



Modification of Wooden Ball Bullets to Improve the Skillful Motion of Bullet Repellent Games Against Elementary School Students

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Abstrak

Modifikasi peluru bola kayu merupakan penemuan model dengan perpaduan antara permainan olahraga woodball dengan tolak peluru, hal ini sejalan dengan kondisi baik dari segi antropometri maupun kondisi fisik pada peserta didik sekolah dasar yang dimana tentu kurang efektif apabila menggunakan bola besi, dikarenakan sistem pembelajaran pada peserta didik sekolah dasar hanya sebatas memperkenalkan permainan tersebut. Tujuan daripada penelitian ini dengan adanya modifikasi model peluru bola kayu dapat di implementasikan terhadap peserta didik khususnya sekolah dasar, sehingga siswa akan merasa lebih senang dan gembira karena pembelajaran tersebut sangat kreatif dan relatif tidak monoton serta dapat meminimalisir alokasi waktu dan minimnya akan sarana prasarana yang ada. Dalam penelitian ini peneliti menggunakan metode Penelitian Tindakan Kelas dengan data sampel kelas siswa kelas V yang beranggotakan 22 peserta didik. Instrumen dalam penelitian ini menggunakan teknik pengumpulan data observasi dan tes gerak terampil tolak peluru. Dari penelitian tersebut mendapati hasil bahwa adanya peningkatan pada saat pra siklus sampai dengan siklus I dengan ketuntasan belajar sebesar (54,53%) dan dilanjutkan pada siklus ke II dengan hasil ketuntasan belajar sebesar (86,38%). Tentu hal ini dapat disimpulkan bahwasannya dengan menggunakan model modifikasi peluru bola kayu sangat bermanfaat untuk para masyarakat khususnya tenaga pendidik dalam upaya meningkatkan gerak keterampilan permainan pada cabang olahraga atletik di nomor tolak peluru.

Kata Kunci: Tolak Peluru, Modifikasi, Bola Kayu.

Abstract

The modification of wooden ball bullets is a model invention with a combination of woodball sports games with bullet repulsion, this is in line with the conditions both in terms of anthropometry and physical conditions in elementary school students which is certainly less effective when using iron balls, because the learning system in elementary school students is only limited to introducing the game. The purpose of this study is that the modification of the wooden ball bullet model can be implemented for students, especially elementary schools, so that students will feel more happy and happy because the learning is very creative and relatively not monotonous and can minimize the allocation of time and the lack of existing infrastructure. In this study, the researchers used the Class Action Research method with class V student sample data consisting of 22 students. The instruments in this study used observation data collection techniques and bullet repellent skilled motion tests. From the study, it was found that there was an increase in pre-cycle to cycle I with learning completion of (54.53%) and continued in cycle II with learning completion results of (86.38%). Of course, it can be concluded that using a modified model of wooden ball bullets is very useful for the community, especially educators, in an effort to improve the movement of game skills in athletics in the bullet repulsion number.

Keywords: Shot Repulsion, Modification, wooden ball

Introduction

Physical education is a group structure of compulsory subjects that exists at the school level, both at the elementary, junior high, and high school levels. In physical education learning has several aspects that are very important in supporting the characteristics of the students themselves, including affective, cognitive and psychomotor aspects (Munir, Sumaryanti, et al., 2022). Of these three aspects, it plays an important role in fostering the characteristics of students starting from the affective aspect, where students get knowledge of various components of physical education

such as nutrition, drugs, hiv, etc. In addition to the assessment on the affective aspect there is a cognitive aspect, where in that aspect it prioritizes attitude values, and in the aspect of final assessment is psychomotor, which in that aspect prioritizes the movement of skills in the students themselves (Munir, Zahed, et al., 2022).

There are several statements related to the operational definition of physical education according to experts, among others, physical education is a teaching and learning process through physical activity (Munir et al., 2021), Physical education is also a form of effort in

order to influence the development of the actualization of potential in students in order to live a good life (Bandi, 2011), and physical education is a physical activity or a game in sports chosen to achieve the goal to be achieved (Budi, 2021). The purpose of physical education itself is to be able to succeed the vision and mission of the sport itself in accordance with The Law of the Republic of Indonesia no. 3 of 2005 concerning the national sports system (Ramadhan et al., 2020). And the benefit of physical education is to strengthen the secondary dendrite branches and strengthen gross motor movements in the child himself (Ambardini, 2009). So from these experts it can be concluded that physical education is a very important sub-field of learning and needs to be considered, because in physical education there are elements of activity movement that can affect the actualization of life processes and review from very positive goals and benefits.

In physical education learning itself, there are many sub-sub-materials that will be studied by students, both elementary schools, junior high schools and high schools. Each of these levels has different learning, especially at the elementary school level. At the elementary school level, learning about modified games which in the game aims only to introduce various sports and is not motivated by basic techniques but can be presented independently according to learning needs (Gandasari, 2019). For example, a big ball game, which consists of a football game, a basketball game, a volleyball game. As for small ball games such as, table tennis, badminton, caste balls, etc. And there are also athletic sports with various disciplines such as running, long jump, and even sapai on the shot put. Because basically games greatly affect both physical development in children, increase knowledge, and can even be used as material for therapy and moral values of children in the future (Anwar, 2005). Bullet repellent is the sport of athletics using an iron ball by resisting or pushing the bullet forward as far as possible. Bullet repulsion is a movement that pushes a bullet made of metal which is carried out by pushing with one shoulder (Sobarna, 2018). Bullet repellent is one of the branches that is included in the category of athletic sports with very thorough physical training so that it can provide satisfaction and encouragement to be able to move scientifically (Candra & Setiawan, 2020). In the shot put, it has different weights,

including 3 kg with the women's junior class, 4 kg with the women's senior class, 5 kg in the men's junior, and 7.25 kg in the men's senior class (Permana et al., 2021). And the purpose of the bullet repulsion itself is to be able to reach the repulsion distance as far as possible (Ulum, 2013). In the learning system at the elementary school level, of course, students will find it difficult to use actual facilities and infrastructure, because the factors of motor development as well as the physical and anthropometric conditions of students with bullet repellent weights are very different. So that the need for educators to have creativity in teaching and learning, because in order to achieve the learning process is expected by teachers (Ishak, 2017) and with modifications can have creative and innovative learning models or methods in accordance with the problems experienced by students (Putra et al., 2021). In addition, a teacher is also expected to be able to create new innovations, so that students do not feel bored from the previous form of learning (Candra & Setiawan, 2020).

From the results of research that has been observed and actions for 2 months which have been adjusted to the educational calendar of the SD Negeri 1 Panjang Utara institution, Bandar Lampung. With a sample of class V students, it can be concluded that there are still many students who have difficulty in learning bullet repellent, because there are several factors, including, from facilities and infrastructure that have not been maximized and coupled with the weight of the bullet repulsion, making it difficult for students to make movements. Because of the importance of facilities and infrastructure in supporting the objectives rather than learning itself (Fitriyanto, 2017). It was recorded that of the 22 students divided into 9 men and 13 women, there were only 2 students who were able to play the bullet repulsion technique with a side style, the remaining 20 students who had not completed the results of learning bullet repellent according to the KKM indicator where in the indicator it was hoped that students could play the bullet repulsion game with a side style. Of course this will be a big task for teachers to be able to help students to improve their skills in playing bullet repellent by having creative modifications so that the teaching and learning process can run properly and is not relatively monotonous or boring.

The modification of the wooden ball is the result of modifications that are almost similar to previous studies. Research researched by (Suranto, 2014) About the modification of the game of repulsion by means of cement balls. In this study, there was a significant increase in skilled movement in high school students. As well as research researched by (Efendi et al., 2016) regarding the repulsion of bullets with the modification of plastic ball bullets in junior high school students. From these results, researchers modified the iron ball for the elementary school level to be replaced with a wooden ball which is designed in a circle similar to games that use wooden balls such as the WoodBall sports club. Since the implementation of modifications is indispensable in physical education by every teacher (Elanda, 2014), and this is one of the alternatives or solutions in solving in a physical education learning process (Saputra, 2015). So that with the combination of the two modifications, researchers hope that there will be an increase and can help students to express themselves in playing bullet repellent.

Method

In this study, researchers used Class Action Research (PTK) which will focus on solving problems in the classroom. According to experts, Classroom Action Research is a research that aims to improve and improve student learning outcomes with the help of educators and institutions (Wido, 2020). The location in this study is located at SD Negeri 1 Panjang Utara, Bandar Lampung. Where the location is close to the Bandar Lampung city area.

The data collection technique in this study uses observation and test techniques, where observation will be carried out by observing and analyzing the difficulties experienced by students and test techniques by providing direct practical tests with a minimum standard assessment of KKM 70, the success criteria of this study if the average student score reaches the KKM value of 70, with assessment indicators:

Table 1. KKM Standard Indicators

Value	Criterion	Description of Learning Outcomes
81-100	Excellent	Complete
66-80	Good	Complete

51-65	Enough	Incomplete
0-50	Less	Incomplete

The study used a sample of class V students with a total of 22 students consisting of 9 men and 13 women. The treatment was given treatment for II cycles because students were able to perform skilled movements of bullet repellent properly and correctly in accordance with the predetermined minimum standard indicators of KKM, so the researcher stopped the research process in cycle II. The stages of this study include:

1. Planning Phase

At this planning stage, the researcher designs the mechanism of all learning processes in a structured manner, starting from providing wooden balls that have been made by researchers for student learning as well as several assessment instruments to measure the psychomotor of students.

2. Implementation Phase

The completion stage is the process of giving treatment, the researcher directs students to do:

- a) Pray before starting sports.
- b) warm up both static and dynamic.
- c) provide bullet repellent learning using a wooden ball modification tool identical to the light weight of the bullet.

3. Observation Stage

During the observation process, the researcher observes the course of the teaching and learning process, if it is felt that the treatment is still not optimal, the researcher will analyze what factors make students difficult and will be given treatment at the 2nd cycle stage.

4. Reflection Stage

The reflection stage is the final stage in the teaching and learning process, where at this stage researchers hope that students can be able to improve the movement of bullet repellent skills either using wooden balls or actual facilities and infrastructure by using iron balls.

Results and Discussion

Before applying the cycle to I, researchers gave learners the opportunity to try to perform bullet repellent skills with a sideways style. Dar the results found that the students still looked difficult and less than optimal, there were only 2 students who were able to perform these skilled movements. The average score that has been obtained by students is 55 so that it has not reached the minimum KKM standard, which is 70. So that with this value pre-cycle, the researcher follows up at the stage of the cycle I.

Cycle I

The results of the studies that have been carried out by researchers in the first cycle thanks to the motion of bullet repellent skills using wooden ball modifications found that there was a slight improvement in the results of learning to reject the rejection of wooden ball modification bullets with side styles, from these results can be presented with the following table:

Table 2. Outcomes of Teaching and Learning Cycle I

Aspects	Information
Average Value	55
Completed Students	12
Incomplete Students	10
Percentage Complete	55%
Incomplete Percentage	45%

From Table 2. Regarding the results of the first cycle stage, you found that the learning of bullet repulsion with the modification of wooden balls was improved. It can be seen from the pre-cycle that there are only 2 students who are able to play bullet repellent, now there are 12 students who have completed the skillful movement with a percentage (55%) and there are 10 students who are still incomplete with a percentage (45%). Therefore, the researcher continued his research by providing treatment in the second cycle by considering several evaluations as reflection material as follows:

1. The position of how to hold the wooden ball of students is still often closed and not optimal.
2. The coordination point between the center of the eye and the intended field is still lacking focus.

3. The balance between hands and feet is still unstable.
4. Most students are still positioned to throw instead of push

Cycle II

In this second cycle, the researcher will provide good and correct demonstration stimulation and provide some education about the things that are the subject of reflection on cycle I, along with the results of cycle II that have been improved can be presented in the following table:

Table 3. Outcomes of Teaching and Learning Cycle II

Aspects	Information
Average Value	88
Completed Students	19
Incomplete Students	3
Percentage Complete	87%
Incomplete Percentage	13%

From Table 3. Regarding the results of teaching and learning in cycle II, there is a very significant improvement. It can be seen in cycle I that there are only 12 students who are complete in performing skilled movements in bullet repellent, in cycle II there are 19 students with a total percentage (87%) who have completed the bullet repellent teaching and learning process and the remaining only 3 students with a percentage number (13%) who have not been completed due to health factors. So that based on the percentage of the skill level of students in playing bullet repellent has reached (87%) then the researcher stops the research in the second cycle, and students who have not completed will receive intense guidance by PJOK teachers at the agency.

Research that has been carried out in the learning process regarding the skillful motion of bullet repellent has succeeded in improving the results of learning bullet repellent by using wooden ball modifications in grade V children at SD Negeri 1 Panjang Utara, Bandar Lampung. By using the wooden ball, it has proven to be very effective in the teaching and learning process, because it can be seen based on the results of cycle I and cycle II. Using the modification of the wooden ball is very much a benefit obtained by students, in

addition to being able to improve the movement of students' skills, it can also make it easier for teachers in the teaching and learning process, because with the allocation of PJOK learning time which is very limited and inadequate infrastructure, with these modifications it can help minimize time allocation because in terms of making bullet repellent wooden balls which are very easy and cheap, and helping to overcome the problem of facilities and infrastructure that are not optimal. In addition, by using a modification of a wooden ball, students feel happy and there is an interaction in the teaching and learning process that is not relatively monotonous or boring, because the modification invites students to actively participate in the learning process, especially elementary school-aged children with vulnerable ages 6-12 prefer to spend time playing.

From the learning results in cycle I to cycle II, there was a significant increase in the movement of bullet repellent playing skills. It can be seen in the pre-cycle where there are only 2 students who are complete in doing bullet repellent movements to 12 students who are complete with a percentage (54.53%), the rest of the students are still not optimal in following the movements, because there are several factors, including: coordination between the explosive power of the arm muscles and coordination in the legs is still not balanced, lack of focus of students, and learners still struggle with distinguishing between throwing and pushing. So that with the reflection stage, researchers carry out a further research process at the second cycle stage by referring to the problems that exist at the stages in cycle I. Results from the second cycle, pouring very positive results and a very significant increase.

Because it can be seen from the research process that found the results that were originally in the first cycle from 12 completed students now to 19 students with a total percentage (87%). The remaining 3 students with a percentage (13%) due to student health factors so that they have not been able to maximize the teaching and learning process, but these students will get special treatment by PJOK teachers from the institution.

From the results of this research, of course, this is very useful for the community, especially PJOK teachers, with this modification, it can help minimize the

allocation of time and insufficient infrastructure. Coupled with this modification, it can provide education to educators that it is important to make a learning process with a modification model, because the existence of this model can arouse students in the teaching and learning process, because basically the teacher is a facilitator (Rahmawati & Suryadi, 2019). Even a teacher is very important in helping the development process of students in achieving optimal abilities (Hamid, 2017). And as a teacher educator, it is required to have various abilities as competencies that will be possessed by a professional educator (Abdullah, 2016). So from the statement, it can be concluded that the importance of understanding the meaning of a teacher to educate students of national hope.

The same research researched by (Zahed et al., 2022) regarding the improvement of the skillful motion of the repulsion of the bullet with the modification of the caste tail ball. From the results of the study, it can be concluded that the study was sufficient in the second cycle, with data in the first cycle finding the results of 25 samples there were 11 students who had been completed with a percentage (44%) and a significant increase in the second cycle with the results of 25 completed students with a total percentage (100%) with an average score of 86.

And the research conducted by (Mardanto, 2014) Related to the improvement of the skillful motion of the bullet repellent game with the modification of cement balls. In the study with a total of 29 samples, it can be concluded that there was a significant increase so that the study was sufficient in the third cycle, with data in cycle I found the results of learning completion with a percentage (34.48%), in the second cycle increased as much as (48.27%) and sufficed in the third cycle due to a very significant increase with the number of percentages (86.21%).

From the researcher's conclusions and the support of previous researchers ranging from research with the modified model of the caste tail ball or with the modification of cement balls or with wooden balls, it produced a very positive and very significant impact on improving the movement of bullet repellent game skills for the amateur / student class. So researchers hope that this research can be used as reference material or reference to educators,

especially in improving the teaching and learning process of the athletics sub-material for the sport of bullet repellent.

Conclusion

From the research above, it can be concluded that the modification of wooden ball bullets is very influential in an effort to improve bullet repellent learning outcomes in the scope of the amateur or student class, it can be known together that the study with a total of 22 samples of class V students has been sufficient in the second cycle stage, due to a very significant increase starting from the pre-cycle to the first cycle stage with learning completion of (55%) and increased in the second cycle with learning completion of (87%). Of course, using the modified model of wooden ball bullets is very useful for educators in improving the movement of bullet repellent game skills.

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