

The Effect of Learning Models on the Teenagers' Volleyball Low Passing Improvement

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Abstract: This research is aiming to know the effect of two models of learning on set-up underarm passing technique in volleyball game. Learning model in this research is Problem Based Learning (PBL) and Direct Instruction. This research uses experimental method with design "randomized pre-test and post-test design". Technique of data retrieval in this research use randomized samples so that the sample used amounted to 30 students which divided into two experiment group that is group with treatment of PBL and DI. The instrument used is the accuracy of the bottom passing. Data analysis performed using t test with significance 0,05. The result of analysis shows that PBL learning model gives more significant effect to the set-up of passing technique with $t_{count} 4,450 > t_{table} 2.05$.

1 INTRODUCTION

Learning method is a series of ways or strategies that are arranged to create learning conditions to take place as expected, students can improve their activity in the learning process and produce good learning outcomes (Joyce, Weil and Calhoun 2009; Parkay, 2010). Learning is effective if implementing PBM that can improve student learning activities and get optimal learning outcomes. The effectiveness of learning can be measured by the students' ability to apply the knowledge they acquire (Guthrie and Schuermann, 2011; Wong and Wong, 2005).

Problem Based Learning is a method of learning by exposing students to real problems, so that from the problem students can improve their knowledge and understanding (Liu, Liau and Tan, 2009; Marsh, 2010; Baden and Major, 2004; Wood, 2003). The PBL has six stages of the learning process; (A). Discovery of the problem, (b). Problem investigation, (c). Identification of learning problems, (d). Peer teaching, (e). Integration of knowledge and (f). Solution problem (Claire, Jamie and Author, 2013).

Another approach based on the principle of behavior is Direct Instruction (DI). DI is an effective group teaching method, especially for low-performing students at risk of academic failure (Lickona and Davidson, 2005). DI refers to

instructional tactics that focus on systematic and explicit instruction. The basic elements of DI include (a) The scripting lessons very regular, (b) ability to group students, (c) repetition of content, (d) use of time, (e) instruction usage, (f) response to instruction, (g) Fast learning phase (fast pacing), and (h) mastery of previous content that previously switched to more difficult content (Cadette, Wilson, Brady, Dukes and Bennett, 2016).

Based on previous studies, applied PBL into the sports curriculum is an effective means to motivate students to be directly involved with more learning experiences (Engelmann and Becker, 1976). On the other side, the use of DI methods can improve the ability of basic football techniques in children age 12-14 years old (Maria, 2014). But from existing research there is no one to compare PBL and DI in basic techniques of volleyball.

This research is intended to answer some questions, namely: 1). Does the Problem Based Learning model have a significant effect on improving the bottom passing technique in a game of volleyball?; 2). Does the Direct Instruction instructional model have a significant effect on improving the bottom passing technique ?; 3). Which is the more significant influence between the Problem Based Learning model and the direct instruction

learning model on improving the bottom passing technique in a volleyball game?.

2 METHOD

2.1 Participants

The sample consisted of 30 randomly determined people. The grouping of samples was done using ordinal pairing technique.

2.2 Procedures

The method used in this research is a method with pre-test design and post-test experimental design (14). This study starts from 18 May 2016 to 20 June 2016. There are 18 meetings that are held every 3 times per week with a 60 minute meeting / meeting.

2.3 Instruments

The instrument used is a passing ability test under a volleyball game (15). Data processing is done by using t-test statistic.

3 RESULTS AND DISCUSSION

3.1 Differences in Mean Score of Underarm Pass or Bump Value between Pre and Post-test on Problem Base Learning

Table 1 shows an increase in lower passing skills in students treated by PBL. This can be seen from the increase in the average passing score under the students. In the initial test the average student score was 32.93, while in the final test the student score increased to 34.40.

Table 1: Increase in lower passing skills in students treated by PBL.

	Average	t-test for Equality of means		
		t-count	t-table	
Initial Test	32,93	81,29	2.05	0.05
Final Test	34,40			

This implies that the treatment of PBL is linear with the improvement of lower passing skills by the students. From result of t-test can be seen that t_{count} 81,29 dan t_{table} 2.05 with significant value equal to 0.05. Because t_{count} 81,29 > t_{table} 2.05. Then this result shows there is significant influence. Thus the alternative hypothesis H_0 which reads "problem based learning model gives significant influence to the improvement of passing technique under volleyball game, accepted and got the truth in this research.

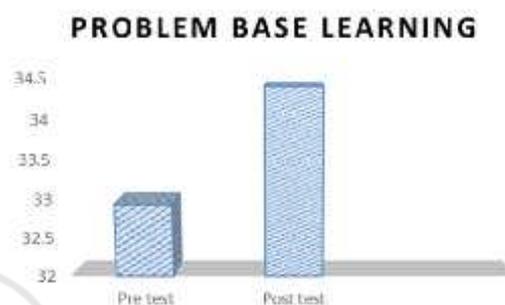


Figure 1: Problem based learning.

3.2 Differences in Mean Score of Underarm Pass or Bump Value between Pre and Post-test on Direct Instruction

Table 2 shows an improvement in lower passing skills on students given Direct Instruction modelling treatment. This can be seen from the increase in the average passing score under the students. In the initial test the average student score was 30.60. While in the final test, the student score increased to 31.93.

Table 2: improvement in lower passing skills on students given Direct Instruction modelling treatment.

	Average	t-test for Equality of means		
		t-count	t-table	
Initial Test	34,40	89,16	2.05	0.05
Final Test	31,93			

From t-test results can be seen that t_{count} 81.26 and t_{table} 2.05 with 0.05. Then this result shows there is significant influence. Thus H_0 alternative hypothesis which reads "Direct Instruction learning model gives a significant influence to the

improvement of passing technique under volleyball accepted truth in this research.

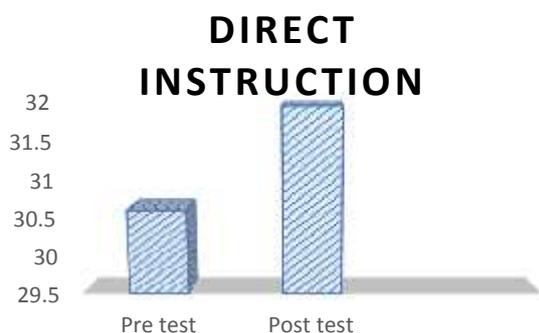


Figure 2: Direct instruction.

3.3 Differences in Gain Score (Pre and Post-test) of Underarm Pass or Bump between Problem Base Learning and Direct Instruction

Based on the result of the analysis from the independent table, the test sample for the column of assumption variance assumption (t-test) is known as $t_{count} = 4.450$ and the value of $t_{table} 2.05$, H_a result is accepted at significance level $= 0.05$ (5%). PBL learning model gives more significant influence to the improvement of passing technique under volleyball because from table independent sample test for column equal variance assumption (t-test) known value $t_{count} = 4.450 > t_{table} \text{ value } 2.05$, then H_0 is rejected and H_a accepted at significance level $= 0.05$ (5%).

Table 3: Differences in gain score.

	Average	t-test for Equality of means		
		t-count	t-table	
Problem Base Learning	34,40	4,450	2,05	0,05
Direct Instruction	31,93			

4 CONCLUSIONS

Mastery of passing techniques under the game of volleyball shows a positive improvement both with PBL and DI models. The PBL model is more significant than the DI model for the lower passing learning outcomes in the game of volleyball.

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