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Development of Mental Training and Playing Circuit-based Training Programs on Volleyball Materials

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ABSTRACT: *This research is conducted to develop a program for Elementary School (SD) students that fulfills valid, practical, and effective requirements. The method of data analysis employed is a descriptive technique and statistical test. Design research and development is used to develop an exercise program based on mental training and play circuits, specifically the Borg and Gall model. The stages are as follows: 1) potential and problems; 2) data collection; 3) product design; 4) design validation; 5) design revision; 6) product trial; 7) product revision; 8) usage trial; 9) product revision; and 10) mass product. The research subjects are students of class V SD Laboratorium Pembangunan UNP. The research results denote that the Mental Training and Playing circuit-based Training Program fulfilled the valid criteria. The characteristics of a training phase consist of introduction, core, and closing activities, the form of exercise activities that explained the form of action for each meeting, the intensity of the exercise was low-moderate, set exercise, recovery, and exercise duration. The results of the t-test show that the essential technical skills of volleyball after using mental training and playing a circuit-based training program for elementary school students are better than before using cognitive training and playing a circuit-based training program.*

Keyword: mental training, playing circuit, volleyball, elementary school.

INTRODUCTION

Learning is one of the reciprocal learning activities or the interaction between educators and students in achieving one of the goals, namely the provided learning experience, which will have an impact on students' knowledge, attitudes, and skills.

(Anwar, 2022), Learning is "one of the intentional efforts made by educators that will be able to cause students to conduct a learning activity with communication that can be understood and agreed upon by related parties in the learning process in general and learning the sport, health, and physical education in particular". Sport, Health, and Physical Education are one of the subjects in the 2013 curriculum that includes volleyball material. (Destriani, 2020) Volleyball is a sport that many people from all walks of life enjoy, and the facilities and infrastructure are easy to obtain. There is little risk of injury because there is no direct contact with opposing players on the field. The purpose of physical education in elementary schools is to develop the ability to carry out activities that involve physical strength, improve thinking skills, improve basic movement skills effectively, efficiently, smooth, beautiful, and perfect, and can develop sportsmanship, honesty, discipline, responsibility, cooperation, confidence and democracy through physical education learning (Mustafa & Dwiyogo, 2020).

According to the United States National Association for Sport and Physical Education (NASPE) (2004), at an early age, children must be ready to enter the twenty-first century to best prepare for their future. Consequently, physical education in schools must provide opportunities for students to be directly involved in various learning experiences to increase the growth and development of all aspects for each student, including physical, psychomotor, cognitive, and affective. The significance of fundamental motor skills or basic movements learned in physical education classes (Metzler, 2017). Movement ability in foundational motor skills describes the degree of mastery of skills in using fingers, eye-hand and eye-foot coordination, tempo balance, and visual perception.

According to Bakhtiar (2015), children aged 6 to 12 are still in the pre-skill period, and thus children should learn a variety of abilities before refining their skills. The motor development characteristics of children aged 6 to 12 years old can help them to 1) develop personal habits; 2) develop healthy attitudes regarding themselves; and 3) learn the physical skills required for a game in general. Meanwhile, based on Eylen et al (2017); Soytürk (2019), the primary goal of each sport taught in schools is to continuously develop the physical activities required for each of these sports. The necessity for a modern pedagogical approach to accomplish an effective movement from the practice of teaching skills. Physical strength obtained from exercises that can be done in the form of a series of plays is essential for the psychomotor development of volleyball technique movements (Yusmar, 2017). Based on the findings of field observations, it is clear that children of elementary school age enjoy playing. However, the application of learning in the form of a playing circuit is still lacking in the learning process in schools resulting in many students feeling monotonous and unmotivated when participating in learning. Students will participate in physical education learning with happy, excited, and motivated feelings if they play exciting games. Therefore, teachers of sports, health, and physical education must be more creative in developing games to facilitate students' learning. It is possible to create an exciting game by modifying the rules and equipment or by combining existing sports games. "Learning strategies for physical education in schools can use learning strategies, such as 1) a

series of games; 2) a series of exercises; and 3) a series of situations" (Metzler, 2017). According to Bakhtiar, (2014), learning table tennis through a series of games is more effective than learning through a series of exercises. A series of games as a learning strategy creates an atmosphere and playing situation to encourage fun competition in someone who is learning so that they are motivated to learn and practice to accomplish academic achievements. Furthermore, Rudi & Arhesa (2020); Sujito (2020); Ali (2021) exposed that the problems encountered when providing volleyball instructional content in elementary schools are including 1) volleyball games are less appealing to students, so volleyball materials are rarely taught in schools, even though it is in the curriculum, 2) volleyball learning materials have not been packaged into modified game materials, so many students appear disengaged and lack enthusiasm in learning, 3) The facilities and infrastructure for volleyball games are still limited in terms of quality and quantity, which will have an impact on the inefficacy of learning; and 4) there is a lack of development of learning volleyball games in schools, necessitating alternative development.

The author will research the development of mental training and playing circuit-based training programs, guided by the many factors that cause issues faced in the field. This mental training is a factor related to a person's character and inner self, and it is required by students when they are having difficulty performing the movements of the given volleyball technique. Some mental indicators include student motivation to participate in learning, student concentration in performing the given technique, student confidence in performing volleyball technique exercises, student imagery of the movements being demonstrated, as well as anxiety or fear of students in performing volleyball techniques which were instructed to be done in front of other classmates. (Kliminski, 2017) states that "mental indicators are related to high dedication, tenacity, and not easily distracted by technical or personal problems".

Therefore, it is necessary to provide proper mental training to students to improve their cognition function so that they can control their bodies and actions systematically. There are three stages/phases for mental activity: "1) education stage; 2) acquisition stage; and 3) training stage" (Festiawan, 2020). Goal setting, physical relaxation, thought/attention control, and imagery are the four methods that can be developed. At the training stage, it is critical to use the appropriate method to ensure that students achieve a positive mentality. This includes mental training and playing circuit-based training programs. According to Adi (2016), motor activities require mental functions such as a driver, controller, regulator, and command. Learning and mastering motor skills is part of a psychological exploration into how students can learn sports skills faster. Sports psychology principles are applicable to accelerate skill learning as well as mental preparation for peak sports performance. If students already have a good mentality, then there is a need for appealing methods to help students comfortably master sports skills, such as the playing circuit method.

This playing circuit is one solution that compatible with students performing movements repeatedly so that the automation of movements happens. If students are given time to practice, they will become bored quickly or demotivated and lazy.

Students will be more motivated and enthusiastic to do the volleyball technique exercises if they are introduced in the form of a series of games. "The learning method in the form of this game will require students to be active in carrying out learning activities so that educators tend to be only directors and facilitators so that this action will be able to accelerate the process of students' basic movement skills," according to (Hidayat, 2020). According to (Widiastuti & Pratiwi, 2017), "the designed play approach will also generate fun, challenge, creativity, problem-solving, and motivation". Based on the previously stated expert opinions, the author recognizes the significance of an approach or method with a playing circuit to be given to students to improve students volleyball technical skills. Considering the previously mentioned problem, the authors are interested in conducting research that will be able to improve students' volleyball skills from an early age.

METHODS

The type of research used is research and development, meaning that this research develops (validates) products that will be used in learning and tests the effectiveness of these products (Sugiyono, 2008). The procedure in development research is carried out using the Borg and Gall development model. The development steps are: 1) potential and problems; 2) collecting information; 3) product design; 4) design validation; 5) design revision; 6) product trial; 7) product revision; 8) usage trial; 9) final product revision; and 10) mass product manufacture.

The research subjects were students of class V at the SD Pembangunan Laboratorium Universitas Negeri Padang, totaling 22 people. The data collection technique used in this research is by using a questionnaire, observation, and volleyball skill test. The research instruments are product validation instruments from experts consisting of material experts, linguists, and educational technology experts. Teachers and students filled out the product practicality instrument. The product effectiveness instrument employs a volleyball technical ability test in the implementation of the test by providing an assessment category in quantity using targets and time. The quality is then assessed by people who are experts in assessing the ability of volleyball techniques in the structure of their movements. The SPSS statistical test is used in the data analysis technique.

RESULTS

3.1 Potential and Problems

Curriculum analysis

According to the findings of a curriculum analysis related to basic competencies in various big ball games for fifth-grade elementary school students, the basic competencies are understanding and practicing a combination of locomotor, non-locomotor, and manipulative movements in multiple big ball games based on the concepts of body, space, effort, and connectedness. Simple or traditional (soccer, volleyball, and basketball). The learning objectives derived from competency achievement indicators include audience, behavior,

condition, and degree principles (A, B, C, D) that are adjusted to conditions, at least A, B, C. As a result of observing, reading, and discussing volleyball learning objectives, students can explain the combination of non-locomotor and manipulative movements in serving, under-passing, and over-passing volleyball movements by reading. Meanwhile, students can observe volleyball games and practice a wide range of basic locomotor, non-locomotor, and manipulative movements. The volleyball material was selected for this big ball game since volleyball is one of the most popular sports and is taught at every level of education beginning with elementary school, junior high school, and high school. This level of education in elementary schools is a stage of student motor development and growth in which the movements being taught are easily directed.

Teacher analysis

Based on the results of the teacher's field analysis thus far, the teacher only passes the ball to the students. Football is the sport of choice for male students, while volleyball is the sport of choice for female students. In this case, a teacher is expected to stimulate students' cognitive abilities in carrying out movements while also training their mentality by creating learning in fun game models. So that the objectives of learning physical sports and health can be met and students can achieve a high level of fitness. The Mental Training-based training program can simplify the process for teachers to provide volleyball material training on the field.

Student analysis

Student analysis conducted on fifth-grade students in SD Pembangunan Laboratorium Universitas Negeri Padang. Based on the results of interviews with students, it is known that students have never played volleyball because there is only one ball at school. Furthermore, it was discovered that students lacked the motivation to move and participate in teacher-provided learning. As a result, many students were sitting on the sidelines during the session. The cause of this situation is that students believe that the learning process is tedious and inconvenient, so they are unwilling to do what the teacher instructs. For this reason, the existence of mental training and playing circuit-based training programs can increase student activity in learning sports, health, and physical education so that no more students are distracted and play around in learning. Thus, the objectives of the volleyball course can be properly achieved.

Concept analysis

Conceptually, there are three activities in learning in elementary schools. First, preliminary activities include strengthening religious values by praying and ensuring students are in good health. Afterward, teachers convey competencies that must be mastered by students, teachers explain the material to be studied, and students warm up. The second is the core activity which includes the teacher asking students to listen to the teacher's presentation of material, observing and practicing the material instructed by the teacher. Third, the final activity includes students relaxing and the teacher evaluating the taught material. This mental training-based training program focuses on volleyball, which is a required subject for elementary school students.

3.2 Collecting Information

Data was collected by distributing questionnaires to teachers and students on mental training and playing circuit-based training programs in elementary school volleyball material.

The questionnaire contains statements about the activities in the used exercise program.

3.3 Product Design

The products designed must take into account the abilities possessed by elementary school students based on the characteristics of students in elementary schools at an early age. The designed training program is mental training and playing circuit-based training program to improve elementary school students' volleyball technical skills. The training phase, the form of exercise, intensity, set, recovery between games, and duration are the indicators in this training program. The training phase includes preliminary activities consisting of stretching that must be done by students to train the flexibility of the limbs to relax the muscles by making them contract. At this stage, activities for the mental training of students and forms of exercise in a series of games that also contain elements for mental training are carried out. The exercise program is designed so that students are excited about doing the exercises.

3.4 Design Validation

Several things are validated during the design validation stage, including validating content or material in the training program, which is validated by two lecturers who are experts in the field of training and have an understanding of the structure that must exist in the training program. According to the validation results, several suggestions must be revised, including the requirement that each activity in the training program includes a specific mental training component. Furthermore, for the material, some lecturers who are experts in volleyball validate every given activity so that students can carry out every volleyball technique taught. The language used in the training program was validated by a linguist from a language lecturer in the following validation. In addition to expert validation, a group discussion was conducted with the volleyball course team at the Department of Sports Education. The results of the group discussion forum provide very valid results, so testing the quality of the training program can proceed to the next step.

3.5 Revision Result

Several training programs were revised during the revision stage, particularly the mental training program and playing circuit. A separate table must be created in this mental training program for the type of mental training. The series of plays must pay attention to the form of the play series, which includes elements of the student's physical fitness as seen through the movement activities they perform.

3.6 Product Trial

The product trial was carried out on eight students in 5A grade at SD Pembangunan Laboratorium Universitas Negeri Padang. This class 5A student was chosen because it matched the characteristics of the designed training program, and there was volleyball material in the Sport, Health, and Physical Education learning curriculum for class 5 students.

3.7 Product Revision

The product based on the results of field trials is revised again based on input from the promoter who analyzes the learning media used in the field, class management in providing product trials, and the learning objectives must focus on learning achievement. Sport, Health,

and Physical Education, specifically about student physical fitness, so that students' physical activity is visible in the exercises performed.

3.8 Usage Trial

The usage trial phase was conducted on 22 students from class 5A at SD Pembangunan Laboratorium Universitas Negeri Padang. The following data is based on the results of product use trials conducted with the goal of improving students' basic volleyball technical skills:

Product practicality result data by teacher

A practical questionnaire regarding the Mental Training-based Exercise program was given to teachers who teach in class 5A at the SD Pembangunan Laboratorium Universitas Negeri Padang on volleyball. The results of the questionnaire analysis can be seen in Table 1 below.

Table 1. Results of data analysis of exercise program practicality questionnaires

No	Assessed Aspect	Practicality Value	Category
1	Attraction	85 %	Very Practical
2	Usage Process	90 %	Very Practical
3	Ease of Use	84 %	Practical
4	Time efficiency	80 %	Practical
Average practicality score		84,80 %	Practical

Table 1 shows that the average practicality value of the teacher's questionnaire with practical criteria is 84.80%. According to the findings of the analysis, the activities provided in the mental training-based training program and play series can make students more active and enthusiastic about learning, making it easier for teachers to improve students' basic volleyball techniques. Therefore, it can be concluded that the training program based on mental training and a series of plays on volleyball material is categorized as practical.

Product practicality result data by student

A practicality questionnaire was given to Class 5A students at SD Pembangunan Laboratorium Universitas Negeri Padang as an experimental class after participating in volleyball learning through a mental training and playing ciruit-based training program. Students' analyses of product practicality yielded a range of 80% for the Practical category. It means that the mental training and playing circuit-based training program can make it easier for students to learn and motivate students to learn basic volleyball techniques. Thus, it is possible to conclude that the volleyball training program based on mental training and practical series of plays can be used in class 5A at SD Pembangunan Laboratorium Universitas Negeri Padang.

Prodcut effectiveness data

Skill tests are conducted to determine the effectiveness of the designed product. The purpose of this test is to determine how far the students' basic volleyball techniques can be improved. Previously, an initial test (*pre-test*) on basic volleyball technical skills was also conducted to be compared with the final test (*post-test*). This data was analyzed to determine whether or not students' average volleyball basic technique skills improved after using the

mental training and playing circuit-based training program. Effectiveness data is composed of two types of information: the value of quality (judgment) and the value of quantity. Table 2 shows a summary of the skill data after and before the training program is used.

Table 2. Description of student volleyball skills data

Data	Qualiy Value		Quantity Value	
	Post-test	*Pre-test*	*Post-test*	*Pre-test*
Average	68,68	64,09	13,23	9,41
Maximum Value	77	70	21	22
Minimum Value	65	60	9	3
St. Dev	3,09	2,81	3,04	4,19

According to Table 2, the average volleyball basic technical skills of students after using the mental training and playing circuit-based training program are higher in terms of quality and quantity value than the average volleyball basic technical skills of students before using the mental training and playing circuit-based training program. To prove the hypothesis, additional data analysis was performed. The hypothesis was accepted for $\alpha = 0.05$ based on the results of the paired t-test, indicating that the basic technique of student volleyball after using the mental training-based exercise program was higher than the basic technique of student volleyball before using the the mental training and playing circuit-based training program.

3.9 Final Product Revision

Following product testing in the experimental class, it was discovered that the designed training program could improve students' basic volleyball techniques. Meanwhile, because the teacher was able to use the exercise program to improve students' basic volleyball skills, the designed product did not require revision. This is supported by the findings of the analysis of the product's validity, practicability, and effectiveness, which is classified as good.

3.10 Mass Production

At this stage, mass production of products is not carried out because it requires considerable time and cost. However, products designed in the form the mental training and playing circuit-based training programs are still given to Sports, Health, and Physical Education teachers in grade 5A SD Pembangunan Laboratorium Universitas Negeri Padang as a learning resource for teachers to assist students in improving their basic volleyball technical skills.

3.11 Discussion

Based on the findings of the hypothesis testing, the mental training and playing circuit-based training program met the criteria of being effective and having a positive impact on improving the basic volleyball technical skills of elementary school students. The results of the t-test show that the basic technical skills of volleyball after using a mental training-based training program and playing circuits for elementary school students are better than before using a mental training-based training program and playing circuit. Mental training is an effort to improve a person's ability and mental resilience, which includes the ability to develop abilities in any circumstance, facing obstacles both within and outside of

students. Mental training is a long-term and systematic exercise that encourages and develops the ability to control one's behavior, appearance, emotions, and mood stress. Consequently, students can easily overcome the harmful effects of mental training. Mental training can be done as long as a person undergoes sports training because mental training is an integral part of the annual training program or periodization of exercises such as relaxation and concentration exercises (Adi, 2016).

The implementation of the mental training-based training program describes the procedures for carrying out activities consisting of preliminary activities, core activities, and closing activities. In this activity, mental-based forms of exercise are given, including doing imagery of activities that have been watched by students through videos and then doing imagery of the movement. Imagery activity is reviving movement in mind without actually performing it to encourage people to participate in sports activities on the field. Mental training is based on the assumption that psychological factors can further improve student performance in physical activities such as basic volleyball techniques. The mind acts as a controller that commands the body to follow the physical activities carried out in the field. Student's ability to perform basic volleyball techniques is achieved not only through exercises instructed by the teacher and performed by students but also through positive thoughts that control the behavior of physical activities, specifically the ability to perform basic volleyball techniques performed by students. The expected outcome of this psychological approach to mental training is that students will be highly motivated to complete the exercises. The mind acts as a driver, controller, and regulator, instructing the limbs to perform motion activities to develop the ability to move to perform basic volleyball techniques perfectly. Mental training also contributes to feeling more confident, focusing on the positive, and avoiding negative emotions such as a lot of anxiety and failure expectations in everything that you undertake (Subatra et al., 2021).

This mental training activity is also carried out in a series of play activities for elementary school students that are considered suitable for performing basic volleyball techniques. This play circuit training program also encourages students to be more active because it is effective in reducing boredom, which can have an impact on the formation and development of students' movement abilities. The benefits of this playing circuit can also provide more opportunities for students to do exercises, and change the learning environment to be more enjoyable, so that students begin to comprehend and master the basic volleyball techniques appropriately, both from the initial stance, during motion execution, and performing advanced movements. The problem of facilities and infrastructure as a support for carrying out learning is no longer a problem in this study because in carrying out this program, you can reproduce modified balls such as various rubber balls, and the learning methods used can be employed in a variety of ways and are easily understood by students so that the learning process achieves its objectives.

There are several objectives of the playing circuit method according to (Upton, 2012): 1) providing a pleasant motion experience; 2) providing a sense of psychological and social security for children; 3) providing children with active participation in interacting with friends; and 4) giving children opportunities to grow physically, emotionally, spiritually, through participation in play activities. While the goals of children's participation in

playing are practicing teamwork, acquiring knowledge to succeed, understanding how to play well, learning to enjoy physical activity, and developing a healthy lifestyle. Playing is a crucial part of a person's daily life, let alone a student's. Students will be delighted since they will be able to play because of their desire to move freely when playing. During the learning process, the teacher not only teaches students how to do basic volleyball techniques but also motivates students to be more enthusiastic about doing exercises and pays attention to other psychological components such as being honest and confident in doing basic volleyball technical exercises. So that students can follow the learning process and obtain the knowledge and skills sufficiently. Moreover, teachers can give students rewards or gifts to encourage other students to be more diligent in doing the exercises. So that their basic volleyball technical skills improve and students maintain a healthy level of physical fitness.

CONCLUSIONS

Based on the study's findings and data, the following conclusions were obtained: 1) Based on the results of the study, the Mental Training and Playing circuit-based Exercise Program fulfilled the valid criteria by having a training phase that included the following elements: an introduction, core, and closing activities, the form of exercise activities that explained the structure of exercise for each meeting, the intensity of the exercise was low and moderate exercise set, recovery, and exercise duration. This training program was designed to meet the practical category by being easy to use and appealing. The activities provided also assist teachers in improving the basic volleyball skills of elementary school students; and 2) The Mental Training and Playing circuit-based Training Program meets the effective criteria by having a positive impact on students' basic volleyball skills. The t-test results show that the ability of the basic volleyball technique after using the Mental Training and Playing circuit-based Training Program for elementary school students is better than before using the Mental Training and Playing circuit-based Training Program.

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