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Development of a physical education learning model football game materials based on cooperative learning to increase student motivation and cooperation

Rozwój modelu nauczania wychowania fizycznego z zakresu piłki nożnej, opartego na metodzie uczenia się kooperacyjnego, mającego na celu zwiększenie motywacji i współpracy wśród uczniów

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Abstract

Aim. (1) This study aims to test the production of a physical education learning model based on cooperative learning, designed to increase motivation and cooperation among high school students (2) Producing the feasibility of implementing a cooperative learning-based physical education learning model to increase motivation and cooperation for high school students (3) Produce practical implementation of a practical physical education learning model based on cooperative learning to increase motivation and cooperation for high school students.

Material dan methods. This research employs a Research and Development (R&D) model. This research procedure uses the ADDIE development model. The population in the study was class X SMA N 1 Seyegan with a sample size of 16 students.

Results. (1) Based on research, the average learning outcome for the development of the first meeting was 44,125 and at the second meeting was 64,875. Sig value (2-tailed) is.000. Due to the sig value..000 < 0.05 then H₀ is rejected. Therefore, it can be concluded that there was a significant improvement between the first and second meetings. (2) Based on research, it shows that the average learning outcome at the second meeting was 64.870 and at the third meeting was 81.125, Sig. (2-tailed) of.001. Due to the significance value 0.001 < 0.05 then H₀ is rejected and H_a cannot be rejected. So it can be concluded that at the second and third meetings there was a significant improvement (3) Based on research, it shows that the average learning outcome for the development of the first meeting was 44.125 and the third meeting was 81.125, the value of significance (2-tailed) of 0.000. Due to the significance value. 000 < 0.05 then H₀ is rejected and H_a cannot be rejected. So it can be concluded that from the first meeting to the third meeting there was a significant improvement.

Conclusions. Research on the development of a model for the development of a physical education learning model with cooperative learning-based football game material to increase high school students' motivation and cooperation which has been prepared and is suitable for use. The development of a physical education learning model with cooperative learning-based soccer game material to increase high school students' motivation and cooperation has proven effective.

Keywords

learning model, physical education, cooperative learning, football

Streszczenie

Celem niniejszego badania jest: 1. Zbadanie skuteczności modelu nauczania wychowania fizycznego, opartego na metodzie uczenia się kooperacyjnego, zaprojektowanego w celu zwiększenia motywacji i współpracy wśród uczniów szkół średnich. 2. Ocena możliwości wdrożenia modelu nauczania wychowania fizycznego opartego na uczeniu się kooperacyjnym, mającego na celu zwiększenie motywacji i współpracy wśród uczniów szkół średnich. Realizacja praktyczna modelu nauczania wychowania fizycznego, wykorzystującego metody uczenia się kooperacyjnego, w celu wzrostu motywacji i współpracy uczniów szkół średnich. Materiały i metody. W badaniu zastosowano model badawczo-rozwojowy (R&D), opierając się na procedurze rozwojowej ADDIE. Badanie przeprowadzono wśród uczniów klasy X SMA N 1 Seyegan, z próbą liczącą 16 uczniów.

Wyniki. Analiza wykazała, że średni wynik nauczania na pierwszym spotkaniu wyniósł 44,125, a na drugim spotkaniu wzrósł do 64,875. Wartość p (dwustronna) wyniosła.000. Zatem, przyjmując próg istotności na poziomie 0,05, hipoteza zerowa (H₀) zostaje odrzucona, co oznacza znaczącą poprawę pomiędzy pierwszym a drugim spotkaniem. Średni wynik nauczania na drugim spotkaniu osiągnął poziom 64,870, a na trzecim wzrósł do 81,125, przy wartości p (dwustronnej) wynoszącej 0,001. Odrzucenie H₀ przy przyjętym progu istotności wskazuje na znaczącą poprawę między drugim a trzecim spotkaniem. Porównanie wyników nauczania z pierwszego i trzeciego spotkania pokazało wzrost średniej z 44,125 do 81,125, przy wartości p (dwustronnej) 0,000. Odrzucenie H₀ potwierdza znaczącą poprawę od pierwszego do trzeciego spotkania.

Wnioski. Badanie nad opracowaniem modelu nauczania wychowania fizycznego, wykorzystującego kooperacyjne metody nauczania w piłce nożnej, w celu zwiększenia motywacji i współpracy wśród uczniów szkół średnich, wykazało jego przydatność i skuteczność. Opracowany model nauczania wychowania fizycznego, oparty na metodzie uczenia się kooperacyjnego, skutecznie zwiększa motywację i współpracę wśród uczniów szkół średnich.

Słowa kluczowe

model nauczania, wychowanie fizyczne, uczenie się kooperacyjne, piłka nożna

Introduction

The physical education learning provided cannot fully improve students' abilities in the cognitive domain, but places more emphasis on psychomotor skills. Physical education aims to increase students' physical activity in order to achieve the learning goals themselves [1]. The low quality of Physical Education learning can be interpreted as less effective in the learning process. This can be caused by several alternatives, namely: teacher quality, student motivation and interest, inadequate facilities and infrastructure, inappropriate learning models used, inappropriate assessments, and an unsupportive learning environment.

Education plays a key role in ensuring that all learners are equipped with the knowledge and skills needed to promote sustainable development [2]. Research conducted by [3] shows that active collaboration, stakeholder involvement, and membership in international networks in the world of education play a role in increasing sustainability literacy and developing a systematic sustainability perspective. Education for sustainable development is considered a key element of high-quality education [4]. The same thing was also expressed by [5] that education is a key factor in responding to the threat of climate change, not only increasing knowledge but also encouraging changes in attitudes and behavior to adopt sustainable lifestyles. According to previous research, education is a very important factor in the life of a nation, because education is one aspect that can encourage increased human resources [6]. The purpose of education, apart from being able to improve human resources, is also very important in life, this is in accordance with the statement from [7] that education is a very important thing in life, both in family life, society, and national and state life. According to research conducted by [8] that the Indonesian nation requires human resources in adequate quantity and quality as drivers of development. In terms of numbers, Indonesia's population is of sufficient productive age, but quality needs to be improved. According to research conducted by [9] Education is the learning of knowledge, skills, and habits of a group of people that are passed on from one generation to the next through teaching, training, or research.

The quality of education in Indonesia in improving the quality of schools is not only focused on the facilities that schools have, but in improving the quality of schools we must also improve the quality of students, teachers and infrastructure that can support improving the quality of education. Forming quality human resources is very important, because human resources will determine the future fate of the Indonesian nation [10].

Physical education learning in Indonesia currently refers to a competency-based curriculum, meaning that in the learning process there are competencies that must be mastered by students as learning objectives [11]. Currently, Physical Education learning refers to the 2013 Curriculum as the newest curriculum, which has different goals and paradigms from the previous curriculum. The curriculum is closely related to educational theory. Theories about the curriculum are explained through educational theories, namely behaviorism, cognitivism, constructivism and humanistic educational theories. Each curriculum will reflect the educational theory used. In these educational theories, assessment is an important thing to

discuss. So, Physical Education learning does not only emphasize the psychomotor domain, but the affective domain and cognitive domain are very important. According to [12] Physical Education Teachers are expected to teach various basic movement skills, game/sport techniques and strategies, internalization of values (sportsmanship, honesty, cooperation, etc.) and habituation to healthy lifestyles, which are not implemented through conventional teaching in the classroom. which is a theoretical study, but involves physical, mental, intellectual, emotional and social elements.

In the last few decades, several countries have reformed the Physical Education curriculum. The aim of the Physical Education curriculum (conventional) used to only develop the skill or physical domain, now with the new Physical Education paradigm, the Physical Education curriculum aims to develop the psychomotor, cognitive and affective domains [13]. On the basis of the new paradigm of physical education, the aim of physical education is to develop the three domains, namely the psychomotor, cognitive and affective domains which are one unit. In other words, these three domains in every Physical Education lesson must be present, it just remains to be emphasized in which domain.

Motivation has provided evidence that PE teachers can manipulate goal orientation to facilitate learning achievement. Motivation can help students align personal goals with learning goals, regulate learning behavior, and develop interest in Physical Education. However, there is a need for more and stronger evidence linking teacher strategies and efforts to student learning [14].

Relatively permanent behavioral changes resulting from the experience of physical movement associated with cognitive understanding of movement are urgently needed. Cognitive knowledge and mastery of motor skills are the main indicators that define student learning as represented by student performance on knowledge and skills achievement tests.

Knowledge and skill attainment will be useful and meaningful for the Physical Education curriculum. Future research is needed to identify motivational sources relevant to students' development of a variety of knowledge- and skill-based learning strategies. Student motivation as a learning strategy allows researchers and teachers to understand how students engage in learning [14]. Physical Education has emphasized the development of a healthy and physically active lifestyle [14]. Motivation plays an important role in student learning, from a learning-centered perspective. To facilitate the internalization process, optimal motivation is needed, sports teachers must provide students with social support to improve learning. Future research is needed to identify strategies that will help students to learn more effectively in social environments controlled by PE teachers that allow them to internalize the values and behaviors associated with a healthy and active lifestyle.

Recent research shows that fostering motivation has a positive effect on physical education [15]. A quality physical education experience includes increasing students' motivation, their attitudes toward physical activity, and responsible behavior [16]. Student motivation increases when they learn, feel valued, and when they are socially accepted, instructional models such as CL (Cooperative Learning) are very effective for teachers to

increase student motivation [16]. This is in accordance with [17] which connects three factors, namely social, cooperation, improvement and student choice to increase motivation. Menurut [18] suggests the use of a target framework combined with PA (Peer Assessment) principles to increase student motivation.

In a recent review, [19] states that Cooperative Learning can help physical education to achieve four learning outcomes, namely: cognitive, social, physical and affective. Motivation has been studied extensively as one of the key elements related to learning outcomes [20]. According to [19] there is a need for further studies on Cooperative Learning and different psychological components of students' affective domains such as motivation.

According to [21], cooperative learning has emerged as an increasingly popular pedagogical model in education over the last 10 years. In a recent review, [22] found that cooperative learning can promote social interaction among students to care for each other, be considerate, empathetic, respect each other, and encourage each other to learn to work together.

Cooperative learning is the most effective method in the learning process. Cooperative learning must be goal-oriented because students must work together to achieve a specific task. Equal opportunities are an important element in the cooperative learning process [23]. Cooperative learning emphasizes student subjectivity, and requires students to actively participate in learning [13]. Cooperative learning is a teaching strategy that is based on the performance of learning groups [24].

Research conducted by [25] revealed that the Cooperative Learning (CL) learning method is a learning method that has social and academic benefits. Research conducted by [26] revealed that through the cooperative learning model students can express their thoughts, exchange opinions, work together if there are friends in their group who are experiencing difficulties. This is in line with the statement that the cooperative learning model is one of the learning models that not only involves students in learning but also in working together in teams [27]. The TGT (Team Games Tournament) type cooperative learning model is a learning model whose concept aims to form cooperation and motivate students to complete each task given in one study group. [28]. This is in line with the opinion that the TGT (Team Games Tournament) type cooperative learning model is an interesting learning model, and can improve student learning outcomes in physical education learning and give students more roles in each learning process [29].

According to research conducted, it is revealed that the TGT (Team Games Tournament) type cooperative learning model prioritizes a fun learning process by making learning like playing and competing in finding solutions to problems faced in groups [30]. This is in line with the opinion that the Teams Games Tournament (TGT) type cooperative learning model is a type of cooperative learning that places students in small groups of 5 to 6 students who have different abilities, gender and race [31]. A similar thing was expressed that the TGT type cooperative learning model contains elements of games and group cooperation so that students can learn or solve problems seriously. In the TGT type cooperative learning model, all students without distinction of status are actively involved and act as peer tutors [32].

This research uses a cooperative learning model of the Team Games Tournament (TGT) type as a meaningful social interaction learning model to form students' self-efficacy as a specific ability to control environmental or situational demands that are fundamental to winning in tournaments as results [33].

Previous research revealed that the TGT learning model will be centered on students during the learning process, students play an active, responsible role and can compete healthily in participating in learning because in the TGT learning model students will be given a tournament or competition after learning so that each group will be serious about learning because you have a target that must be achieved. In the TGT learning model, rewards or awards will be given to groups that meet or match the winning criteria. Because there is still a lot of learning that is centered on the teacher, who provides understanding of the material and does not practice movements, this can have an impact on students' understanding which will affect the resulting learning completion [34].

This research is in line with research conducted by [35] that the advantages of Team Games Tournament (TGT) are (1) Students are not too dependent on the teacher and will increase their self-confidence in their ability to think independently, find information from various sources, and learn with other students, (2) Develop the ability to express ideas or ideas verbally and comparing them with other people's ideas, (3) Requires an attitude of respect for other people, by being aware of limitations and being willing to accept all differences. (4) Help empower each student to be more responsible in learning, (5) Improve academic achievement and social skills, including developing a sense of self-esteem, interpersonal relationships, time management skills and a positive attitude towards school, (6) Develop the ability to test ideas and student understanding, as well as receiving feedback, (7) Increasing students' ability to use information and turning abstract learning into real, (8) Increasing learning motivation and providing stimulation for thinking, which will be very useful for the long-term learning process. Disadvantages of Team Games Tournament (TGT) (1) It takes a relatively long time to understand the philosophy of team learning, so students who have more abilities will feel hampered by other students who have lower abilities, (2) It is not an easy job to collaborate. students' individual abilities along with their cooperative abilities, (3) Assessments that are based on group work, teachers should be able to realize that the actual results and achievements expected are the achievements of each individual student, (4) By creating conditions for mutual learning between students, it could be can give rise to understanding that is not supposed to be or is not in line with expectations.

Education carried out in the learning process will be carried out well if you are able to apply learning methods/models effectively. One of the learning models that supports the formation of students' character is the cooperative learning model, namely a learning model that emphasizes group learning activities. The cooperative learning model is a learning strategy that involves students in group learning activities to complete certain tasks with the hope that all students contribute to the learning process and outcomes they obtain [36]. Therefore, students are expected to be able to apply cooperative

learning-based physical education learning models to increase motivation and cooperation.

Based on the author's observations and analysis, physical education material through the cooperative learning model can increase motivation and cooperative attitudes. In implementing physical education learning, so that learning goal orientation can be achieved optimally, in accordance with the 2013 curriculum, physical education must emphasize psychomotor, affective and cognitive aspects. According to [14] motivation has provided evidence that PE teachers can manipulate goal orientation to facilitate learning achievement. Based on these problems, it is necessary to provide a solution to the problems faced by teachers. Researchers are interested in conducting development research entitled "Development of a Physical Education Learning Model with Cooperative Learning-Based Football Game Material to Increase Motivation and Cooperation for High School Students", with the resulting product being a guidebook for a Cooperative Learning-based Physical Education learning model to help achievement of Physical Education learning objectives.

Materials and methods

Study participants

This research uses a research and development model or research and development abbreviated as R & D. This type of research is used by researchers to produce a product in the form of a physical education learning model with cooperative learning-based big ball game material to increase motivation and cooperation for high school students. The procedure for this

research is to use the ADDIE development model [37], [38] states that ADDIE is a model that is easy to use and can be applied in the curriculum in the cognitive, psychomotor and affective domains. The population in the study was class X SMA N 1 SEYEGAN with a sample size of 16 students.

Study organization

In this study, researchers conducted research for 2 months with 20 meetings.

Statistical analysis

Qualitative data in the research was obtained from the results of expert tests and limited-scale and wide-scale model trials. This data will be analyzed using qualitative analysis. The results of the analysis are used as material for revising the model which will be tested further. Quantitative data obtained from content validity testing (experts) of the physical education learning model. Data was obtained from the assessment results of seven experts. This quantitative data will be analyzed using Lawshe's Content Validity Ratio (CVR) formula.

Results and discussion

The aim of the physical education learning model with cooperative learning-based big ball game material is to increase student motivation and cooperation. The steps for the physical education learning model for the big ball game material based on cooperative learning, namely to increase student motivation and cooperation, can be seen in the picture below:

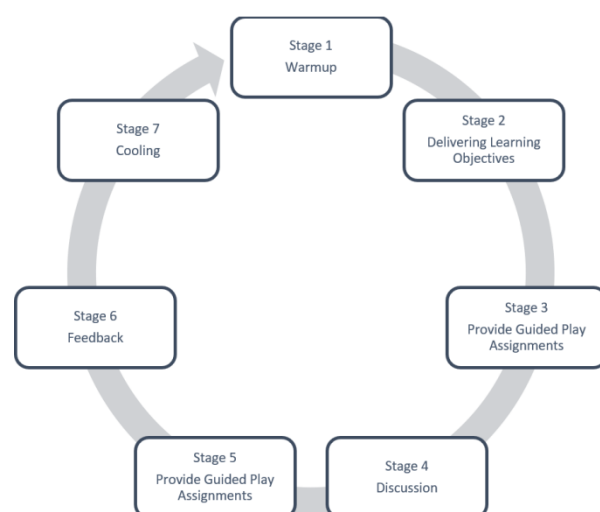


Figure 1. Learning model syntax

Table 1. Modifications to the football game

Soccer game modifications

The length of the field is 40 meters and the width of the field is 20 meters

Each group consists of 6-8 people

There are 4 goals with a height of 1.5 meters and a width of 1.5 meters

The goal is to score as many goals as possible, each team has 2 goals

Game duration is 15 minutes

Teams must work together to score goals

Table 2. Learning steps

Syntax	Teacher's Role	Learners
Warm up	The teacher leads the warm-up	Students follow the teacher's movements in warming up
Convey goals, rules	The teacher explains the objectives	Students listen to
Play and share	Learning, and explaining the rules	Understand, and create groups
Group Learning	Play and divide into groups	Into 4 groups (A, B, C, and D)
	The teacher provides strategy learning	
Give guided assignments	Techniques, playing tactics, and methods	Students listen
Play	Access play	See and understand the material presented by the teacher
Discussion	The teacher gives assignments and provides opportunities for students	Students try and play

The results of research entitled development of a physical education learning model for cooperative learning-based football game material to increase student motivation and cooperation can be seen below.

Table 3. Expert test

No.	Indicator	Question	Expert								CVR
1	Learning objectives	Are physical education learning objectives relevant to the 2013 curriculum?	1	1	1	1	1	1	1	1	
		Is the model developed effective?	1	1	0	1	1	1	1	1	0.7
		Is the model developed safe?	1	1	1	1	1	1	1	1	
		Is the model developed easy?	1	1	1	1	1	1	1	1	
2	Physical Activity	Are the physical activities developed relevant to the learning objectives?	1	1	1	1	1	1	1	1	
		Is the physical development relevant to the student's character?	1	1	1	1	1	1	1	1	
3	Learning Steps	What are the learning steps?	1	1	1	1	1	1	1	1	
		Physical education is relevant to the goal learning?	1	1	1	1	1	1	1	1	
4	Learning Facilities	What are the learning steps easy to implement?	1	1	1	0	1	1	1	1	0.7
5	Motivation and Cooperation Assessment Items	What is the size of the facility and the number?	1	1	1	1	1	1	1	1	

Based on the table above, the results of seven expert validations with analysis of the resulting CVR formula show a CVR value between 0.7 to 1, because according to Lawshe states that a CVR value above 0.5 has moderate validity and

a CVR value of 1 has a high validity value. In other words, the seven experts have perfect agreement for the CVR value = 1 and the two experts have moderate agreement for the CVR value = 0.7.

Table 4. PJOK teacher assessment data

No.	Indicator	Question	A				B				C			
			1	2	3	4	1	2	3	4	1	2	3	4
1	Physical activity	Are the physical activities developed relevant to the learning objectives?				x				x				x
		Is the physical development relevant to the student's character?				x				x			x	
2	Learning facilities	What is the size of the facility and the number?				x				x				x
		What are the relevant physical education learning equipment?				x				x			x	
3	Language and image media	What is the size of the facilities and equipment with student characteristics?				x				x				x
4	Motivation and cooperation assessment items	What represents the number of players in learning?				x				x				x

The table above shows that the teacher's assessment of implementing almost all items is easy, practical and safe,

there are only two items which are quite easy, practical and safe.

Table 6. Wilcoxon difference test tabulation

No.	Test 1				Total	Value score	Test 2				Total	Value score	Test 3				Total	Value score
	KT	MT	KJ				KT	MT	KJ				KT	MT	KJ			
1.	2	2	1		5	56	2	2	2		6	66	3	2	2		7	77
2.	1	2	2		5	56	2	2	2		6	66	3	3	2		8	88
3.	1	1	1		3	33	2	2	1		5	55	3	2	3		8	88
4.	2	2	2		6	66	2	3	2		6	66	3	3	2		8	88
5.	1	2	1		4	44	1	3	1		5	55	2	2	3		7	77
6.	1	2	1		4	44	2	2	1		5	55	3	2	3		8	88
7.	0	2	0		2	22	2	2	1		5	55	2	3	3		8	88
8.	1	1	1		3	33	2	3	2		7	77	2	2	2		6	66
9.	2	1	1		4	44	3	2	2		7	77	3	3	1		7	77
10.	1	2	1		4	44	1	3	2		6	66	3	3	2		8	88
11.	2	2	2		6	66	1	2	2		5	55	3	2	3		7	77
12.	1	2	1		4	44	2	2	2		6	66	3	3	1		7	77
13.	1	1	1		3	33	2	2	1		5	55	3	3	2		8	88
14.	1	2	1		4	44	2	2	2		6	66	3	2	2		7	77
15.	2	1	0		3	33	2	1	2		5	55	2	2	2		6	66
16.	1	2	1		4	44	2	2	2		6	66	3	3	2		8	88

Table 7. Results of Wilcoxon difference test analysis for first and second assessments

Meeting	N	Mean	Z	Asymp. Sig. (2-tailed)
Meeting 1	16	44.125	-3.329	0.000
Meeting 2	16	64.875		

Based on the table above, it shows that the average learning outcomes for developing a physical education learning model for cooperative learning-based football game material to increase student motivation and cooperation at the first meeting was 44.125 and at the second meeting it was 64.875. Meanwhile, the p value asymp. Sig (2-tailed) is,000. Due to

the sig value $0.000 < 0.05$ then H_0 is rejected and H_a cannot be rejected, which means that there are 135 significant differences at the first meeting and the second meeting. So it can be concluded that at the first and second meetings there was a significant increase in the learning outcomes of high school students.

Table 8. Results of the Wilcoxon difference test analysis for the second and third assessments

Meeting	N	Mean	Z	Asymp. Sig. (2-tailed)
Meeting 2	16	64.870	3.329	0.001
Meeting 3	16	81.125		

Based on the table above, it shows that the average learning outcomes for developing a physical education learning model for cooperative learning-based football game material to increase student motivation and cooperation at the second meeting was 64.870 and at the third meeting was 81.125. Meanwhile, the p value of Asymp. Sig. (2-tailed) of 0.001.

Due to the Sig value $0.001 < 0.05$ then H_0 is rejected and H_a cannot be rejected, meaning there is a significant difference between the second meeting and the third meeting. So it can be concluded that at the second and third meetings there was a significant increase in the learning outcomes of high school students.

Table 9. Results of the Wilcoxon difference test analysis for the first and third assessments

Meeting	N	Mean	Z	Asymp. Sig. (2-tailed)
Meeting 1	16	44.125	3.540	0.000
Meeting 3	16	81.125		

Based on the table above, it shows that the average learning outcomes for developing a physical education learning model for cooperative learning-based football game material to increase student motivation and cooperation at the first meeting was 44.125 and at the third meeting was 81.125. Meanwhile, the p value of Asymp. Sig. (2-tailed) of,000. Due to the Sig value..000 < 0.05 then H0 is rejected and Ha cannot be rejected, which means there is a significant difference at the first meeting and the third meeting. So it can be concluded that from the first meeting to the third meeting there was a significant increase in the learning outcomes of high school students.

Conclusions

A model for developing a physical education learning model based on cooperative learning football game material to increase high school students' motivation and cooperation has been validated by experts. Research into the development of a model for the development of a physical education learning model with cooperative learning-based soccer game material

to increase high school students' motivation and cooperation which has been prepared and is suitable for use. The development of a physical education learning model with cooperative learning-based football game material to increase high school students' motivation and cooperation has proven effective.

Based on the conclusions of the research above, there are several suggestions that should be paid attention to, including learning model products, physical education learning models, cooperative learning-based soccer game materials to increase student motivation and cooperation that must be optimized so that the model developed can be useful and become a good alternative for teachers. to increase motivation and cooperation abilities.

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