

The Comparison between Inquiry and Problem Solving Method in Performing Overhand Service Technique on Volleyball Game

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Abstract: The service technique is one of the basic techniques of volleyball that must be mastered well. It can help players to face a match in volleyball court. Lack of student result in practicing overhand service is caused by the teachers who deliver conventional lesson. The research method used in this research is experimental method. The population in this study is students of XI Accountancy Department that consists of 4 class, those are Accountancy 1, Accountancy 2, Accountancy 3, and Accountancy 4 at SMK Negeri 1 Cianjur. The Sample of this study is 23 male students of class XI at SMK Negeri 1 Cianjur, obtained from 10% of the population which divided into two groups; those are 11 students for the group of inquiry method and 12 students for the group problem solving method. The practice result of problem solving method has more significant effect than inquiry method in improving quality of overhand service result in volleyball game at SMKN 1 Cianjur.

1 INTRODUCTION

The development of human resources is closely related to the implementation of the educational process, especially in formal schools (Bush, 2009). In the process of teaching and learning can run effectively when all the components that influence in the process support each other in order to achieve goals. These components include students, teachers, curriculum, methods, facilities and infrastructure and the environment. To achieve those goals, we need to improve physical education and sports at school, develop sports-achievement, and make some efforts to socialize sports and to make societies do sports and create a climate that encourages the societies to get achievement responsibly in managing and developing sports. As a game that has popularized, volleyball games have rules and basic techniques that should be mastered for both beginners and professionals, one of them is the service technique. The service technique is one of the basic techniques of volleyball that must be mastered well. It can help players to face a game in volleyball court (Werner, 1989).

We need a plan to make a learning strategy to make the learning process runs optimally. Inquiry is a process of answering questions and solving problems based on logical testing of facts and

observations. According to Arthur L. Costa (1985) as quoted by Rustaman (2003: 3) is a pattern of sequential learning activities that are applied from time to time and directed to achieve a desired student learning results. Furthermore, the inquiry methods use a process to teach content and to help students think analytically. "The application of inquiry methods will produce students/learners whom are able to solve problems and develop tentative hypotheses that they will answer with the data of their research results in a study also disclosed this method is critically looking for something by using certain steps towards a success of the problems faced" Baruadi, Iron Suleman and Lamusu, Ahmad and Lamusu, Zulkifli (2015, page 3).

The purpose of the inquiry method mentioned and disclosed by Mallinson {1991: 17}, that is : "if the main goal science program is to get children to understand remember, and apply science concepts, there's probably no more powerful tool that having students "write science". Research indicates that writing about science in process not only science vocabulary, but also performance in reading and thinking in the discipline"

Various explanations about problem solving is expressed, Yudiana (2015, p.10) describes that "problem solving is a technique to help students to

understand and master the learning materials of problem-solving strategy". It can be concluded that problem solving is a model of learning that focuses on teaching and problem solving skills followed by strengthening skills. In this case the problem is defined as an issue that is not routine and has not known how to solve it. Precisely, problem solving is searching or finding solutions.

2 METHODS

The population in this study is students of XI Accountancy Department that consists of 4 class, those are Accountancy 1, Accountancy 2, Accountancy 3, and Accountancy 4 at SMK Negeri 1 Cianjur with classifications as follow:

Accountancy 1 consists of 5 males and 34 females, Accountancy 2 consists of 6 males and 32 females, Accountancy 3 consists of 4 males and 34 females, Accountancy 4 consists of 8 males and 31 females, with a total of 23 males and 131 females, and the total students are 154 students. The Sample of this study is 23 male students of class XI at SMK Negeri I Cianjur, obtained from 10% of the population which divided into two groups; those are 11 students for the group of inquiry method and 12 students for the group problem solving method.

The research method used in this research is experimental method. The previous study also used the experimental method, Henry E. Peelle III (2006). This study used two groups, pre-test and post-test designs, Sugiono {2011: 75} describes as follow:

Table 1: Two groups pre-test and post-test.

Group	Pre-test	Treatment	Post-test
Group 1	Y 1	X1	Y2
Group 2	Y1	X2	Y2

Information:

Group 1: Experimental group using inquiry learning method

Y1 : Pre-test {before getting a treatment}

X1 : Giving treatment of inquiry learning

Y2: The post-test value of group of inquiry learning method {after getting a treatment}

Group 2 : Experimental group using problem solving learning method

Y1 : Pre-test {before getting a treatment}

X2: Giving treatment of problem solving model

Y2: The post-test value of group of problem solving learning method

This study was conducted 16 times. It is noted by seeing the result of improvement of student learning, if during the 18 meetings they have experienced an improvement and ready for post-test.

The instrument of this study is using Games Performances Assessment Instrument (GPAI). By using GPAI, the performance skill of the participants can be measured in this study as described by previous study by Yunyun Yudianta about Volleyball skill using GPAI instruments adopted from Mitchael W. Metzler (1990: 362).

After the data was obtained then the data was processed using the help of SPSS application to facilitate the processing of data and take the conclusions from the data collection.

3 RESULTS AND DISCUSSIONS

The result of the study during 18 meetings by giving treatment of overhand service found that there is a difference in service results at SMKN 1 Cianjur. Basically, the service in volleyball sport shows a significant improvement result, it is because there is a change in data collection at post-test, but in the sample of problem solving method, there is no change in data collection of sample number 5 and number 12 at pre-test, service value of sample 5 is 7 and sample 12 is 9, and they get the same value at post-test. Mean and standard deviation of the effect of practice effect of problem solving method and inquiry of overhand service.

Table 2: Test result of overhand service with inquiry method practice.

variable	Overhand Service with Inquiry Method Practice	
	Mean	SD
Pre-test	6.2	1.47
Post-test	8.5	1.04
	Overhand Service with Problem Solving Practice	
	Mean	SD
Pre-test	6.3	1.86
Post-test	7.7	1.61

Table 2 shows that the average pre-test result of inquiry practice method is about 6.2 and standard deviation value is about 1.47, and for the average post-test result is about 8.5 and standard deviation value is about 1.04. Whereas the average pre-test result of problem solving practice method is about 6.3 and standard deviation value is about 1.86, and for the average post-test result is about 7.7 and standard deviation value is about 1.61.

Table 3: Test result of inquiry and problem solving method.

Variable	LO	L table	Notes
Inquiry Pre-test	0.192	0.249	Normal
Inquiry Post-test	0.229	0.249	Normal
Pre-test Problem solving	0.222	0.242	Normal
Post-test Problem solving	0.126	0.242	Normal

Based on the results of data processing in table 3, pre-test value by using Inquiry method is about (Lo) = 0.192 (Ltable) = 0.249 and post-test value is about (Lo) = 0.229 (Ltable) = 0.249, whereas pre-test value by using problem solving method is about (Lo) = 0.222 (Ltable) = 0.242 and post-test value is about (Lo) = 0.126 (Ltable) = 0.242 at the real level 0.5 stated that students who perform overhand service distribute normal because $L_o < L_{Table}$.

Table 4: Homogeneous test.

Variable	F Count	Ftable	Information
Inquiry	1.99	2.97	Homogeneous
Problem Solving	1.33	2.82	Homogeneous

Based on data processing on homogeneous test from inquiry method obtained data Fcount = 1.99, Ftable = 2.97 and from problem solving method obtained data Fcount = 1.33 Ftable = 2.82, thus two variants homogeneous due to $F_{count} < F_{table}$.

In the table below, there is the summarization of the results of the T-test calculation of the Effect of Problem Solving and Inquiry method practice in Overhand service.

Table 5: The summarization of t-test calculation result.

Result of Overhand Service treatment	Dk	t _h	t _t	Summarization
Inquiry pre-test and post-test	11	3.07	1,81	Significant
Problem Solving pre-test and post-test	12	4.92	1.79	significant

Testing the significance of the research results proved if the use of inquiry and problem solving methods equally provide a significant improvement.

Based on the data of "The Comparison between Inquiry and Problem Solving Method in Performing Overhand Service Technique on Volleyball Game

Students of Class XI at SMK Negeri 1 Cianjur", it can be concluded that:

There is a significant effect of the problem solving method practice of the overhand service result. This data result is supported by Mamonto; Rahkat and Mkes; Aisah R Pomatahu; and Ms, Sarjan Mile (2015) that states "there is significant improvement using problem solving in improving lay-up skills". There is also several studies (Siatan, Ardianto T. and Mkes, Aisah R. Pomatahu and Ruslan, 2015) state that if the problem solving learning model is applied, the students' ability in heading the ball in football game will increase. Moreover, Damanik, Endro Switly (2013) claim that teaching by using problem solving style can increase the result of smash learning of students in a volleyball game.

There is a significant effect of the inquiry method practice of the overhand service result. The result is supported by Suryaningsih (2016) implementation of guided inquiry learning method based on game can improve the creativity of early childhood.

Practice of problem solving method has more significant effect compared to practice of inquiry method on overhand service of students at SMKN 1 Cianjur. Nevertheless in the previous study Rysia Reynolds, David Saxon and Graham Benmore (2006) present further evidence that EBL/PBL activities have a significant role to play in the development of independent learning, team working skills and the acquisition of deeper knowledge. Also, there is a presumption in previous research on this research, IL and PBL tasks are challenging for students in many ways, and different researchers aiming to help learners overcome these conceptual and practical hurdles have used several scaffolding strategies (e.g., Chinn, 2006; Guzdial, 1994; Jackson et al., 1996; Linn, Bell, and Davis, 2004; Reiser et al., 2001).

4 CONCLUSIONS

Based on the data above, it can be concluded that the problem solving method practice has more significant effect compared to the inquiry method practice on overhand service of students at SMKN 1 Cianjur. The writer believes that the process of collecting data needs more time, and also for the gender grouping that should be determined, because in this study the differences of gender has many influence to the test results.

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