# Project-Based Learning in Physical Education
## *Can Improve Creativity Students and Which One Better Than Conventional Approach?*

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Abstract: The purpose of this research is to analyzed the influence of scientific approach in physical education towards of creativity of Senior high school students in the mountainous area. The methods of the experiment were used Pre-test and Post-test designs. The population was the students of Senior High School 1 Lembang, with 2 groups, 40 students taken as samples through simple random sampling technique. The instruments used were creativity test. The data was processed by independent t-test with the level of trust 0,05. The conclusion is a scientific approach in physical education increased the creativity better than a conventional approach of senior high school students who living in the mountainous areas.

## 1 INTRODUCTION

Physical education is a process of organic adaptation and learning, neuromuscular, intellectual, social, cultural, emotional, and aesthetic that result from the selection process of various physical activities (Abduljabar, B. 2008). The purpose of physical education is to lay the foundation of a strong character through the internalization of values in physical education and foster critical thinking skills through physical education tasks (Ministry of National Education, 2004). The behavior of learners in physical education does not happen by itself, but due to active participation in every physical education learning activities that have been planned and managed carefully by the P.E teacher itself. The development of physical education in Indonesia occurred several times, the latest curriculum change in 2013 is declared that the use of curriculum 2013 by using scientific approach in various subjects throughout the school in Indonesia. The preferred learning model in the implementation of Curriculum 2013 is Inquiry Based Learning model, Discovery Learning model, Project Based Learning model and Problem Based Learning model (Regulation of Minister of Education And Culture of the Republic of Indonesia Number 65 Year 2013). The 2013 curriculum basically demands an active role of students and is expected to equip students with critical thinking skills and solve problems, so that students become more independent. So also with physical education, all activities and teaching and learning process must also use the scientific learning model. More on the project based learning model, it is clear that the learning model uses the project as a learning process to achieve attitude competence, knowledge of skills. The emphasis of learning lies in activities, analyzing, making up to present learning products based on real experience (Ministry of Education and Culture, 2014). The purpose of the use of learning model of project-based learning model (Project Based Learning) is basically so that each student is able to explore the learning materials independently and know how to apply in the learning. In the context of physical education learning, this means that students must be able to find their own improvements of movement expected by teachers, students are also expected to organize the materials obtained into a learning guide for physical education subjects.

The expert believes that the learning cycle in the Project Based Learning approach consists of (1) interactive lectures, (2) workshops, (3) guiding the project team and (4) assessment of learning (Wedlund, T. 2007). It is important for teachers to be able to shift focus between the macro and micro levels when developing lessons or exercises in project-based learning (Wedlund, T. 2007). The results of research on the use of scientific learning model (one



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of them using project-based learning model) in elementary school obtained the result that physical education influences the increase of concentration, creativity, physical fitness and students' spatial intelligence, but it is also influenced by the geographical condition and teacher's ability to apply the 2013 curriculum (Tarigan, B, et al 2015). Other results also confirm that the use of a scientific approach in physical education can enhance the creativity and physical fitness of the junior high students in the coastal areas (Tarigan B, Hendrayana Y and Wijaya K E. 2017). Meanwhile other experts found that there was no difference in learning achievement, thinking and the process of scientific skills in grade 5 students who studied with project-based learning model or Instruction-based learning model, were not different (Panasan, M and Nuangchalerm, P. 2010). This means that the teacher can carry out the activities of the project based learning model or Project Based Learning because it is suggested also in the 2013 curriculum.

Regarding critical thinking, this is very important for students, because they live in a dynamic world, and surely they will face various problems in their lives. This process creates creativity and self-reliance in students. In particular, creativity is a skill that reflects fluency, flexibility and originality in thinking, as well as the ability to elaborate (developing, enriching, detailing) an idea (Munandar, U. 1999). It is also known that Creativity is not only a subject of intellectual interest, but also a phenomenon of great practical importance (Simonton, D Keith, 2012). So in learning physical education should use learning model that can increase critical ability, creativity, intelligence, and in accordance with the level of needs, growth and development of students. This becomes the virtue of physical education as part of the overall educational process. The central issue in the theory of multiple intelligences is that there are constraints for education to produce qualified graduates, there are still many schools that have traditional mindsets in running their learning process, namely the school only emphasizes the ability of logic (math) and language (Agustin, M. 2011) . Physical education learning using project-based learning model attempts to direct students to students looking for theories, materials or learning materials and strives to accomplish project tasks that have been established by the teacher. This makes the students active and the learning process becomes more student-centered, especially when students are actively involved (William R Penuel and Means, B. 1999), this makes students' motivation increases especially in the completion of homework where in the learning plus invited speakers and with a field visit (Bartscher, Kathy, eta all 1995). Thus, physical education learning carried out in schools should be able to prioritize the mastery of the concept of motion skills and related to the development of creativity when executed appropriately can make students become more creative and improve his knowledge.

# 2 METHOD

The method used in this study is an experiment, namely a study that conducted experiments/ giving treatment to a group of students to obtain data as a result of the treatment given that is creativity, concentration, physical fitness and intelligence. The data was obtained through a creativity test and then compared it with the control group. When looking at the variables to be studied then the research design used is Randomized Control-Group Pretest-Posttest Design, because in this design there are two groups of control groups and experimental groups. The experimental group received treatment of physical education by using Project Based Learning and control group with conventional approach. The main objective of this research is to express the influence of physical education and sport with the model of learning based on the learning of Project Based Learning creativity, student concentration and test which approach method is the most effective in improving to the component that made the variable.
Instrument used to collect data in this research is about the level of creativity of students that is by the dissemination test questionnaire creativity and verifies data.

## 2.1 Population and Sample

The study population is high school students in mountainous area (SMAN 1 Lembang), as many as 2 classes consisting of 80 students. In each class of 40 students, one group is treated with a project based learning model (Project Based Learning) and another class with a conventional approach.

## 2.2 Analysis

Data analysis is following the steps:

- The normality test used was Kolmogorov-Smirnov at p-value> 0.05. Homogeneity test used is Levene test at p-value> 0,05.
- Analysis of hypothesis 1 to 2 using Paired sample t test and 3 using Independent t test at p-value> 0,05.

# 3 RESULTS AND DISCUSSION

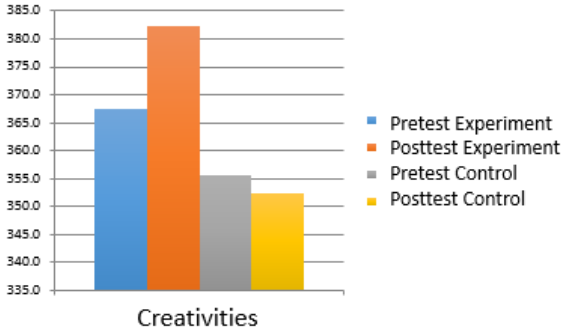


Figure 1: Differences in results of project based learning and conventional learning model on student creativity in the mountains.

Based on the data presented in Fig. 1. It appears that in the experimental group with the learning model of Project Based Learning, the result of pretest creativity 14695 with an average of 367.38, while the result of posttest 15293 with an average of 382.33. The control groups with the conventional approach, the result of pretest creativity 14218 with an average of 355.45, while the posttest 14096 with an average of 352.40.

Table 1: Paired test results of creativity.

| Group | T | Sig. (2-tailed) |
|---|---|---|
| Project Based Learning | -12.291 | .000 |
| Conventional | -0.961 | .342 |

Based on the results of processing and data analysis in table 1, shows that physical education conducted in mountainous areas with the model of learning Based on the influence of the learning process of creativity and physical fitness of students. The learning of physical education using the learning model of Project Based Learning can develop students' learning through their own discovery activity by finding their own information, so that the results obtained will be durable in memory and will not be easily forgotten by the students. Through this way students can also learn to analyze and try to solve their own problems, so that will increase creativity. Creative people are generally quite healthy (Runco, M. A. 2004), both physically and mentally (Runco MA, Charles R. 1997), and even easy to self-actualize. Some doctors use self-actualization to be an indicator of mental health (Maslow A H. 1971, Rogers C. 1970). In addition, creative people are intrinsically motivated to complete a task (Fasco, Daniel 2001). Tarigan et al affirmed that physical education conducted by scientific approach at primary school level influences student creativity and physical fitness of students (Tarigan, B, et al 2015), in junior high school level also influence to increase creativity and physical fitness of junior high school students who live in coastal areas (Tarigan B, Hendrayana Y and Wijaya K E. 2017).

Physical education conducted in mountainous areas with conventional approaches has an effect on increasing students 'creativity, but has no effect on improving students' physical fitness. The learning of physical education with the conventional approach seems less able to stimulate students' critical thinking. The old (Conventional) curriculum is still static, rigid by teachers applying it (Beyer, L. E. and Apple, M. W. (eds), 1998); Cook-Sather, A. 2009b); Grumet, M. R. (1990). Others argue that learning using a conventional approach yields less creativity when compared to a situational-global approach (SG) or a tactical approach model (Morales, J. C., Greco, P. J. and Andrade, R. L. 2009); Tarigan B, Habibudin T and Ikbal Gentar Alam IG. 2016), as well as its spatial intelligence (Tarigan B, Habibudin T and Ikbal Gentar Alam IG 2016). Many teachers forget about the importance of training in physical education learning and this is actually the main obstacle in physical education, which is physical fitness. Therefore, physical education and sports conducted in schools should also pay attention to the positive impact on students, it is recommended to use the formula FITT which means: F = Frequency of exercise 3-5 times / week; I = Light and moderate intensity with exercise heart zone (Target Heart Range): 50% - 70% X (220-Age); Time = duration of exercise activity is 30-60 minutes; Type = The type of exercise that is done is aerobic (Tarigan, Beltasar, 2012).

Table 2: Independent sample t test results of creativity.

| Paired Sample t Test | T | Sig. (2-tailed) |
|---|---|---|
| Creativities | 5.297 | .000 |

Further research results show that physical education conducted in mountainous areas with the model of learning Based Project Learning influence on student creativity better compared to conventional approach. Creativity is an ability possessed by every individual in creating something new in solving the problem (Utami Munandar 2004). This is supported by the results of research which states that the use of scientific learning model better influence on creativity, concentration, physical fitness and student intelligence compared with conventional approach "(Tarigan, B, et al., 2015). Other experts emphasize that the learning model of Project Based Learning has proved effective in motivating students to acquire

domain knowledge and problem-solving skills (S.H. Pee and Helene Leong 2005). This means that through a mind-set that continues to be honed and developed, the goal toward a lifelong healthy lifestyle can be realized and the physical education program must cultivate awareness, influence attitudes, and identify alternatives so that individuals can achieve optimal physical and mental health (Misner, JE 1984).

# 4 CONCLUSIONS

Physical education in mountainous areas conducted with the learning model of Project Based Learning has an effect on the increase of student creativity, while the conventional approach has no effect. Physical education in the mountains conducted with the model of learning *Based Project* influence better on student creativity compared to conventional approach.

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