

The Implementation of VOBAS Game Modification to Critical Thinking Ability in Senior High School Students

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Abstract. The purpose of this study is to determine the effect of implementation VOBAS game modification on critical thinking ability of students in big ball game. The method used in this study is experimental design with one group pretest-posttest design. The experiment was conducted in high school with thirty number of sample from grade X (ten) by cluster random sampling. The study passed off twelve sessions for four weeks with three times a week. Critical thinking ability is measured by using written tests of critical thinking ability with using non-parametric statistical analysis Wilcoxon test for data analysis method. The result of this research indicates no increase in critical thinking skills on a big ball game on the implementation of VOBAS game modification. The initial condition of students should be knowing and control. Implication for further research, should be involving control group and moderator variable, and maybe using a variety teaching strategies.

1. Introduction

Throughout the 20th and early 21st centuries, our society has experienced a tremendous amount of ingenuity and innovation. As a result, individuals are constantly required to think of and solve problems [1]. The educational process should to giving positive effects on physical and mental development of students. Physical Education (PE) is one of lessons in school that used physical activity as a tool to reach educational objective. The expectation from implementation PE in school is giving contribution to student's potential development through skills which students have, so that the skills can contribute to she or he prosperity in future. The learning experience in physical education which students reach in the school, is investment process education values through physical activity and sports which applied from teacher, at last the good habituate can be student's applied in everyday in the society [2]. Critical thinking (CT) is increasingly emphasized as an essential component of education [3]. From early childhood through adolescence, children's cognitive functioning changes greatly. Social and intellectual activities need a great deal of cognitive functioning. During social interactions, assumptions about others' thoughts guide children's actions and frame their interpretations of others' actions [4]. PE's contribution doesn't definite on fitness and fundamental motor skills. In addition, PE giving contribution for human development, also make serious efforts to increase cognitive and affective [5].

Often students have a difficult time when asked to use critical thinking skills to solve a problem. This may be because they do not have enough practice opportunities or are not provided with adequate guidance when trying problem-solving strategies. When asked to use critical thinking skills, students

may suddenly become confused and discouraged because the teacher no longer directly leads the tasks nor accepts rote memorization [1]. The lack of facilities and equipment is another challenge in implementation of physical education. VOBAS (Volley ball, Basketball, and Soccer) [6] presents to bridges among limitation of facilities and the curriculum objective especially in physical education lessons. VOBAS can be classified as new games developed in Indonesia which aims to provide various game-based sport learning to students. Essentially, VOBAS is a result of combination of volley ball, basketball, and soccer games. VOBAS is a kind of sports that involves three basic movement in big ball games learning [6]. Since it combines the three big ball games, it is placed in a modified arena consisting volley ball, basketball, and soccer field. The target and aim in VOBAS is goal post and ring that is used by each team. A team consists of four to six players, depending on the types or field area of available sports. The balls used in this sports are volley ball, plastic ball, rubber ball, or artificial ball that is easy to find and buy in nearest shop [6]. As of other kind of sports, VOBAS also necessitates an arena to play in. It is divided into three areas which are area for conducting volley ball, basketball, and soccer games. The principle of field division is determined in accordance with the available area of the field in the same composition [6]. To illustrate the statement regarding the form of VOBAS field and how it places the three involved sports, look at Figure 1.

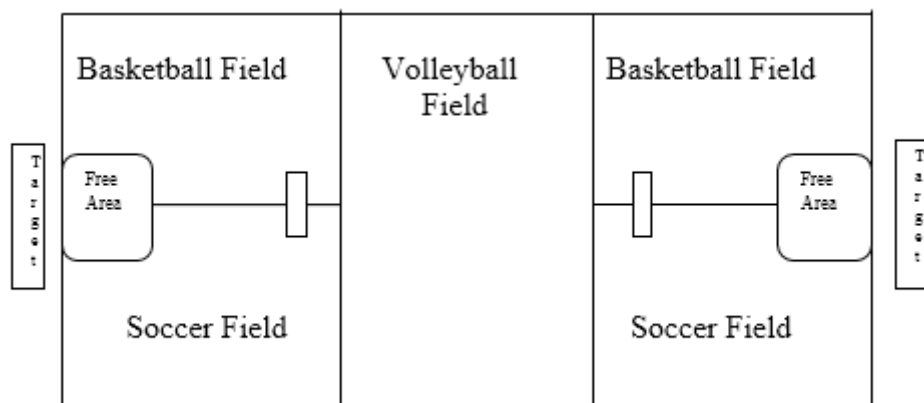


Figure 1. VOBAS Field

(Source: Kemenpora, 2013)

According to figure 1, VOBAS consists of two round which is played 10 minutes each round. The game begins from volley ball arena in which two of the players are in the field. After one player throws the ball, the other player from the opponent passes the volley ball (either up or down passing) to other players in a group that has been ready in either volley ball or basketball arena. The game begins with provision that if one player begins conducting the game in volleyball arena, then the other players in the same group must not in the same area. The initiation game is conducted with two players in each team are switched alternately for the next initiation until all players in a team conducts the initiation and returns to the first player who conducting it. If points are obtained, then the game is stopped then restarted by the group who lost the last round. Free area is defined as a restricted area for the players for both defending and attacking due to gaining points. Free area is created in order for the defending group not being able to obstruct the opponent's eyesight to the target (goalpost or ring) when shooting. Conversely, free area is also advantageous for the defending group that it impedes the opponent to gain points due to distance limitation for shooting. Free area is located before target with dimension 2 meters \times 2 meters. The team that successfully puts the ball into the target (either goalpost or ring) will earn 1 point. The winner is the team that earn most points during VOBAS games [6].

2. Method

The hypothesis of this research is “VOBAS game modification giving an effect to increasing critical thinking ability”. The experimental method used with one group pretest-posttest design. The population of 350 in grade X (ten). The sample consisted of 30 students for the experimental has been taken by cluster random sampling. The instrument used is Critical Thinking Test. The implementation of VOBAS game modification was conducted 12 meetings for 4 weeks with a number of meetings three times a week.

3. Result and Discussion

Based on Kolmogorov-Smirnov and Shapiro-Wilk test on Table 1 about normality test data pretest and posttest critical thinking ability showed that Sig. 0,149 and Sig. 0,108 both is higher than 0,05, it means that the distribution of data isn't normal. Non-parametric statistic used is Wilcoxon Test for examining the hypothesis as showed in table 2.

Table 1. Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.138	30	.149	.943	30	.108
Posttest	.173	30	.022	.909	30	.014

a. Lilliefors Significance Correction

According to the result of Wilcoxon Test calculation in Figure 2, the significant value $0.350 > 0.05$ which means H_0 is accepted. Thus, it can be concluded that there is no a significant critical thinking ability on the implementation of VOBAS game modification in Senior High School Students.

Table 2. Wilcoxon Test

	Posttest - Pretest
Z	-.935 ^b
Asymp. Sig. (2-tailed)	.350

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Critical thinking is a complex time-consuming process, requiring preparation for high-level intellectual functions. It is known that human brain consists of hundreds of millions of nerve cells. There are at least four important points regarding the role of brain to learning and cognitive development in which most learning processes possibly involve the change in neuron and synapse, the changes of the development inside the brain enable the occurrence of thinking process to become complex and efficient; a numerous of parts of the brain perform harmonically to simply allow the complex both thinking and behave process; brain is able to adapt for a human's certain lifetime period [7].

Critical thinking can be reached as the opportunity to study is adequately available. Critical thinking of students might become initial asset to assist them on achieving great academic performance. In physical education, the critical thinking ability of the learners will be visible when they are involved in playing situation. Critical thinking does have a place in the psychomotor-domain. Physical education and sport environments can provide a supportive environment for individual to learn how to think critically. Students can be challenged to produce unique solutions to movement's problems, create new versions of game, and think through issues related to fitness and health [9].

Motoric learning is a combination of cognitive, affective, and psychometric function. Schema theory states that clearly supports the interaction of cognitive and neuromuscular processes as being necessary for the efficient execution of motor performance [10]. Volleyball, Basketball, and Soccer is a sport that requires balanced proportion between motoric and cognitive skills. It requires more cognitive skill due to the necessity to make decision of passing and playing ball in order to construct strategy to earn points by accurately putting the ball to the ring whatsoever. A skill for which the primary determination of success is the quality of the performer's decisions regarding what to do [10].

There are several aspects that might affect to the level of success of learning objective, the condition of the students is one of them. Initial condition can be considered as a set of, basically, possible ways that might lead to a certain learning-teaching process (potential initial condition). The initial condition can also be speculated as a composition of numerous facts which are contained since the beginning of a certain learning-teaching process, as long as the interaction between teachers and students to attain certain instructional objective appears. [8] The examples of initial condition that might affect to the accomplishment of learning objective are "level of intelligence, creativity, level of motivation, level of development, language proficiency, and attitudes toward learning task, method of study, learning pace, and physical condition". Intelligence is the ability to flexibly implement knowledge and experiences in order to encounter next possible tasks. [7].

Students have different levels of motivation, different attitudes about teaching and learning, and different responses to specific classroom environments and instructional practices. The more thoroughly instructors understand the differences, the better chance they have of meeting the diverse learning needs of all of their students. Three categories of diversity that have been shown to have important implications for teaching and learning are differences in students' learning styles (characteristic ways of taking in and processing information), approaches to learning (surface, deep, and strategic), and intellectual development levels (attitudes about the nature of knowledge and how it should be acquired and evaluated)[11]. Individual learning experience might determine the level of intelligence [10]. Learning experience is situations in which people make deliberate attempts to improve their performance of a particular movement in action. The performance resulted during the experiment might be affected by his motivation. Learning process will leave a deep impression to the students who have a desirable motivation to follow the lesson. Motivation is an important aspect of teaching and learning. The unmotivated students would not strive to learn. The highly motivated students would be enthusiastic to attend school and learn during in class [12].

4. Conclusion

Based on the results of processing and analysis data, the research conclude that there is no effect VOBAS games modification to critical thinking ability in Senior High School Students. According to the research, another aspect that can influence in learning objective as well as critical thinking should be knowing and control, such students learning style, gender, IQ, level of motor ability, etc. For further research, should be involving control group and moderator variable, and maybe using a variety teaching strategies.

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