International Journal of Applied Engineering Research ISSN 0973-4562 Volume 12, Number 17 (2017) pp. 6591-6596

The effect of sport technology on student-athletes' Petanque Skill Performance

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Abstract

The purpose of this paper was to analyze the effect of sport technology namely Petanque Steady Lob on student-athletes' skill performance in petanque. Data was collected from a sample of 66 athletes using pre-test and post-test. Data were analyzed using descriptive analysis, frequency, percentage and T-test. The study found that the experimental group that used Petanque Steady Lob in petanque sports showed better and more significant skill performance compared with the normal learning group. This study is expected to help coaches and athletes in identifying tools or methods appropriate for teaching and learning skills in petanque tournament. The study also helps the development of skill performance in petanque sport among student-athletes. This study offers guidelines for coaches and athletes to enhance petanque skill performance using technology.

Keywords: steady lob, shoot on the iron, pointing soft lob, student-athletes', petanque

INTRODUCTION

Developing countries need technology in almost all areas of life. The goal of technology is to meet human needs (Petrovic, 2015) (1). Therefore, Malaysia needs more experts in the field of science and technology towards the modernization of the country. Sports development is essential in order to produce outstanding athletes to compete globally. Should all athletes can compete for the country's name, sport can be an important asset to promote the country's development (Asiah Mohd Pilus & Rosli Saadan (2010); Desbordes, 2012) (1,2). Petanque is a sport that has greatly contributed to the development of sports in the country and is highlighted at the national and international level (3).

Bunker and Thrope (1982) introduced the model of Teaching Games for Understanding (TGfU). Similarly, Sanmuga Nathan (2012) TGfU focused on a thorough understanding of each game without using any tool. Athletes can understand a principle in a particular game and emphasize the increased level of physical activity (4). This model has been modified and developed over time. Mohd Salleh (2011) advocated that TGfU can improve the performance of athletes in the game and create fun that will lead to a healthy lifestyle (5). In contrast, Asiah and Hanipah (2013), mentioned that environment of facility effects the loyalty and spectators' intentions to watch football games. The framework of petanque Steady Lob used in this study was utilized during the process of teaching and learning of petanque.

Nasir (2015) stated that the skill of shooting on the iron is hard and becomes a major problem in the game (6). According to Zaini Lisa (2015) shooting on the iron and pointing soft lob skills are the basic skills that are important in petanque (7). Similarly, Negaswaran (2013) found the effect of petanque Steady Lob technology which can improve an athlete's skill performance of petanque. This study is expected to help coaches and athletes in identifying the appropriate tools or methods for teaching and learning petanque skills.

Futhermore, this study was to analyze the effect of sport technology namely petanque Steady Lob on university athletes' skill performance in petanque especially the shooting on the iron and pointing soft lob skill. Students must learn the right skills of a real shoot repeatedly (2).

MATERIALS AND METHODS

The study used an experimental approach. The quantitative approach was conducted to determine the relationship of independent variables and dependent variables (Sugiyono, 2011). A technology tool called petanque Steady Lob has been used and has acquired the validity and reliability testing for upgrading the shooting on the iron and pointing soft lob skill. Non-probability sampling was used. Samples consist of two groups; the experimental group and the control group. Data were collected through pre-test and post-test means (Sugiyono, 2011) (9).

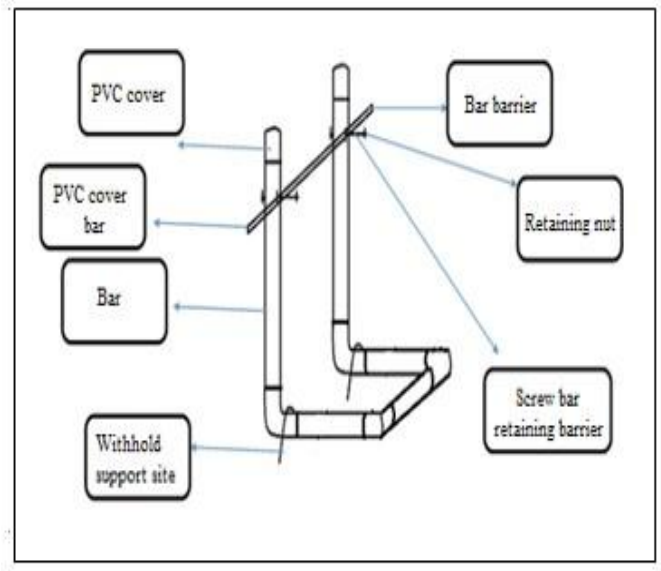

Figure 1: Petanque Steady Lob that has been built and has achieved the legality of 0.8 to 1.00.

Petanque Steady Lob has its own specifications so that it can be easily carried and used. Table 1 illustrates the specifications of this Petanque Steady Lob.

Table 1: Specifications of petanque Steady Lob

No	Name	Quantity
1	PVC END CAP 1 1/2"(AXP)	2 Pieces
2	PVC 90 ELBOW <SWV>1 ½" (JZ)	4 Pieces
3	D# PVC PIPE 1 ½" (JBZT/IXR)	17 Feet
4	6#PVC PIPE ½" (JXR)	4.5 feet
5	MS HEX BOLT and NUT ½" X 1 ½" (RZ)	0.20 kg
6	PVC END CAP 1/2" (JXR)	2 Pieces
7	GI WIRE	2 Pieces

*1 feet = 1 feet = 35 cm *

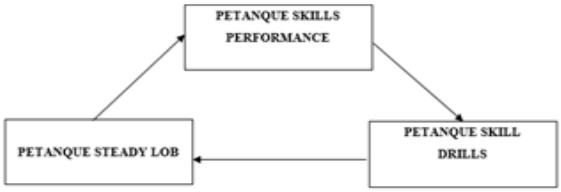

Figure 2: Framework effect of technology on skill performance

Source: Model the Teaching Games for Understanding (Bunker and Thorpe, 1982)

Figure 2 shows the conceptual framework of this study based on the TGfU model to determine the effect of technology tool such as petanque Steady Lob. The model in TGfU study does not emphasize on the use of teaching aids in teaching and learning. Therefore, the present study combined TGfU model of petanque Steady Lob in shooting on the iron and pointing soft lob skill among university athletes.

Figure 3 shows the shooting on the iron skill.

A ball must be accurately thrown to an opponent's ball. This skill needs a powerful hit and undivided attention in order to set aside the opponent's ball from the play or threat.

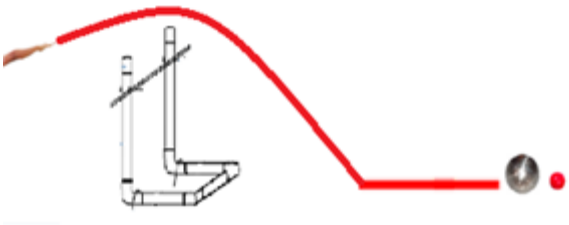

Figure 4: Pointing soft lob

The ball is thrown high in the air in an arched half shape and falls to the ground and moves closer to the jack (wooden balls). This throw is intended to score many points (15).

Measurement

Malathi Balakrishnan (2011) stated that population is the target group for the intended study, the group to whom the results will be generalized (8). A total of 66 athletes were chosen randomly in this study. Suharsimi (2011) asserted the number of samples that are suitable for carrying out experimental studies if the chosen subject is less than 100 (9). Selected respondents assessed the use of technology sports namely petanque Steady Lob in shooting on the iron and pointing soft lob skill. Experimental design involved two control groups named experimental group and control group. The study involved collecting data for the pre-test and post-test of experimental study for randomized subjects namely pretest-posttest control group design (Sugiyono, 2011).

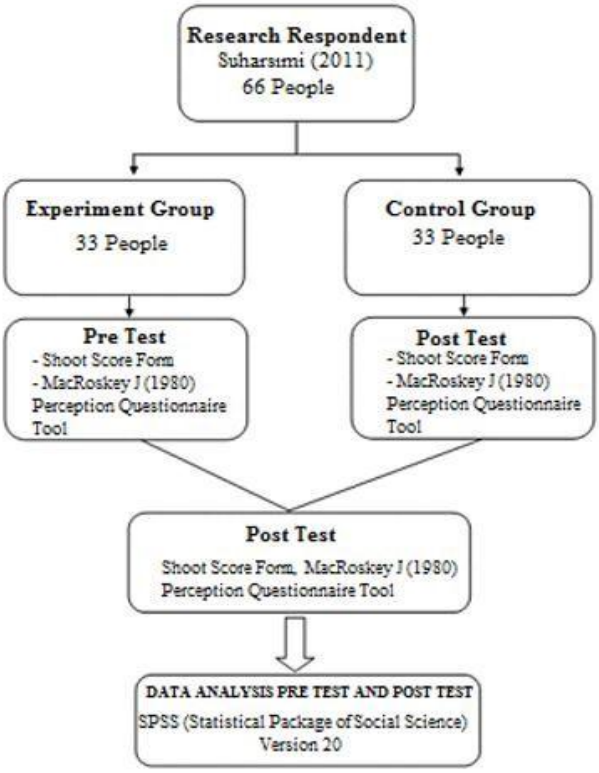

Figure 5: Experimental design (Sugiyono, 2011)

RESULTS

Discussion and Conclusion

The results yielded that the mean score of pre-test and post-test in the control group and the experimental group was uniform. This indicates that the data obtained in this study can be analysed using inferential statistics such as t-test (10). Next, statistical analysis t-test was conducted to answer the alternative hypothesis (2,11); there is no significant difference on the mean pre-test score of achievement among athletes in the control group and the experimental group. The results showed that at the start of the study, athletes in the control group and the experimental group were equally capable in shooting on the iron and pointing soft lob. The finding also showed that the effect of petanque Steady Lob can improve skill performance among petanque athletes of University Pendidikan Sultan Idris (UPSI). The technology can improve the skill performance of petanque athletes (13).

Analysis Phase of Pre-Test and Post-Test Performance for an Experimental Group and Control Group.

Table 2 shows the summary of mean and standard deviation differences between pre-test and post-test of the shooting on the iron skill for both groups. The mean score of the pre-test for the experimental group was 4.27 whereas the control group was 3.90. The standard deviation of the experimental group was 1.09 and the control group was 0.84. The difference in the mean pre-test result for both groups was 0.37. Thus, athletes from both groups have the same existing knowledge. After a given exposure of learning different methods, the mean scores of post-tests for the experimental group (petanque Steady Lob approach) was 9.96 and the control group (normal approach) was 6.96. The difference between the average post-test results for experimental group and the control group was 3.00. Hence, there is an increase in the performance of athletes in the experimental group.

Table 2 shows the summary of mean and standard deviation differences between pre-test and post-test of the pointing soft lob skill for both groups. The mean score of the pre-test for the experimental group was 5.09 whereas the control group was 4.63. The standard deviation of the experimental group was 1.18 and the control group was 0.78. The difference in the mean pre-test result for both groups was 0.46. Hence, athletes from both groups have the same existing knowledge. After a given exposure of learning different methods, the mean score of the post-test for the experimental group (petanque Steady Lob approach) was 10.51 and the control group (normal approach) was 8.30. The difference between the average post-test results for experimental group and the control group was 2.21. Thus, there is an increase in the performance of athletes in the experimental group.

Table 2: Mean and standard deviation differences using petanque Steady Lob and regular practice in shooting on the iron and pointing soft lob skills (n = 66)

Shoot on The Iron				
Group	N	Ujian	Mean	Standart Devition
Petanque Steady Lob	33	Pre-Test	4.27	1.09
		Post-Test	9.96	1.04
Regular Approach	33	Pre-Test	3.90	0.84
		Post-Test	6.96	1.10
Pointing Soft Lob				
Petanque Steady Lob	33	Pre-Test	5.09	1.18
		Post-Test	10.51	1.04
Regular Approach	33	Pre-Test	4.63	0.78
		Post-Test	8.30	1.10

In short, the mean difference of improvement between the pre-test and post-test of the experimental group for shooting on the iron and pointing soft lob skill was 5.69 whereas the mean difference in improvement between the pre-test and post-test for the control group was 3.06.

Pointing lob soft skills showed an increase in the mean difference between the pre-test and post-test of the experimental group which was 5.42 whereas the mean difference of an improvement between the pre-test and post-test for the control group was 3.67.

Hypothesis Testing

Hypothesis testing was carried out using t- test for experimental and control groups.

Ho1: There is no significant difference between the mean scores of pre-test and post-test of the experimental group.

Table 3 shows the t-test results for the pre-test and post-test of shooting on the iron skill for the experimental group. The significant value was -21,381 (2-tailed) obtained at 0.000, basing on 2 tailed significance level below 0.05. Hence, there is no significant difference between the mean scores of pre-test and post-test of the experimental group, a group which was exposed to the petanque Steady Lob.

Table 3 shows the t-test results for the pre-test and post-test of pointing soft lob skill for the experimental group. The significant value was -28.572 (2-tailed) obtained at 0.000, basing on 2 tailed significance level below 0.05. Hence, there is no significant difference between the mean scores of pre-test and post-test of the experimental group, a group which was exposed to the Petanque Steady Lob.

Table 3: The t-test results of pre-test and post-test of the experimental group

Shooting on the iron					
Methods	n	Mean	Standard Deviation	t	Significance (2-tailed)
Petanque Steady Lob					
Pre-Test	33	4.27	1.097	-21.381	0.000
Post-Test	33	9.96	1.045		
Pointing soft lob					
Petanque Steady Lob					
Pre-Test	33	5.09	1.182	-28.572	0.000
Post-Test	33	10.51	0.833		

Ho2: There is no significant difference between the mean scores of pre-test and post-test for the control group.

Table 4 shows the t- test results for the pre-test and post-test of shooting on the iron skill for the control group. The significant value was -18.837 (2-tailed) obtained at 0.000, basing on 2 tailed significance level below 0.05. Thus, there is no significant difference between the mean scores of pre-test and post-test of the control group, a group which was exposed to the regular approach.

Table 4 shows the t-test results for the pre-test and post-test of pointing soft lob skill for the control group. The significant value was -16.316 (2-tailed) obtained at 0.000, basing on 2 tailed significance level below 0.05. Hence, there is no significant difference between the mean scores of pre-test and post-test of the control group, a group which was exposed to the regular approach.

Table 4: The t-test results of pre-test and post-test of the control group

Shooting on the iron					
Methods	n	Mean	Standard Deviation	t	Significance (2-tailed)
Regular approach					
Pre-Test	33	3.90	0.842	-18.837	0.000
Post-Test	33	6.96	1.103		
Pointing soft lob					
Pre-Test	33	4.636	0.783	-16.316	0.000
Post-Test	33	8.303	0.918		

Ho3: There is no significant difference between the mean scores of pre-tests for a control group and mean score of pretest for an experimental group.

Table 5 shows the t-test results for the pre-test of shooting on the iron skill for the control and experimental group. The significant value was 1.459 (2-tailed) obtained at 0.154. Based on 2-tailed significance level below 0.05, there is no significant difference between the mean scores of the control group pre-test and the experimental group . Therefore, the null hypothesis is not accepted. Hence, there is no significant difference between the mean scores of pre-tests for a control group and the experimental group for shooting on the iron skill.

Table 5: T- test results for pre-test of the control group and experimental group for shooting on the iron and pointing soft lob skills.

Shooting on the iron					
Methods	n	Mean	Standard Deviation	t	Significance (2-tailed)
Petanque Steady Lob	33	4.272	1.097	1.459	0.154
Regular approach	33	3.909	0.842		
Pointing soft lob					
Petanque Steady Lob	33	5.090	1.182	1.715	0.096
Regular approach	33	4.636	0.783		

Ho4: There is no significant difference between the mean scores of post-tests for a control group and post-test mean score of the experimental group.

Table 6 shows the t-test results for the post-test of shooting on the iron skill for the control and experimental group. The significant value was 16.248 (2-tailed) obtained at 0.000. Thus, there is no significant difference between the mean scores of post-tests for a control group and post-test mean score of the experimental group. Therefore, the null hypothesis is not accepted. Hence, there is no significant difference between the mean scores of post-tests for a control group and post-test mean score of shooting on the iron skills for the experimental group.

Table 6 shows the t-test results for the post-test of pointing soft lob skill for the control and experimental group. The significant value was 10.216 (2-tailed) obtained at 0.000. Therefore, the null hypothesis is not accepted. There is no significant difference between the mean scores of post-tests for a control group and post-test mean score of pointing soft lob skills for the experimental group.

Table 6: T-test difference mean score post-test control group and mean score post-test for experimental group.

Shooting on the iron					
Methods	n	Mean	Standard Deviation	t	Significance (2-tailed)
Petanque Steady Lob	33	9.969	1.045	16.248	0.000
Regular approach	33	6.969	1.103		
Pointing soft lob					
Petanque Steady Lob	33	10.515	0.833	10.216	0.000
Regular approach	33	8.303	0.918		

Ho5: There was no association between the use of petanque steady lob with a performance shooting on the iron and pointing soft lob.

Table 7 shows the results of multiple regression analysis. An overall category has a significant relationship with R Square = .694, F (2, 61) p = .000. The correlation coefficient range was .913 (R) hence, as much as 69% (R Square) variance categories of control and experiment can be explained by a linear combination of the scores of the pre-test and post-test (12). Correlation of performance and value can be considered as a good relationship with the R 0.913 and tend to achieve a strong determination coefficient value of 1.

Table 7: Bivariate Correlation and Partial Score Predictor

Category	The correlation between each category
Shoot on the iron score	
Pre-test	.684
Post-test	.913
Pointing soft lob score	
Pre-test	.454
Post-test	.973

In conclusion, the effect of sport technology namely petanque Steady Lob on university athletes' skill performance in petanque has been analysed. The findings yield that the experimental group that is exposed to petanque Steady Lob in petanque sports shows better and more significant skill performance compared with the normal learning group. This study is expected to help coaches and athletes in identifying

tools or methods appropriate for teaching and learning skills in petanque tournament. The study also helps the development of skill performance in petanque sport among university athletes.

ACKNOWLEDGEMENT

We express our sincere appreciation to the UTeM to the assistance given to writing this review.

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