

FOOTBALL LEARNING OUTCOME MEASUREMENT MODEL VALIDITY, RELIABILITY, AND OBJECTIVITY

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ABSTRACT

Physical education (PE) is the only subject which improving the student movement quality. A set of planning to support the implementation of improving the movement quality is needed. Improvement in of student movement quality is carried out through material form selected sports. One of the most popular sports in school is football. The most dominant skill in playing football is passing, dribbling and shooting. The problem that occurs in the teaching and learning process is the process of assessing the learning outcomes of the technique. Assess shooting techniques for example, a valuation model that often use for product-oriented, is how many balls enter the goal however this model is not able to enough represent the of student movement quality. According to the reason above, this article seeks to assist teachers in providing process-oriented assessment models that focus on improving the movement. Type of measurement instrument the of shooting movement quality tested for validity, reliability and objectivity through field trials, instrument testing was conducted on 37 junior high school students, that was assessed by observers in the field and by experts through video. The results of data analysis showed that validity measurements using instruments developed were 0.515-0.889 which were stated as significant at the 0.01 test level. In addition, the analysis using Cronbachs' alpha shows that the reliability of the measurement results is at the number 0.844. The objectivity test obtained from the results of the correlation between the results of the observer's and the expert's assessment was 0.620-0.867 which was stated as significant at the 0.01 test level. These results show that measurement instruments and models involving observers can be applied to measure student learning outcomes valid, reliable and objective.

Keywords: measurement, football, learning outcome, validity, reliability, objectivity.

INTRODUCTION

In Indonesia, the government has regulated subjects in the elementary and secondary school curriculum containing 10 kinds. One of the ten subjects is Physical Education, Sports and Health (Physical Education / PE) (Republic of Indonesia, 2003). These subjects are mandated with the content of educating through movement so as to achieve national education. So that PE is considered as a special subject in the school curriculum (Suroto, Khory, Dinata, & Priambodo, 2017). PE is the only subject which improves the student movement quality is learning through games activities (Setyorini, Suroto, & Indahwati, 2017).

As a subject that teaches movement skills, assessment of learning outcomes should not only be done to measure achievement of skill execution, but also assess the quality of the skill process. Assessment by looking at the quality of the process of movement of students' skills is called process-oriented. This assessment model is considered appropriate in learning because the results of the assessment can provide information about the specific skill

components that need to be improved (Barnett et al., 2009). There are problems in learning PE in the schools, especially in relation to the assessment of learning outcomes conducted by teachers. Learning is an effort and the process of interaction between the teacher and students. Every one to two meetings, the teacher will give an assessment to students according to the abilities and skills possessed by students. Assessment will be useless when what is considered is not in accordance with what must be assessed by a teacher in various materials. One of the material that is fun for students today is soccer material. Football is one of the most popular sports in the world (Khazaal et al., 2012), Indonesia included. Football is an activity that is favored by students from elementary school to university because this sport can be played in various places and circumstances. The current situation is that there is no instrument that measures in detail related to the assessment of learning outcomes. This is important to be investigated, so that PE teachers do not come out of what is designed in the goal.

The soccer material is the passing, dribbling and shooting. As a teacher, we must make an assessment that is appropriate to the student's condition so that the gradation is not too high and not too low. Based on the above, it is necessary to have an instrument that can describe the movement activities carried out by students in the learning process. In addition, it is necessary to use an assessment model with a good implementation system to obtain good assessment results. At least assessment must be done by fulfilling three conditions, namely validity, reliability, and objectivity (Hashim, 2012). For this reason, this article wants to examine the results of the assessment using process-oriented with valid and reliable instruments and carried out objectively.

RESEARCH DESIGN

The purpose of the research is to test the assessment instruments quality for student learning outcomes in football material on shooting techniques. Instrument testing was used by analyzing the results of the assessment using a correlation between the results of the teacher's and expert's research. This is step used for arrange validity and reliability instruments.

Operationalization of concepts and indicators

Shooting is one of three basic techniques available in football. In addition, shooting is a technique that requires high accuracy in order to be right on target to produce a score. Shooting accuracy will not be high if it is not completed with the correct quality of movement in accordance with the characteristics of carrying out shooting techniques. In PE learning, such an assessment is called a process-based assessment. Process-based assessment is considered to be the most suitable choice used in PE because one goal of implementing PE is to improve the movement quality. For this reason, the assessment process needs to be complete with shooting movement indicators. Assessment process by observing student performance starting from the initial stage, action stage, and final stage (see table 1).

Table 1. Feature of Shooting Skill

<i>Stage</i>	<i>Feature</i>
Initial stage	<ol style="list-style-type: none"> 1. One foot next to the ball points to the target 2. Bent the knees, shoulders and hips straight to the target 3. The leg that will kick is swung backwards, the leg that will be used straight 4. Hands stretched to maintain balance

Stage	Feature
Action stage	<ol style="list-style-type: none"> 1. Body position learning forward 2. The knee used to kick is on the ball 3. Kicking the center of the ball with the rigid bag that will be used 4. At the time after kicking the foot is pulled back
Final stage	<ol style="list-style-type: none"> 1. A view looking towards to the target 2. The hand position remains open to maintain balance 3. Both knees are straightened 4. After using the foot shooting about the ball, immediately put it to the ground

Sumber: Adopted from Luxbacher (2012: 15)

The value of the students is the number of values of each feature form movement performance. Each feature has a range 1-4 with criteria: 1 = not done, 2 = rarely done, 3 = often done, and 4 = always done

Test of validity, reliability, and objectivity

The assessment results conducted by the assessment will be tested for validity using a correlation test. While to test the reliability of the assessment results used Cronbach's alpha. The assessment is carried out through direct observation by the assessor for testing the validity will also be done by examining the correlation of the results of the assessment by the observer with experts. The criterion of the expert who is the comparison is that he has a minimum level 1 trainer license, which is the coach who has the right to train football in the city area. Expert assessment is done by looking back using the 1-16 assessment rules for each stage (see figure 1).

Very less				Less				Good				Very good			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Figure 1. Rating scale for expert

Trial subjects

The trial of the use of instruments was carried out for junior high school students in the city of Surabaya. A total of 37 students were involved in the instrument trial. The assessment was carried out by observers as many as 5 people who had a 4th year student education background at PETE. In addition, the implementation is assisted by the PE teacher to organize and make students more serious and carry out tests according to the rules of the test.

PROCEDURE AND ANALYSIS

Observer preparation

PETE students in the fourth year who were assessors were recruited with the condition that they had finished practicing teaching at the school as a practicing teacher. So that it is considered to have sufficient qualifications in preparing assessment instruments and assessment procedures in the PE learning process. Furthermore, prospective observers were given a briefing on the assessment model that would be applied in the instrument trial. The

briefing begins with an explanation of the instrument up to the practice of assessing it via video. The results of the training through video were then analyzed for similarities and concluded. This activity was carried out repeatedly until there was a uniform understanding of the observers.

Student preparation

Students are given warm-up as usual in learning PE before taking the test. After heating is done, they are explained about the purpose and purpose of the test, namely the assessment of shooting skills. The purpose of the submission is so that students can take the test seriously. This activity is guided by PE teachers who are on duty regularly on the actual schedule.

Test implementation

All observers hold their respective instruments. They assess students doing shooting the ball towards the goal. Each student has the opportunity to shoot 3 times. Observer assesses the way students shoot by comparing indicators in instruments with the student's process of shooting. For the purposes of further analysis by the expert, every student shooting is recorded using a camera.

Assessment by the expert

The results of the assessment by the expert will be used as a comparison material for the results of the observer's assessment. The expert was only asked to look back at the students while doing video shooting. Every time a student sees a video shooting, the expert only needs to circle the numbers in the rating scale according to the category given by the expert to the student's performance. Assessment is carried out on three stages of shooting, namely initial, action, and final stage.

Analysis of data

The results of the assessment of each feature of the observer's shooting skills are then added to the stage and finally will be totaled again to become a grand total. While the expert value, the grand total is only obtained from the total initial, action, and final stage values. To test the validation of the observer's assessment results, the product moment correlation between stage and grand total was used. Furthermore, reliability testing was performed using Cronbach's alpha from the analysis. To find out the quality of the assessment results as well as the reliability of the form of instruments used, the results of the assessment were tested with the product moment correlation between the value of the observer and the expert.

RESULTS

The results are explained in two parts, namely (1) instrument validity based on evidence for validity content and (2) objectivity and reliability.

Validity and reliability

Test the validity of the results of the assessment by observers utilizing product moment correlation statistical analysis techniques. While the reliability test uses statistical analysis techniques cronbachs' alpha. Analysis was carried out on the total values of each stage in measuring football learning outcomes (see table 2).

Subjects involved in the trial were 37 students. There are three stages in doing soccer shooting skills, namely initial, action, and final stage. Each stage has four features with the value of each feature is 1-4. So that each stage has a maximum value of 16 and a minimum value of 4. Grand total of the value of all stages of 48.

At the initial stage the smallest value achieved by students is 9, the highest value is 12, the average is 10.3 ± 0.852 . In the action stage the smallest value achieved by students is 9, the highest value is 13, an average of $10.6 \pm 1,092$. At the final stage the smallest value achieved by students is 8, the highest value is 13, an average of $10.4 \pm 1,233$. on the grandest the smallest total value achieved by students is 27, the highest value is 36, an average of $31.3 \pm 2,707$.

Table 2. Validity and reliability learning outcome shooting technique

Stage of skill	N	Min.	Max.	Mean	Std. Dev	Observer				Alpha Cronbach
						1	2	3	4	
1. Initial stage	37	9	12	10,3	0,852	1.00	0.534**	0.515**	0.764**	0.844
2. Action stage	37	9	13	10,6	1,092		1.00	0.674**	0.878**	
3. Final stage	37	8	13	10,4	1,233			1.00	0.889**	
4. Grand Total	37	27	36	31,3	2,707				1.00	

** . Correlation is significant at the 0.01 level (2-tailed).

The correlation value between stage and grand total obtained a value of 0.534 is between initial and action stage, 0.515 is between initial and final stage, 0.764 is between initial and grand total, 0.674 is between action and final stage, 0.878 is between action and grand total stage, and 0.889 is the final stage with total gran. The correlation values obtained are all significant at the 0.01 test level. This means that all assessment components used are declared valid.

Then the test continued with cronbachs' alpha to find out the measurement reliability. The results of the analysis resulted in a large reliability at the value of 0.844 which has the meaning that the measurement is declared reliable.

Objectivity

Objectivity is defined as the act of an observer who assesses students' skills when performing shooting techniques as they are without being influenced by interests other than revealing the truth of the assessment results. Observer's objectivity can be measured by comparing the results of the observer's assessment with the expert (Rubio, Berg-weger, Tebb, Lee, & Rauch, 2003).

Table 3. Objectivity of the observer's assessment results

	Observer			
	1. Initial stage	2. Action stage	3. Final stage	4. Grand Total
1. Initial stage	0.620**			
2. Action stage		0.839**		
3. Final stage			0.782**	
4. Grand Total				0.867**

** . Correlation is significant at the 0.01 level (2-tailed).

The reason the expert is considered to be able to provide an objective assessment is that they have sufficient capacity and are free to make judgments. There is no interest whatsoever in relation to the results of the assessment unless they provide value according to their benchmarks and scale of perception. To test the objectivity of the assessment, the observer's measurement results were correlated with the results of expert measurements (see table 3).

The results of a significant correlation are considered as evidence that the quality of assessment by observers is similar to the quality of the assessment carried out by the expert. This means that the objectivity of the assessment results can be accounted.

Objectivity of the initial stage assessment shows a correlation value of 0.620, an action stage of 0.839, a final stage of 0.782, and a total gran of 0.867. All of these numbers are included in a significant positive correlation in the 99% confidence level. That is, the assessment carried out by observers has objectivity that can be accounted.

DISCUSSION

The purpose of article writing is to test the validity, reliability, and objectivity of the assessment process-oriented. Testing the validity and reliability is done by statistical analysis of internal information generated by the observer. While objectivity is carried out with a correlation analysis of the values produced by observers and experts.

The validity tested in this article is the content area. Analysis conducted to find out the content area is used correlation analysis between components of assessment (Johnson & Arnold, 2004). The results of a positive correlation and expressed as a significant measure that the content of the assessment results can be said to be valid. Validity testing results that only rely on internal information are considered sufficient to explain validity and reliability (Embretson, 2007). correlation values and alpha are at high numbers.

However, internal information is not perfect. Because the assessment of skills using observation techniques relies on perception and always involves observer subjectivity. That is, an assessment like this should fulfill three requirements for quality control of the results of the assessment data, namely validity, reliability, and objectivity (Joyner & Mcmanis, 1997; Linacre, 2000). The validity and reliability of this measurement model clearly meets the requirements. Furthermore, it is necessary to explain the objectivity test carried out by comparing the results of the observer's assessment with the expert.

CONCLUSION

Assessment of movement skills related to the quality of movement in PE should be done using process-oriented. To start using assessment with process-oriented, teachers need to make assessment sheets with feature-features according to their chosen skills. Furthermore, an assessment sheet is used to assess students using observation techniques. Skill assessment using observation techniques requires three minimum requirements, namely validity, reliability, and objectivity. These three conditions are a sign that the data obtained has high quality. Assessments made on students while doing shooting tests in PE learning have a value of validity, reliability, and objectivity at a high value ($p < 0.01$). These results show that measurement instruments and models involving observers can be applied to measure student learning outcomes valid, reliable and objective.

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