-square = 0.890, p = 0.996) or the SDE indicator (chi-square = 11.085, p = 0.135). These results indicate that the intervention effectively increased motivation and activity levels in the sports learning process in the intervention group.

Table 1. Friedman Test Results

Variable			Meeting										
			Pre Test	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Chi-Square	Df	P-Value
Student motivation	Experimental Group	Mean rank	1.08	2.07	3.09	3.89	4.96	6.18	7.28	7.45	5883004	7	0.000
	Control Group	Mean rank	4.65	4.10	4.70	4.44	4.85	4.76	4.19	4.31	8.149	7	0.320
Student activity (ATA)	Experimental Group	Mean rank	1.06	2.32	2.70	3.93	5.01	5.99	7.00	7.98	602,896	7	0.000
	Control Group	Mean rank	4.56	4.44	4.53	4.41	4.65	4.55	4.36	4.49	0.890	7	0.996
SDE	Experimental Group	Mean rank	1.05	1.99	2.99	4.05	4.99	5.96	7.02	7.95	611,008	7	0.000
	Control Group	Mean rank	3.86	4.29	4.61	4.60	4.89	4.79	4.35	4.61	11,085	7	0.135

Table 2. Results of Comparison of Group Means after Test

Student motivation in exercising intervention group						Student activity in sports											
						ATA						SDE					
Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig	Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig	Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig
Pretest 2	-2.011	0.369	-5,447	0.000	0.000	Pretest 1	-1.261	0.369	-3.416	0.000	0.018	Pretest 2	-1,943	0.369	-5.262	0.000	0.000
Pretest 3	-2.812	0.369	-7.616	0.000	0.000	Pretest 2	-1.642	0.369	-4.447	0.000	0.000	Pretest 3	-3,000	0.369	-8.124	0.000	0.000
Pretest 4	-3,881	0.369	-10,509	0.000	0.000	Pretest 3	-2,869	0.369	-7,770	0.000	0.000	Pretest 4	-3.943	0.369	-10,678	0.000	0.000
Pretest 5	-5.102	0.369	-13,817	0.000	0.000	Pretest 4	-3.943	0.369	-10,678	0.000	0.000	Pretest 5	-4.915	0.369	-13,309	0.000	0.000
Pretest 6	-6.199	0.369	-16,787	0.000	0.000	Pretest 5	-4.932	0.369	-13,355	0.000	0.000	Pretest 6	-5.977	0.369	-16,168	0.000	0.000
Pretest 7	-6,369	0.369	-17,248	0.000	0.000	Pretest 6	-5.938	0.369	-16,079	0.000	0.000	Pretest 7	-6.909	0.369	-18,710	0.000	0.000
1 - 3	-1,824	0.369	-4.939	0.000	0.000	Pretest 7	-6.915	0.369	-18,725	0.000	0.000	1 - 3	-2.051	0.369	-5.555	0.000	0.000
1 - 4	-2.892	0.369	-7,832	0.000	0.000	1 – 3	-1.608	0.369	-4.354	0.000	0.000	1 - 4	-2.994	0.369	-8.109	0.000	0.000

Student motivation in exercising intervention group						Student activity in sports											
						ATA						SDE					
Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig	Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig	Meetings	Test Statistics	Std. Error	Std. Test Statistic	Sig	Adj. Sig
1 – 5	-4.114	0.369	-11,140	0.000	0.000	1 – 4	-2.682	0.369	-7.262	0.000	0.000	1 – 5	-3.966	0.369	-10,740	0.000	0.000
1 – 6	-5.210	0.369	-14.109	0.000	0.000	1 – 5	-3,670	0.369	-9,940	0.000	0.000	1 – 6	-5.028	0.369	-13,617	0.000	0.000
1 – 7	-5.381	0.369	-14,571	0.000	0.000	1 – 6	-4.676	0.369	-12,663	0.000	0.000	1 – 7	-5,960	0.369	-16,140	0.000	0.000
2 - 4	-1,869	0.369	-5.062	0.000	0.000	1 – 7	-5,653	0.369	-15,310	0.000	0.000	2 - 4	-2,000	0.369	-5.416	0.000	0.000
2 – 5	-3.091	0.369	-8,370	0.000	0.000	2 – 3	-1.227	0.369	-3.323	0.000	0.025	2 – 5	-2.972	0.369	-8,047	0.000	0.000
2 – 6	-4.188	0.369	-11,340	0.000	0.000	2 – 4	-2.301	0.369	-6.232	0.000	0.000	2 – 6	-4.034	0.369	-10,924	0.000	0.000
2 – 7	-4.358	0.369	-11,801	0.000	0.000	2 – 5	-3.290	0.369	-8,909	0.000	0.000	2 – 7	-4.966	0.369	-13,448	0.000	0.000
3 – 5	-2.290	0.369	-6.201	0.000	0.000	2 – 6	-4.295	0.369	-11,632	0.000	0.000	3 – 5	-1.915	0.369	-5.185	0.000	0.000
3 – 6	-3.386	0.369	-9.170	0.000	0.000	2 – 7	-2.273	0.369	-14,279	0.000	0.000	3 – 6	-2.977	0.369	-8,062	0.000	0.000
3 – 7	-3,557	0.369	-9,632	0.000	0.000	3 – 5	-2.062	0.369	-5,585	0.000	0.000	3 – 7	-3.909	0.369	-10,586	0.000	0.000
4 – 5	-1.222	0.369	-3.308	0.001	0.026	3 – 6	-3.068	0.369	-8,309	0.000	0.000	4 – 6	-2,034	0.369	-5,508	0.000	0.000
4 – 6	-2.318	0.369	-6.278	0.000	0.000	3 – 7	-4.045	0.369	-10.955	0.000	0.000	4 – 7	-2.966	0.369	-8,032	0.000	0.000
4 – 7	-2.489	0.369	-6,379	0.000	0.000	4 – 6	-1.994	0.369	-5.401	0.000	0.000	5 - 7	-1.994	0.369	-5.401	0.000	0.000
5 - 7	-1.267	0.369	-3.341	0.001	0.000	4 – 7	-2.972	0.369	-8,047	0.000	0.000						
						5 - 7	-1.983	0.369	-5,370	0.000	0.000						

Post-hoc tests showed significant differences between sessions in the intervention group, both for motivation and exercise activity variables. All session comparisons showed significant results (p-value 0.000), indicating that the intervention consistently increased motivation and exercise activity.

Table 3. Kruskal-Wallis Test Results

Meeting	Motivation to exercise			ATA			SDE		
	Chi-square	Df	Asymp.sig	Chi-square	Df	Asymp.sig	Chi-square	Df	Asymp.sig
Pretest	0.003	1	0.957	34.183	1	0.000	33,691	1	0.000
Day 1	131,553	1	0.000	1,250	1	0.264	0.865	1	0.352
Day 2	131,474	1	0.000	13,857	1	0.000	18,582	1	0.000
Day 3	131,507	1	0.000	84,168	1	0.000	85,440	1	0.000
Day 4	131,507	1	0.000	123,252	1	0.000	118,499	1	0.000
Day 5	131,701	1	0.000	131,392	1	0.000	128,379	1	0.000
Day 6	131,532	1	0.000	131,403	1	0.000	131,385	1	0.000
Day 7	131,538	1	0.000	131,391	1	0.000	131,352	1	0.000

The chi-square value of 0.003 and p-value of 0.957 indicate that there is no significant difference in exercise motivation between the intervention group and the control group at the pretest stage. The chi-square value for exercise reached around 131, with a p-value of 0.000, indicating a significant difference between the two groups every day after the intervention began. This indicates that the intervention has a significant effect in increasing exercise motivation compared to the control group. The results of the Kruskal-Wallis test showed significant differences in the ATA and SDE variables between the intervention group and the control group after the intervention. The high chi-square value and p-value of 0.000 indicate that the intervention was successful in increasing exercise activity.

Discussion

Student Motivation

In the intervention group, the analysis showed that exercise motivation increased significantly every day during the sports learning process. The Friedman test showed a chi-square value of 5883.004 and a p-value of 0.000, indicating a significant difference in exercise motivation over time in this group. The "7 Minutes Workout" application effectively increased students' motivation to exercise, as those who used it showed a significant increase in motivation. The control group that did not receive the intervention showed no significant change in exercise motivation, with a chi-square value of 8.149 and a p-value of 0.320. These findings indicate that without intervention, students' motivation tends to be stable and does not experience significant changes. These results are in line with previous studies showing that exercise applications can increase student motivation by offering structured exercise guidance and short, intense exercises (Hernández-Andreo et al., 2020), which found that regular short exercises were more acceptable to students and effective in increasing their activity levels. Gil-Espinosa et al. (2022) found that digital exercise applications effectively increased students' motivation by providing easy access to exercise guidance. He et al. (2021) found that junior high school students preferred applications with short training sessions, which is in line with the results that 7-minute training can increase motivation. Caillaud et al. (2022) stated that the integration of applications in physical education makes students more active and interested. Manĕnová et al.

(2022) emphasized that the use of gamification elements in applications can increase student enthusiasm.

This study supports Keller (2010) theory of motivation, which states that appropriate interventions can increase a person's intrinsic motivation for activities such as exercise. Keller's ARCS theory highlights four key elements to increase learning motivation: Attention, Relevance, Confidence, and Satisfaction (Keller, 2010). In the context of using the 7 Minutes Workout app, these four elements can be identified. The app captures students' attention with attractive visuals and varied exercises, encouraging active participation. The short duration and relevance of the exercises help junior high school students, who have limited time, to engage more with the learning material. The app is designed to help students feel capable of completing the exercises. Providing clear instructions and providing positive feedback significantly increases their self-confidence. Finally, the satisfaction gained from achieving exercise goals strengthens their motivation to continue exercising. After exercising, students feel proud, which increases their sense of accomplishment and motivation to stay active. The 7 Minutes Workout app has increased students' interest and motivation to participate in exercise activities, especially in the intervention group. This study shows that the use of Android applications for sports learning is in line with Keller's motivational principles.

Researchers believe that the 7 Minutes Workout app is a valuable tool for increasing students' motivation and engagement in physical education. The app is designed to engage students by incorporating technology they are already familiar with, with the goal of increasing their interest in physical activity. The Android-based app provides students with easy access to exercise anytime and anywhere, which fits into their busy lifestyles. In addition, these short yet effective workouts help students develop positive and sustainable exercise habits. This study suggests that adding an app like 7 Minutes Workout to physical education can greatly assist students in developing a healthy lifestyle. Increased motivation and participation in exercise can help students adopt a healthier lifestyle, which is beneficial for their current and future physical health. Implementing Android-based apps in physical education can create a healthier and more active generation.

Student Activity

Students' sports activity was measured using two indicators, namely ATA (Total Active Activity) and SDE (Effective Duration Session). In the intervention group, both indicators showed a significant increase over time. The Friedman test revealed a chi-square value of 602.896 and a p-value of 0.000 for the ATA indicator, indicating a significant difference between days. Sports activity in the intervention group increased due to the "7 Minutes Workout" application. The control group did not show a significant change in sports activity, with a chi-square value of 0.890 and a p-value of 0.996, indicating that students' activities remained stable without intervention. The SDE indicator showed a significant increase in sports activity in the intervention group, with a chi-square value of 611.008 and a p-value of 0.000. In the control group, the results were not significant, with a chi-square value of 11.085 and a p-value of 0.135, indicating no increase in sports activity without intervention. These results are in line with previous studies, which highlighted that digital-based exercise apps are effective in increasing students' activity. Mateo-Mateo-Orcajada et al. (2023) found that students preferred apps with shorter exercise durations, which also increased their activity levels. A study by Gil-Espinosa et al. (2022) found that the use of interactive exercise apps can increase the frequency and intensity of exercise among junior high school students. A study by He et al. (2021) in China found that mobile health apps increased physical activity among students, highlighting the role of technology in promoting healthy habits.

Increasing sports activity is related to the theory of Indonesian Sports Education, which emphasizes the importance of active student participation in learning. This theory states that engaging people in physical activity can be increased by using fun and interesting methods, such as fun applications. By using the "7 Minutes Workout" application, students are more motivated to participate, leading to increased activity levels. This approach is in line with the principles of physical education which emphasize that student participation in physical activity is essential for building healthy habits. Research by Li (2023) shows that interactive sports applications can increase student participation and their confidence in exercising. Researchers believe that the use of Android-based applications in sports learning can effectively increase student involvement in sports. This application promotes student involvement and has been effective in increasing their participation in physical activity. The use of technology in physical education is essential for building a more active and healthy generation.

Conclusion

The findings of this study indicate that the 7 Minutes Workout application significantly improves the motivation and physical activity levels of junior high school students during physical education lessons at SMP Negeri 1 Semboro, Jember Regency. The application motivates students to exercise with daily reminders and progress tracking, while movement

visualization improves their understanding of physical activity. The chi-square value for exercise reached around 131, with a p-value of 0.000, indicating a significant difference between the two groups every day after the intervention began. This indicates that the intervention has a significant effect in increasing exercise motivation compared to the control group. The results of the Kruskal-Wallis test showed significant differences in the ATA and SDE variables between the intervention group and the control group after the intervention. The high chi-square value and p-value of 0.000 indicate that the intervention was successful in increasing exercise activity. The intervention group showed a significant increase in daily exercise motivation, with a chi-square value of 5883.004 and a p-value of 0.000. In addition, the application offers an innovative approach to physical education learning that tends to be monotonous. 7 Minutes Workout improves students' fitness and effectively integrates technology into education.

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