Effect of Tool Modified "Smarter Spotter" on Students' Performance in Bridge Motion

Galih Permana, Madya Madya and Putranto Putranto
Sport Education Program, Postgraduate School, Universitas Pendidikan Indonesia,
Jl. Dr. Setiabudhi No. 229, Bandung 40154, Indonesia
permanagalih0.gp.gp@gmail.com

Keywords: Tool Modified 'Smarter Spotter', Bridge Motion.

Abstract: The reason why the current researcher choose the title "Effect of Tool Modified 'Smarter Spotter' on Students' Performance in Bridge Motion" is because there are still lots of students who find difficulties in performing bridge motion. The difficulties faced by the students are caused by some differences in terms of height, weight and flexibility between students. The researcher aims to create and to modify the available standardized tool to solve the difficulties and to provide a safe learning for the students. The purpose of the current experimental research is to discover the effect of tool modified "Smarter Spotter" on students' performance in performing bridge motion. The research was designed to be One group pretest-posttest design. The population of the current research is the 10th grade of Pribadi Bilingual Boarding School's students, while the research samples are 15 students of X-A class at Pribadi Bilingual Boarding School Bandung who are taken by random sampling technique. In accordance with the analysis of the data, it is revealed that T-count 3,96 is bigger than T-table 1,74 on confidence level α=0,05 with dk(n-1)=14. By the test criteria, Ho is rejected if T-count>T-table. In fact, T-count is at the level of rejection. Therefore, Ho is rejected. Based on the analysis of the data, it can be concluded that the modified tool "Smarter Spotter" influences the 10th grade Pribadi school Bandung students' performance of bridge motion. According to the result of the analysis, it is recommended that the teacher at the school should utilize the safe and reliable tool to improve students' performance on gymnastics, particularly bridge motion.

1 INTRODUCTION

Gymnastics can be described as activities which result from performers testing their ability to control body movements in relation to the force of gravity in deliberately selected circumstances. Gymnastics makes several distinctive contributions to the education of elementary-age students. The structure of gymnastics builds increasingly complex body management and control which are the basis for later skill learning. Gymnastics also makes demands on strength, stamina, and flexibility. Strength, speed, agility, and the ability to maintain a satisfactory relationship between the different parts of the body are essential to successful performance. These help develop the overall physical capacity of children at this crucial

Educational gymnastics is defined and a framework for content development in educational gymnastics is revisited (Susan Capel, 1986; Nilges-Charles and Lynda, 2008). Gymnastics activity in school usually as a basic technique, such as front roll, back roll, handspring, and bridge motion. Bridge motion is a basic which need a good balance. Several studies have documented that various forms of exercise (Zemková and Hamar, 2005). We can have a look at the principle of balancing from biological and physical points of view (Li and Warren, 2000). Balance, like coordination, is understood by virtually everyone to be a critical component of skillful movement (Hudson, 2000). Therefore, every school with high risk of gymnastic activity need some gymnastic equipment for more safety. It is important to make sure the equipment is simple and versatile and that it allows for the physical development of the greatest number of students in the safest possible way (Warrell, 1978).

So, the writers made their own gymnastic equipment for help student in bridge motion

Permana, G., Madya, M. and Putranto, P.
Effect of Tool Modified "Smarter Spotter" on Students' Performance in Bridge Motion.
In *Proceedings of the 2nd International Conference on Sports Science, Health and Physical Education (ICSSHPE 2017) - Volume 1*, pages 499-502
ISBN: 978-989-758-317-9

technique. Because bridge motion is a very basic technique, which describe how far the skill for gymnastic basic such as handspring and cartwheel. This tool is used with consideration height, weight and the level of flexibility of students, so all students can use it and are excepted to give good result in bridge motion class. Therefore, this tool is expected to enhance the skill of bridge motion although every student has different physical characteristics.

This study is intended to answer the question, learning bridge motion can increase when using the Smarter Spotter?

2 MANUSCRIPT PREPARATION

2.1 Participants

Sample set based on random sampling as much as one class of 15 students of class X High school of Pribadi School in Bandung, West Java.

2.2 Procedures

In this study the research used experiment design with pretest- posttest experimental one group design (Jack Fraenkel, 2011). This study is a quantitative test of basic skill in gymnastic (Lord, Murray, Chapman, Munro and Tiedemann, 2002) A number of experiments have demonstrated that optical motions, like those produced when an observer moves through an environment, have an effect on postural stability or stance (Stoffregen, 1985). This research start from 21 April until 26 May 2015, with the meeting an hour that's appropriate with the curriculum in that school. Total of meeting this study is 16 with 90 minutes / meetings, 3 times / week.

2.3 Instruments

The research using Schembri instruments, the scale value is 1-5. This instrument can measure the value of balance and strength (5). The data processing is done by testing the normality, its homogenity, and continued with the T-Test.

2.4 Tools Specification

Figure 1: Smarter spotter.

Figure 1 (Cont.): Smarter spotter.
Source: Own Picture

This tool shaped like a beam which was formed with the aim to support the arcing back when students doing bridge motion. This tool has a length of 60 cm, width 50 cm, height 40 cm. To facilitate the use of the tool due to high students are different. Then this tool using two pieces of mattress. Every mattress have a same size of length and width, and the height of any additional mattress is 6 cm. this extra Mattress can be installed and removed as needed as it uses adhesive on each surface.

In practice, this tool not only helps students do bridge motion. The students also must still do practice repeatedly in order to get an automation motion. Students also still need support from their friend when do bouncy body. It is aimed so that the students can do the learning of bridge motion with maximum results.

3 RESULTS AND DISCUSSION

3.1 The Results of the Calculation of the Score Average and Standard Deviation

Table 1: The calculation of the score average.

Sample	Pretest		Postest	
	Average	Standard Deviation	Average	Standard Deviation
Experimental Group	2,73	0,88	3,80	0,74

The average before treatment was 2,73 and the standard deviation 0,88. After given treatment and posttest, the average increased to 3,80 and the standard deviation 0,74.

3.2 The Result of Lilliefors Test

Table 2: Lilliefors test.

Sample	**Lo pretest**	**Lo postest**	**L table**	**Conclusion**
Experimental Group	0,20	0,21	0,23	Normal

The value of the Ltable is 0,23. Then the value of Lo on pretest is 0,20 and Lo on posttest is 0,21. As for the criteria if Lo exceeds Ltabel, the hypothesis is rejected and otherwise if Lo less than Ltabel the hypothesis is accepted. From the data, it can be described that Lo < Ltable which means data on pretest and posttest of both groups is normal.

3.3 The Result of Homogeneity

Table 3 : Homogeneity.

Sample	Test	Fcalculate	Ftable	Conclusion
Experimental Group	Pretest	1,05	4,60	Homogen
	Postest			

Based on table 3.3, the Fcalculate 1,05 and Ftable 4,60. It means Fcalculate < Ftable is 1,05 < 4,60. As for the criteria of homogeneity, if Fcalculate < Ftable so the variances is homogen it means the hypothesis is accepted. Otherwise, if Fcalculate > Ftable the hypothesis was rejected. From this data we can see the hypothesis was accepted, it means that booth data is homogen.

3.4 The Result of Hypothesis

The next step is to test the hypothesis using a t-test calculations. It aims to find out, is it true the smarter spotter can increase the skill of bridge motion the student in Pribadi Senior High School. The hypothesis is:

Ho:
There is no effect from the tool (Smarter Spotter) to skill of bridge motion
Ha:
There is have effect from the tool (Smarter Spotter) to skill of bridge motion

The results of hypothesis testing can be seen in table 4:

Table 4: T-test.

Sample	T-Calculate	T-table	Conclusion
Experimental Group	3,96	1,74	Ha accepted

Based on table 3.4 , we can see T-Calculate (3,96) greater than T-table (1,74) with significance level 0,05 and degree of freedom 14. The criteria is accepted if T-calculate > T-table. Based on the result, T-Calculate bigger than T-table, it means Ha is accepted. This situation can explain, if the smarter spotter can support the student doing bridge motion.

3.5 The Result of Hypothesis

The Smarter Spotter has been given through the treatment to the students of class X Pribadi Senior High School as much as 16 x. It aims to find out if there is a change or not about the results of a study of bridge motion.

This tool has a secure tool, the specification and the size is general, so all students can using it. Because this tool has a bearing that can be plugged and unplugged easily fit the needs of students with the design of the tool Smarter Spotter who already have a copyright and its own standards, of course these tools is a new alternative for PE teachers in developing gymnastics in school. With the results that have been obtained from the research, it will be discussed on the discussion section of this discovery. Based on the data that has been retrieved and the data analysis that has been done about the modified tool give good impact to student learning bridge motion, the author obtained the findings that will described in this section.

Learning using Smarter Spotter give a good effect on the result of learning bridge motion This is because the Smarter Spotter can support the students to do the learning of gymnastics and resolve difficulties experienced by students in doing bridge motion.

In doing bridge motion, some students having trouble in certain points such as the position of the body or the position of the foot. With the Smarter Spotter, aims to decrease the difficulty and then the skill student in bridge motion is changing after given this treatment

The authors assume by using Smarter Spotter can change the skills of the students in doing bridge motion, because doing bridge motion it's not easy, but every student must be able doing that, because bridge motion is the fundamental for doing next step in gymnastics. It is also reinforced by the results of the analysis using t-test, where the average rating on a pretest is 2.73 and the average on posttest is 3.80. Its mean the tool give a changes in treatment session.

Based on the data it can be concluded that Smarter Spotter bringing good impact to process learning bridge motion on grade X-A Pribadi High School.

4 CONCLUSIONS

Based on the results of processing and data analysis, data it can be concluded that Smarter Spotter bringing

good impact to process learning bridge motion on grade X-A Pribadi High School. It means, modified Smarter Spotter giving support to PE teacher and students in process learning gymnastics, specifically in bridge motion.

The modified Smarter Spotter have big implications in physical education specifically in gymnastic. Expected the PE teacher can improve the tool for better implication than before. So the result of this research, could be developed and be of benefit to the parties that are related to physical education.

REFERENCES

Jack Fraenkel, 2011. How to design and evaluate research in education 8th edition.

Hudson, J. L. 1996. Biomechanics of balance: Paradigms and procedures. In: T. Bauer (Ed.), *Proceedings of the XIIIth International Symposium on Biomechanics in Sports* (pp. 286-289). Thunder Bay, Ontario, Canada: Lakehead University.

Li, L., Warren, W. H. 2000. Perception of fading during station: Sufficiency of dense motion parallax and reference objels. *Vision Research*, 40, 3873-3894.

Lord S. R., Murray S. M., Chapman K., Munro B., Tiedemann A. 2002. Sit-tostand performance depends on sensation, speed, balance and psychological status in addition to strength in older people. *J. Gerontol. A. Biol. Sci. Med. Sci.*, 57, M539– M543.

McCurdy, K., Langford, G. 2006.The relationship between maximum unilateral squat strength and balance in young adult men and women. *Journal of Sports Science and Medicine*, 5, 282-288

Nilges-Charles, Lynda M. 2008. Assessing Skill in Educational Gymnastics. *Journal of Physical Education, Recreation and Dance (JOPERD)*, v79 n3 p41-51.

Stoffregen, T. A. 1985. Flow structure versus retinal location in the optical control of stance. *Journal of Experimental Psychology*, 11, 554-565.

Susan Capel. Educational Gymnastics Meeting Physical Education Goals, 1986 Educational Gymnastics, *Journal of Physical Education, Recreation and Dance*, 57:2, 34-38.

Warrell, E. 1978. Equipment for Indoor Educational Gymnastics. *Journal of Physical Education and Recreation*, v49 n9 p29.

Zemková, E., Hamar, D. 2005. Postural sway response to exercise: the effect of intensity and duration. *International Journal of Applied Sports Sciences*, 17(1), 1-6.