

Jasmani fitness learning model through the *Brain breaks* method for basic school children

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Abstract

This research aims to provide a new alternative in physical activity that can be applied in school or become one of the choices of children in increasing physical activity and increasing physical fitness. Providing new models that can be applied at the same time does not eliminate the culture that seems inherent in the current era, which is the digitalization of technology that is practical and easy to use but does not eliminate the characteristics of research objects, namely elementary school students. By being given a physical fitness model through the brain breaks method for about a month, students experience increased physical fitness from the Indonesian Physical Fitness Test (TKJI) in the initial conditions which is an average of 9.5142 then the final test is 11.2857.

Keywords: *Jasmani* fitness, *Brain breaks*, *school children*, *alternative*

1. Introduction

1.1 Preliminary

Humans are basically creatures that have advantages in thinking and reason. Every time always develops in the civilization of his life there are times when experiencing a positive civilization and a negative or bad civilization. The fact that we experience today with the era of globalization and especially in the section of communication and digital information has opened a window to the world that we can know and communicate despite far distances so that they will form different civilizations each time. The development of a country's society or culture will be directly proportional to the values and norms applied by the education system, in other words a country that has a good education system will produce reliable human resources. The education system will continue to develop to meet the demands of the times as well as the Indonesian education system. Curriculum changes that argue because the demands of the times themselves have undergone various curriculum changes. The generation that we call MILENIAL has been far literate with technology, whether it's still a teenager or a mature, already good at using digital. Even digital-based games have claimed a portion of their time every day. Whereas in motion-based school lessons there are only three hours of learning a week while the subjects that get extra are major subjects such as mathematics, English and several other main subjects. Highlighting the addition of hours, Physical Education which was previously two hours of learning into three hours of learning felt a good policy for students. According Sulistiono (2014) [7] states that "a quality physical education program can help in nurturing what is said to be a positive body condition and further increasing physical activity". (Sulistiono, 2014, 224) [7]. Learning Physical education, sports, and health are essentially regulating the educational process that utilizes physical activity to produce holistic changes in individual quality, both in terms of physical, mental, and emotional. Physical education, sports,

and health treat children as a whole, total being, rather than just seeing them as someone who is physically and mentally separate. (no name, Physical and Learning Assessment & Learning, 2016)

Physical Education is a subject that is basically related to the mind and movement / physical students. The movement of students in sports subjects makes children fit, when the body is fit and the brain is full of oxygen intake, it indirectly supports the other learning processes.

According to Suharto in Sulistiono stating "Physical fitness is a measure of the potential for human work ability that is very instrumental in supporting physical performance (including work performance, sports performance, and learning achievement)". (Sulistiono, 2014, 24) [7].

Fitness is a condition where a person doing a task or physical work does not feel tired while doing work or the task on an ongoing basis. Elementary school learning materials especially physical education are guided by themed learning so that in addition to exercising children must also think and be happy. The burden of learning in a class that is getting longer and even heavier must be required to be in prime physical condition. If the physical condition is weak then in accordance with the above definition of fitness it will interfere with learning achievement. How important physical fitness must be owned by a student.

The fact that today some classes, especially grades 3 and 4 of primary school when they enter sports hours, are very enthusiastic, but they are undeniably in a state of exhaustion. "Physical movement absence does not impact only performance, body composition and health. Rather influence mental fitness and cognitive abilities. (Rndr & Bielick, 2017) [13]

Therefore, there needs to be an interesting and simple sequence of motion activity that is carried out during class changes. The method of brain breaks that is a physical activity accompanied

by music can make children enthusiastic to follow it. "Some studies suggest that using the brain break method increases the concentration of learning to reach 91%. (Perera, Frei, Frei, & Bobe, 2015, 3) ^[3]. In connection with concentration, of course in theory there will be more oxygen intake, so there must be physical activity carried out when doing physical activity, it should improve physical fitness. The importance of physical fitness status for elementary school children is likened to like a fuel tank on a vehicle, the greater the gap, the more fuel that can be accommodated. The better physical fitness you have, the stronger your body will be to carry out all routine activities at school and outside school without experiencing significant fatigue.

Departing from the background presented, it makes me concerned and moved to do research to make a fitness training model through brain breaks. The reality of students where what is seen and in accordance with the observations of the relevant sports teacher and seen from the value of physical fitness on average is less than 70, while the Criteria for Completeness of Teaching (KKM) is 73. Constrained by the lack of exercise time in a week so I do it application of the brain break method. The moving method is combined with the rhythm of the music without any standard grip rhythm. Experiments on introducing the brain breaks method, it turns out students are very enthusiastic to follow every movement. Therefore I will conduct research that adds variety to the "Physical fitness training model through the brain breaks method"

The best way to solve problems in science through research, according to Mulyatiningsih (2011) ^[4] states that "Research is a way to find answers to questions or formulation of problems using systematic and scientific procedures ". (Mulyatiningsih, 2011,1).

To conduct research also has rules that must be carried out to maintain the quality of the results. Meanwhile, according to Sugiyono (2008) states "Research can be interpreted as a scientific way to obtain data with specific purposes and uses". (Sugiyono, 2008, 3).

Research is very useful to improve the quality of students in the educational environment because it can create new programs or new products that can be a reference for learning. One of them is by conducting research and development methods. According to Sugiyono (2009) in the journal Sri Haryati states that: research and development methods are research methods used to produce certain products, and test the effectiveness of these products. To be able to produce certain products used research that is needs analysis (used survey or qualitative methods) and to test the effectiveness of these products so that they can

function in the wider community, research is needed to test the effectiveness of these products (used experimental methods). (Haryati, 2012)

Research and development methods are widely used by researchers, especially in the world of education solely to provide new products or ways that have been developed so that they are effective and efficient. "According to Seels & Richey in Punaji Setyosari (2015) development research is defined:" Development research, as opposed to simple instructional development, has been defined as the systematic study of de signing, developing and evaluating instructional programs, processes and products that must meet the criteria of internal consistency and effectiveness. "(Punaji and Setyosari, 2015, 3)

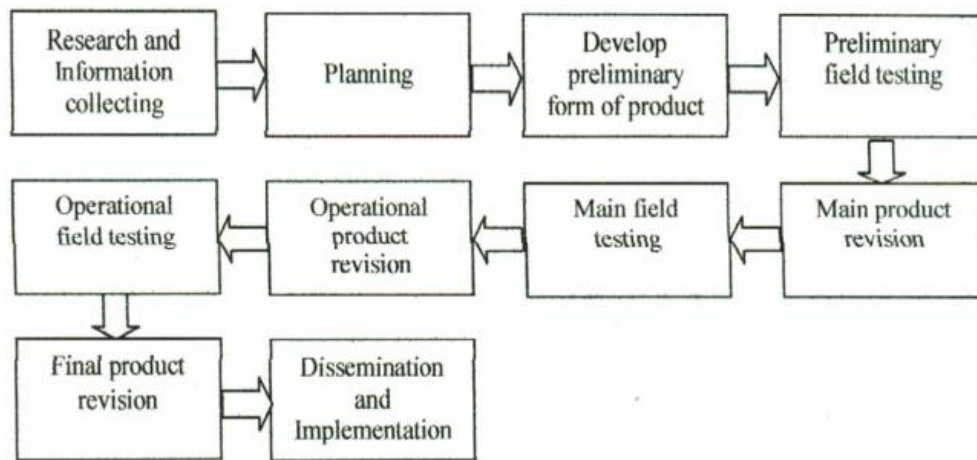
Based on this description, development research as distinguished from the development of simple learning systematically to design, develop, and evaluate programs, processes, and learning outcomes that must meet criteria for internal consistency and effectiveness. Sukmadinata (2005) ^[9] states that research and development is "a process or steps to develop a new product or improve existing products that can be accounted for". (Sukmadinata, 2005, 164) ^[9]

Research and development that emphasizes the physical fitness model according to Hopskin in Wi dodo (2017) states that " the physical fitness model is the natural content of learning content, learning strategies, and the arrangement of social interactions that can create a learning atmosphere for students". (Widodo, 2017, 2)

After some experts express their opinions on research and development, the core of the explanation can be concluded that the research and development method is to produce new products derived from the development that already exists to produce effectiveness, Based on the above research in this study trying to develop a model of physical fitness physical fitness through the brain breaks method to improve physical fitness which is an innovation so that the participants do not experience boredom when doing class movements that are presented using interesting videos. According to Zulkarnain and Rah Mawati (2014) ^[16] stated that " physical fitness model is a design that describes the process of detailing and creating environmental situations that allow students to interact so that changes or developments occur in students". (Zulkarnain and Rahmawati, 2014, 9) ^[16] The following models often used in developing a physical fitness model including:

Fashion Steps I Borg and Gall Development

The Borg and Gall development model consists of 10 steps used in the development process. The ten stages in the Borg and Gall research are set out in Figure 1.



Source: (Borg & Gall, 1983).

Fig 1: Intuctiona Design R and D Borg and Gall

Furthermore, to be able to understand each of these steps can be explained as follows:

1. Preliminary Study (*Research and Information Collecting*)

This first step includes a needs analysis, literature study, literature study, small scale research and required report standards.

- a. Needs analysis and literature study.
- b. Study of literature
- c. Small-scale research

2. Planning research (*planning*)

After conducting a preliminary study, researchers can continue the second step, namely planning research. The R&D researchers' plans include: a) formulating research objectives; b) estimating funds, labor and time; c) formulating the qualifications of researchers and forms of participation in research.

3. Design development (*Develop Preliminary of Product*)

This step includes: a) determining the design of the product to be developed (hypothetical design); b) determine the research facilities and targets needed during the research and development process; c) determine the stages of carrying out design tests in the field; d) determine the job description of the parties involved in the research.

4. Preliminary Field Testing

This step is a limited product test. This step includes; a) conducting initial field tests on product design; b) is limited, both the substance of the design and the parties involved; c) initial field tests are carried out repeatedly in order to obtain a decent design, both substance and methodology.

5. Revised Results of Field Test Limited (*Main Product Revision*)

This step is an improvement of the model or design based on limited field testing. Refinement of the initial product will be carried out after a limited field trial. In this initial product improvement phase, more is done with a qualitative approach.

The evaluation is done more on the evaluation of the process, so the improvements made are internal.

6. Main Field Test

This step is a broader product test. This step includes a) testing the effectiveness of product design; b) design effectiveness tests, in general, use the repetition model experimental technique; c) the results of the field test obtained an effective design, both in terms of substance and methodology.

7. Revised Wider Field Test results (*Operational Product Revisioan*)

This step is the second improvement after conducting a field test that is broader than the first field test. Completion of the product from the results of this wider field test will further strengthen the product that we will develop, because the previous field trial stage was carried out with a control group. The designs used are *pretest* and *posttest*. This product improvement is based on evaluating the results so the approach used is a quantitative approach.

8. Feasibility (*Operational Field Testing*)

This step should cover a large scale: a) test the effectiveness and stability of the product design; b) testing the effectiveness and adabtability of designs involving potential product users; c) field test results are obtained design models that are ready to be applied, both in terms of substance and methodology.

9. Revised Final Feasibility Test Results (*Final Product Revision*)

This step will further enhance the product being developed. Improvement of the final product is deemed necessary for more accurate products being developed. At this stage a product whose level of effectiveness can be accounted for has been obtained. The final product improvement has a value of "generalization" that can be relied on.

10. Dissemination and Implementation of the Final Product (*Dissemination and Implementation*)

Provide or present research results through scientific forums, or mass media. Product distribution must be done after going

through *quality control*. Data analysis techniques, steps in the research and development process known as the circle according to Borg and Gall consists of

- a. Examining the results of research relating to the product to be developed,
- b. Developing products based on research results,
- c. Field test,
- d. Reducing the divisions found in the field trial phase.

Models in development

Its development has differences and similarities. In general, the difference between these models lies in:

- a. Use of terms from each stage in the development process.
- b. The use of *expert judgment* during the development process.
- c. Development of the elements involved, some simple and some very detailed so it looks complex.

While the similarity lies in all activities that are linked by an integrated feedback system in the relevant model to allow for improvements in the learning system during development.

2. Brain Breaks Method (physical activity)

Physical education is a lesson that almost every lesson does physical activity (Physical Activity), and on the contrary the other lessons are very minimal with physical activity. Generally students in the class will tend to be static in their seats even though there are also students who are hyperactive here and there but in the end are asked to sit by the teacher because it might interfere with other students. Events like this cause the lack of physical activity of students at school.

Students who experience lack of physical activity should be given interesting sports to increase motivation or interest in physical movement. "Sport itself is seen from the perspective of Sports Physiology, Sport is a series of regular and planned physical movements that people do consciously to improve their functional abilities, in accordance with the purpose of doing sports." (Prativi, soegiyanto, sutardji, 2013, 33) ^[3] the phenomenon of fear of national examinations also provides a role in the activities or activities of children at school. Yet according to Rndr & Bielik (2017) ^[13] states "Physical movement absence does not impact only performance, body composition and health. Rather influence mental fitness and cognitive abilities." (Rndr & Bielik, 2017) ^[13]

Brain breaks method that focuses on physical activity (physical activity). Brain breaks itself is composed of two words, the brain, the brain and the break, the pause or rest, so if we combine it with a simple understanding, brain breaks are the times when the brain stops thinking about lessons. "Brain breaks or break activities are fast activities for classrooms that aim to involve children in physical activities while enhancing their learning experience". (Michael & Susan, nd,)

Brain breaks a method of physical activity that puts forward simple movements that make children tend to feel happy and happy. According to Oslo (2018) states "Brain break is a short break in active teaching by the teacher, rest can consist of such as playing, physical activity or training also attention to get a break from school work or for learning activities in class". (Oslo, 2018, VII).

Physical activity while in school should be a basic school

Program because by actively moving the development and growth of children to a maximum. Need the same understanding in a school environment about physical activity so as to get enough space for children to move and move, according to Agata Glapa, *et al*. State that :

Physical activity (PA) plays an important role in neuromuscular development, energy balance, and obesity prevention among children during their early years. Recent evidence, suggests that an optimal level of PA can positively influence cortical and sub-cortical brain neurogenesis, neuromuscular system maturation, primitive reflex and stereotypical postures reduction, improvement of concentration, planning, coordination processes and increase of executive control, on-task behavior and academic performance. (glapa., *et al*, 2018, 1)

So many effects that arise from physical activity (AF) should be a serious enough attention to promote physical activity at school that is done during the change of lessons or on the sidelines of class time that we are now promoting these activities with the term brain breaks. Physical activity has a very large role for the healing and development of a child, especially the age of children must experience a variety of movements and types of motion that exist. Some studies have focused on physical activity for children not only to promote methods or programs but because the impact is extraordinary according to Juonola (2013) states that "Providing structured and unstructured PA during the school day can improve academic achievement and prevent chronic diseases "(Feelings. *Et al.*, 2015, 55). Understand the statement that if you want to increase learning or academic values, don't forget to increase physical activity, but conversely, if the condition of the child experiences less physical activity, the threat and risk of disease are increasingly suffered. Physical activity has a very close role to the success of a child.

Far from that physical activity affects all aspects of a person including according to Newland's statement in Ercis (2018) "argued that physical activity has a continuing impact on the health of individuals and their mental health" (Sertac Ercis, 2018, 56) ^[10] therefore often we see children who like to exercise much healthier in their social development. Brain breaks have movements that are more free to explore motion then accompanied by songs or music presented with LCD technology that makes it easy for children to follow the movements.

Promoting motion to children is not easy if you see the temptation of technology, which is a gadget that in fact has several game applications with various types of games. Brain breaks method that emphasizes physical activity that is fun and happy can make children enthusiastic to follow it in other words can provide a moving experience with a happy sensation. All this can be done at school and must be applied at school.

Belanger (2009) in the journal Greg Rickwood states that "Schools are places where active lifestyles can best be promoted to children and youth due to their time spent at school, the presence of physically active-adult role models and physical activity opportunities" (Rickwood, 2015, 136) ^[6]. School is a place for children to develop all aspects ranging from cognitive development, mental development and body development. Hoping that the habits of active movement in school will make children have a healthy lifestyle in their daily lives.

3. Physical fitness

Physical fitness is a body condition that must be possessed by everyone with a good status, as well as children with all their school and play routines. A fit body must go through a process, both the process of increasing sports activities or with an exercise program, Budhiarta (2010) states that "Training is a means to improve physical condition, whether it is only to maintain, improve physical fitness or to improve, develop physical condition in a physical way general in order to achieve the achievements of one branch of sports." (Budhiarta, 2010, 19) Speaking in the world of education means that it will touch upon the usual physical education lessons in physical education where physical activity is a tool for conducting education, according to Hetherington's statement in Setiyawan (2017) [7] states that "all jasmnai activities that involve playing, gymnastics, and games are included in all educational efforts" (Setiyawan, 2017, 4) [7] as for the other views according to Kurniawan and Suharjana (2018) state that "the purpose of the social security in elementary schools also consider the existence of goals learning, student abilities, learning methods, materials, facilities and infrastructure, and learning activities." (Kurniawan and Suharjana, 2018, 1) starting from physical education will emerge physical activities or basic skills, from there it will lead to different physical fitness.

Some experts put forward a definition of physical fitness, for example, according to Corbin and Lindenyatsey in the Ngatman journal stating that "physical fitness is the ability of a person to complete daily tasks without experiencing significant fatigue, by expending enough energy to meet his movement needs and to enjoy leisure time and to fulfill emergency needs if at any time needed." (Poerwanto & Firdiansyah, 2019, 4) [1] (Ngatman Soewito, 2014, 126) [15]

Physical fitness according to Irianto in Prastiwi and Suharjana (2014) [5] states in general, what is meant by "physical fitness is physical (physical fitness), namely the ability of a person to do his daily work efficiently without arising excessive fatigue so that he can still enjoy his free time" (Prastiwi and Suharjana, 2014, 25) [5]. Physical fitness indeed has taken over in every achievement carried out by a human being, both the age of children, adolescents and adults (Hernawan & Widyaningsih, 2018, 5) Whereas according to Suharto (1997) [9] in his journal Agus Amin said that "physical fitness is a measure of the potential for human work ability that is very instrumental in supporting physical performance, including work performance, sports performance, and learning achievement" (Sulistono, 2014, 224).

The fitness stated by Permaesih, *et al* (2001) [4] is as follows: There is another definition of "physical fitness that is the ability to do daily activities or work and adapt to physical loading without causing excessive fatigue and still have reserves of energy to enjoy free time and work that is sudden and free from disease". (Permaesih, Rosmalina, Moeloek, & Herman, 2001) [4].

Physical fitness has components in it according to Nurhasanah *et al* (2005) [4]: These components include: strength, flexibility, body composition, endurance. Then the component of physical fitness related to skills that is the fitness component related to movement skills is important for physical fitness which includes some body abilities including supporting daily activities,

especially in sports activities, some components include: Speed (speed), Agility (agility), Explosive power (power), Balance (balance), Coordination (coordination), Speed of reaction (reaction speed). (Damar Puspo Prakoso, Setiyo Hartoto, 2015)

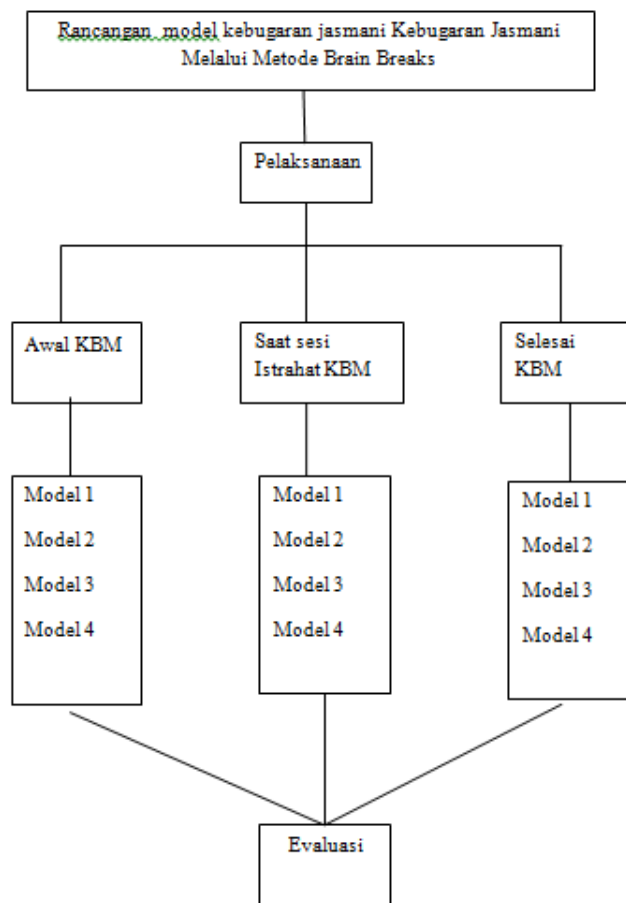


Fig 2: Model Design

4. Method

This research uses the *Research & Development (R & D)* method to develop and validate products in the form of learning models of physical fitness activities to improve physical fitness in elementary school age students.

The research instrument uses the Indonesian physical fitness test (TKJI). The test components of TKJI are as follows:

- a. Run fast 40 meters
- b. Hang your elbows bent
- c. Sit down
- d. Skip upright
- e. Running Distance 600 Meters

The table. Norms of Indonesian Physical Freshness Test

Table 1

No	Amount of Values	Classification
1	22-25	Very good (BS)
2	18-21	Good (B)
3	14-17	Medium (S)
4	10-13	Less (K)
5	5-9	Very Less (KS)

5. Results and Discussion

Results

The mechanism saw the effects of the model given to primary school students as many as 35 children. First the initial test data was taken with TKJI instruments according to operational standards and obtained data as follows:

Table 2: TKJI test

Subject	Pre test score	Post test score	Subject	Pre test score	Post test score
X1	13	14	X18	8	12
X2	9	10	X19	11	13
X3	12	14	X20	10	13
X4	11	14	X21	10	10
X5	7	10	X22	10	12
X6	7	9	X23	11	10
X7	7	8	X24	9	10
X8	10	12	X25	10	9
X9	12	14	X26	7	10
X10	10	11	X27	8	11
X11	8	11	X28	9	12
X12	8	10	X29	10	11
X13	7	11	X30	10	13
X14	10	11	X31	10	12
X15	12	13	X32	10	11
X16	10	11	X33	9	9
X17	9	12	X34	8	11
			X35	11	14

Table 2 illustrates the fitness conditions of participants in the education before doing / given modes - physical fitness models based on the brain breaks method with the conditions after being given a physical fitness model through the brain breaks method.

Discussion

Initial test results and final tests then obtained an average initial test of 9.5142 and an average of a final test of 11.2857. Looking at it from the average point of view, students have seen physical fitness increase, but a t test is still performed to determine its effectiveness and the results are t-count 10.4569 and t-table 2.032, it can be concluded that the physical fitness model through the brain breaks method can improve physical fitness.

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