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Developing a Physical Education Learning Model Using a Habit Learning Approach; Habitual Building and Positive Reinforcement Strategies to Increase Physical Activity in High School Students

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Abstract
This study aims to develop a habit-learning-based physical education (Physical Education) learning model with habituation strategies and positive reinforcement to form sustainable physical activity habits in high school students. The method used is research and development (R&D) with the Borg & Gall model. The subjects were grade X Social Department I students of high school 1 Langgudu, Bima Regency. The research instruments were questionnaires and interviews to measure student motivation and responses after the model was implemented. The results of a limited trial showed that the implementation of the habit learning model obtained an average response of 62.70% in the good category. A total of 78.9% of students rated this model as good, while 21.1% rated it as adequate, with no ratings of very good or poor. These findings indicate that the developed learning model is practically feasible, although it still requires improvements in the reward aspect, habituation consistency, and digital media optimization to increase its effectiveness. Thus, the habit learning model has the potential to support the goal of physical education in forming a lifelong healthy lifestyle

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1. INTRODUCTION

. Physical activity and exercise play an important role not only in physical fitness, but also in supporting students' mental health and emotional well-being. Research shows that active participation in physical activity can significantly improve physical fitness (Satriawan FR, 2024) and reduce the risk of non-communicable diseases such as obesity and diabetes, which are now increasingly affecting children and adolescents due to monotonous lifestyles (Adhianto KG, Arief NA, 2023). In addition, regular and balanced physical activity also contributes to the development of motor skills (Haryanto AD, 2021), emotional stability, and improved academic performance of students (Cadenas-Sanchez C, 2021).

The physical fitness of Indonesian children and youth remains a cause for concern. The 2023 Sport Development Index survey shows that only 34% of children aged 10–15 and 35.7% of youth aged 16–30 engage in physical activity at least three times a week. This means that around 65% of them still have low levels of physical activity and do not meet the principles of adequate exercise (Ministry of Youth and Sports, 2022). This indicates that

physical education in schools has not been able to encourage students to make physical activity a necessity or part of their daily lifestyle.

The physical education curriculum plays an important role in fostering healthy students. The main objective of physical education is to promote a physically active lifestyle throughout life through sports skills and physical activities. Indicators of physical education learning achievement can be seen from student behavior, such as the habit of moving and maintaining fitness.Physical education should not only emphasize activities in the school environment, but also be able to form positive habits that continue outside of school hours. Students need to have the motivation and awareness to continue to engage in physical activity independently, both at home and in their social lives. Thus, sports do not only become a school routine, but develop into a part of a healthy lifestyle.

Physical education is essentially a learning process designed to improve students' health, fitness, and motor skills through various physical activities and sports (Saitya & Muhadi, 2025). In addition, physical education also contributes to students' motor development, mental health, and character building (Saitya; Yamin, 2022) (Koc. Y, 2017) (Dwiyogo WD, Cholifah PS, 2016). Therefore, the Physical education learning process must be given more attention, such as the learning planning process and the selection of appropriate learning models and methods so that the objectives can be achieved.

The application of current learning models emphasizes students' thinking abilities rather than the formation of habitual movement behaviors. One innovative approach relevant to supporting this goal is the development of a habit learning-based physical education learning model, which emphasizes the habit formation of healthy behaviors through repetition and positive reinforcement strategies. This model refers to a holistic and sustainable approach in shaping students to become independent and productive learners. (Fatonah et al., 2024) This model is based on the concept that good habits can help students become more effective and independent learners. The characteristics of the habit learning model include the identification of positive habits, the formation of behavior patterns, integration into learning, positive reinforcement, evaluation, and monitoring.

Based on the background of the problem described above, this study aims to develop a habit-based physical education learning model with habit formation and positive reinforcement strategies to shape sustainable physical activity habits in high school students.

2. RESEARCH METHOD

. This research method uses the research and development (R&D) method, with the Borg and Gall model consisting of ten stages of systematic product development. The population in this study was students of High School 1 Langgudu, and the sample in this study was students of class X Social Department 1. The instruments used were questionnaires and interviews to measure motivation after the application of the Habit Learning Model in physical education subjects. The data analysis technique used was an effectiveness test to see an objective picture of the feasibility and effectiveness of the developed curriculum product.

3. RESEARCH RESULTS AND DISCUSSION.

3.1.Researc Result

Based on the results of the Student Response Questionnaire Analysis on Physical Education Learning with the Habit Learning Model, the average percentage of all respondents was 62.70%.

Nama	Jumlah	Persentase (%)	Kategori
Aura	50	62.50	Baik
Ayu Ardinningsih	52	65.00	Baik
Ayu Lestari	48	60.00	Cukup
Gatot Subroto	50	62.50	Baik
Hamsah	52	65.00	Baik
Ida Laila	50	62.50	Baik
Imam Alfatih	53	66.25	Baik
Isti Novitasari	49	61.25	Baik
Jaini	53	66.25	Baik
M. Farisqi	47	58.75	Cukup
Muhamad Saukin	49	61.25	Baik
Nur Susanti	50	62.50	Baik
Nuril	51	63.75	Baik
Nur Aini	50	62.50	Baik
Radiatul Safitri	52	65.00	Baik
Wahdaniyah Ayuningsih	51	63.75	Baik
Zahra Raudatul Jannah	51	63.75	Baik
Zulkarnain	47	58.75	Cukup
Ikhsan	48	60.00	Cukup

Figure 1. Table of student response analysis data

The results of limited trials show that the application of the physical education learning model based on habit learning obtained an average student response of 62.70%, which is in the good category. A total of 15 students (78.9%) rated this model as good, while 4 students (21.1%) gave it a fair rating, and no responses fell into the very good or poor categories. These findings indicate that, in general, the initial product developed is practically feasible for application in physical education learning at the high school level. When analyzed based on habit formation theory, the score in the good category shows that the process of habit formation through repetition strategies has begun to take shape in most students. However, the existence of adequate responses indicates that the automation of healthy habits has not been fully internalized. In other words, the habit of physical activity is still in the early stages of adaptation, so behavioral consistency needs to be strengthened through more systematic interventions.

Furthermore, from the perspective of positive reinforcement theory, these results show that rewards, motivation, and feedback have been able to encourage student participation, but are not yet strong enough to achieve an excellent rating. This means that the reward system used in the limited trial phase still needs to be modified to make it more attractive, relevant to the student context, and capable of increasing their emotional involvement.

The content and practicality of the product in the limited trial phase can be considered quite high, as most of the model implementation indicators were well received by students. However, in accordance with the Borg & Gall research and development framework, these results form the basis for revising the product before proceeding to the large-scale field trial phase. The revisions that need to be made include:

1. Strengthening rewards and motivation, for example by adding a variety of digital rewards (certificates, badges, leaderboards) that can be accessed through the app.
2. Modifying the habit formation strategy by increasing simple physical activities that students can do at home, so that active habits are easier to form outside of class hours.

3. Adding variety to learning activities so that students do not get bored quickly and remain enthusiastic about participating in each physical education session based on habit learning.

Therefore, this limited trial can be concluded as an initial validation stage that shows that the habit learning model already has an adequate level of practicality and feasibility. However, strengthening the reward aspect, consistency of habit formation, and integration of digital media need to be the focus of improvement before this model is tested on a larger scale.

3.2. Discustion

Analysis of Habit Learning in Physical Education Learning

Limited trial results show that the average student response reached 62.70%, which is in the good category. This finding indicates that the habituation strategy applied through the habit learning model has begun to successfully form positive physical activity patterns in most students. In accordance with the principle of habit formation, habits are not formed instantly, Rather through a process of consistent repetition of behavior until it becomes automated in daily life. Thus, the achievement of the good category can be interpreted as an initial indication that students have responded positively to the habit formation intervention, even though it is still in the early stages of habit formation.

However, there are still 21.1% of students who gave a rating in the adequate category. This condition shows that not all students have succeeded in achieving the expected consistency of behavior. In the framework of habituation theory, this is natural because habit formation is influenced by various factors, including intrinsic motivation, learning environment, and social support. Some students may need additional stimuli or a longer period of time for physical activity habits to be permanently internalized.

These findings are in line with the research by Akhyar & Sutrawati (2021), which states that the habituation method is proven to be effective in shaping children's religious character, but its success is highly determined by the level of consistency in application and the intensity of repetition. In the context of this study, the questionnaire results show that consistency in physical habituation through physical education has been established, but it is still not strong enough to produce healthy behavior automation in all students. Therefore, strengthening habituation strategies needs to be directed at increasing the frequency of exercise, continuous monitoring, and providing systematic feedback so that active physical habits are truly embedded in students.

Furthermore, the achievement of the good category also shows opportunities to improve the effectiveness of the habit learning model. With revisions that emphasize variety in physical activities, strengthening motivation, and integrating supporting technologies such as digital habit trackers, the habit formation process can be more consistent and enjoyable. Ultimately, strengthening this habit-forming aspect is expected to bring students from the adequate category to the good or even excellent category, so that the main objective of physical education in shaping a lifelong healthy lifestyle can be achieved more optimally.

Based on Positive Reinforcement Theory, the majority of students gave ratings in the good category, indicating that the motivation and reward strategies in the habit learning model have played a role in increasing their participation in physical education learning. This finding is in line with the concept of positive reinforcement in Skinner's operant conditioning theory, where positive behavior can be reinforced when followed by pleasant consequences. In the context of this study, the students' positive responses

reflect that the provision of stimuli in the form of rewards, motivation, or teacher appreciation has been able to foster the drive to be more active in participating in physical activities.

However, the survey results also show that none of the students gave a rating in the excellent category. This indicates that the positive reinforcement mechanism applied is still not optimal. In other words, the rewards given tend to be sufficient to encourage students to perform at a good level, but are not yet able to create higher levels of enthusiasm and engagement. This condition confirms that the effectiveness of positive reinforcement is highly dependent on the suitability of the rewards to the needs and interests of students.

This finding is consistent with the research by Nurhayati et al. (2024), which shows that the habituation method can be more effective when combined with positive reinforcement strategies. They found that the discipline of young children improved significantly when behavioral habituation was accompanied by varied and relevant rewards. In the context of physical education, rewards that are monotonous or meaningless to high school students may be a factor hindering the achievement of the excellent category.

Therefore, the positive reinforcement mechanism in the habit learning model needs to be strengthened through more contextual innovations, such as gamification systems (e.g., leaderboards, digital badges, or app-based rewards) and social recognition (e.g., publication of student achievements in class or school media). With this approach, it is hoped that student motivation will not only be formed by external factors (rewards), but will also develop into intrinsic motivation to maintain an active lifestyle.

Ultimately, strengthening this reward aspect will contribute significantly to encouraging students to move from the adequate category to the good category, as well as opening up opportunities to achieve the excellent category. This is important because the success of positive reinforcement strategies is key to accelerating the internalization of the desired habits, so that physical activity truly becomes part of students' lifestyles, not just a routine learning activity at school. The response of students, the majority of whom are in the good category, also shows that the integration of digital technology in the habit learning model contributes positively to the physical education learning process. The use of applications such as habit trackers, interactive learning videos, and learning management system platforms helps students monitor their physical activity while providing a space to gain motivation online. This is in line with the concept of blended learning, which is a combination of face-to-face learning and technology-based learning that allows students to be more flexible in accessing materials and carrying out habit-forming activities.

However, the average response rate of 62.70%, which is still in the good category, indicates that the use of digital media is not yet fully optimal. Several factors that may influence this are the level of students' digital literacy, familiarity with using applications that support physical activities, and the availability of infrastructure such as devices and stable internet access. In other words, the success of technology integration in physical education learning is not only determined by the model design, but also by the readiness of students and the learning environment.

These findings are in line with the research by Dwiyogo & Cholifah (2016), which states that blended learning can improve the professionalism of physical education teachers, but its effectiveness is highly dependent on the consistency of implementation and the readiness of users to adapt to educational technology. In the context of this study, the questionnaire results show that students have already felt the

benefits of digital media, but they still need more consistent practice so that technology can truly function as a habit enhancer. Therefore, the optimization of blended learning and mobile learning needs to be directed at several important aspects, including: (1) providing digital literacy training for students to improve their skills in using habit tracker applications; (2) simplifying digital media features to make them more user-friendly; and (3) providing a variety of interesting learning content, such as application-based physical challenges, interactive quizzes, or group-based gamification. With these steps, digital technology can serve not only as a tool but also as an instrument in strengthening the formation of sustainable physical activity habits.

Accordingly, the integration of blended learning and mobile learning in the habit learning model has great potential to accelerate the formation of an active lifestyle among students. However, in order to improve achievements from good to excellent, a more systematic and innovative strategy is needed in the use of educational technology. Based on this description, it can be concluded that the limited trial results provide an initial indication that the habit learning-based physical education learning model is feasible for practical application, but still requires revision to achieve maximum effectiveness. The revisions that need to be made include: (1) strengthening habit-forming strategies to be more consistent; (2) innovating more varied and contextual rewards; and (3) optimizing the use of digital technology to support physical activity habits. Improvements in these aspects are expected to increase student responses from the good category to the very good category, so that the main objective of physical education to form lifelong healthy habits can be optimally achieved

4. CONCLUTION

Based on the results of the research and discussion, it can be concluded that the development of a physical education learning model based on habit learning with habituation and positive reinforcement strategies was able to elicit a positive response from students, with an average achievement of 62.70% in the good category. These findings indicate that the habituation of active behavior through repetition and positive reinforcement has begun to take shape, although it is still in its early stages. The advantage of this model lies in its ability to instill motivation for physical activity in a sustainable manner and is relevant to the principles of habit formation and positive reinforcement theory. However, improvements are still needed in the form of strengthening the reward system, varying learning activities, and optimizing the integration of digital technology to increase effectiveness to the “very good” category. With these improvements, the habit learning model is expected to become an innovative alternative in physical education learning to realize a healthy and active lifestyle throughout life for high school students.

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