

# Performance Assessment for Physical Education

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**Abstract:** The purpose of this study is to test the validity of the content of the performance assessment tool for physical education learning invasion games in high school. This study uses a research and development approach developed by Borg and Gall. The first phase of the research subject is a written document. Content validity analysis was done quantitatively and qualitatively. The qualitative analysis of content validity was based on the input from experts through Focus Group Discussion (FGD). On the other hand, the quantitative analysis of content validity was employed using Aiken's formula (V). The results show that the content validity index average of 0.86 for the performance assessment invasion game. Thus, it can be concluded that all items used in the performance assessment of physical education learning in high school already meet the criteria of content validity is very high.

## 1 INTRODUCTION

In the physical education subject in the 2013 Curriculum for senior high school level, there are learning materials on invasion games. Based on the tactics used, games can be grouped into four, namely net-game, invasion game, striking game, and target game (Lund and Tannehill, 2005; Mitchell, 2009; Belka, 2004). Invasion groups include football, basketball, handball, and futsal. Broadly speaking, the common tactics problem in invasion games are the tactics to gain score and tactics to prevent score. The scoring tactics involve maintaining possession of the ball, creating space for attack, and using space to attack. On the other hand, preventing scores tactics include maintaining the space, maintaining the score, and winning the battle of the ball. Based on the description, invasion games require the ability to score and to prevent scores. The ability to score and to prevent scores require non-ball movements (supporting teammates) and movements with balls or techniques that match the games' problem or situation. In other words, the performance aspect of the invasion games based on tactics requires two important factors which are offensive tactics to score and defensive tactics to prevent scores.

According to Grehaigine, et al, (2005); Oslin (2003) and Butler, et al, (2008), performance aspects of the invasion games consist of two factors: offensive tactic factors that include decision making

and skill execution as well as defensive tactic factors that include base (back to the original position), support, marking, cover, and adjust. Thus, the physical education learning process on invasion game learning materials using tactic approach is taught and assessed by using those factors.

Efforts to improve the quality of the physical education learning on the materials of invasion games with tactic approach in senior high school among others can be conducted through improvements in learning and game performance assessment. Assessment and learning process are interrelated (Babar Khan. 2012), because a good learning will result in a good performance assessment as well. Based on the preliminary studies conducted by the researchers, it was found that 90 percent of physical education teachers in senior high school only limited the assessment of skills implementation by using skills test to assess the groups' learning outcomes of invasion game performance. The skill tests used by the physical education teachers in senior high school have not yet been able to measure the skills to play football and basketball thoroughly. In addition, from the preliminary studies, it can be seen that 94 percent of the physical education teachers in senior high school need a performance measurement instrument for invasion games that can measure the skills thoroughly.

Assessment and learning are inseparable from one another (Büyükkarçi, 2014; Jabbarifar, 2009; Md.

Fazlur Rahman, 2011). Assessment has an assessment criterion called rubric (Ernesto Panadero and Margarida Romero, 2014). Rubric is an assessment guide that describes the assessment criteria (Center for Teaching and Learning, 2014), these criteria were used in assessing teacher or give the job or task result level students (Eshun and Osei Poku, 2013). Teachers make judgments by rubric, teachers can assess students more objectively fellow students (Anson, et al, 2012).

Performance assessment or alternative assessment or authentic assessment is a form of assessment to demonstrate or to apply the knowledge that the students have acquired and to describe a student's ability through a process, activity or performance in accordance with the desired criteria (Lund, 2010; Mueller, 2009; Linn, et al, 1991; Hargreaves, et al, 2002). The performance assessment is categorized as good if the instrument used is valid and reliable.

Validity contains the meaning of how far the instrument or the test really describes what it wants to measure (Tomoliyus, et al, 2016). Validity in performance assessment is a very important issue because it concerns the accuracy of the instruments or tests used (Gélinas et al, 2009; Schleyer et al, 2001) It can be interpreted that an improper or inappropriate instrument or test will bring implications on the validity of the performance assessment results. Linn (1994) mentions that the difficulties faced by performance-based assessment are validity and reliability. There are two types of validity: content validity which is referred to as internal validity and empirical validity which is referred to as external validity.

One of the ways to develop a performance assessment instrument is by determining the content validity as the beginning to assess the suitability of the scale of items used. Content validity ensures that the measurements include a sufficient set of items and represent the conceptual disclosure. The more the item scale reflects the area or the overall concept being measured, the greater the content validity. In other words, content validity implies how well factors and indicators of a concept have been described. Content validity is the validity which is estimated by testing the feasibility or relevance of the test contents through rational analysis by an expert in a qualitative manner by involving a minimum of seven experts (Devon et al., 2007). After that, it is followed by a quantitative analysis of calculation of the Content Validity Index (CVI) by using the Aiken's formula (Aiken, 1985). From the CVI calculation, an item or an instrument can be categorized based on its' index.

## 2 METHODS

This study uses a research and development approach developed by Borg and Gall. The first phase of the research subject is a written document (journals, the results of previous studies, textbooks). The content validity test was using expert judgment with focus group focus group discussion technique (FGD) and Delphi technique to evaluate the product design of the performance assessment instrument construction of physical education learning on the materials of invasion games that has been designed. The experts reviewed the content, constructs, and languages of each prototype. The advice from the experts was used to revise the developed instrument. In assessing, the experts used the value scale that cover the value of 1 = not appropriate, value of 2 = less appropriate, value of 3 = appropriate, value of 4 =very appropriate. The next analysis was a quantitative analysis using the Aiken's formula to calculate the agreement index of the results from the experts' judgment on the content validity.

## 3 RESULTS

The results of this study are in the form of construction of performance assessment instrument on the physical education learning materials of invasion games for senior high school students and the results of content validity test. Based on the assessment and suggestion from the experts qualitatively, there is a very good assessment on the construction of performance assessment instrument on the physical education learning materials of invasion games for senior high school students containing the tasks, framework, rubrics, observation sheets and score of assesment. The complete results of the construction of the developed instruments are presented as follows.

### 3.1 The Construction of Performance Assessment Instrument

#### 3.1.1 Task

Students play basketball 3 on 3 for 5 minutes, half basketball court with a single ring. The rules are the same as basketball games. Students play football 3 on 3 for 5 minutes, on a 15 meters long and 7 meters wide field. The rules are the same as football games.

Table 1: Framework.

Factor	Indicators	Items
The performance assessment in the invasion game	Decision making	Decision-making is right
	Skill execution	Passing to a friend accurately
		Shooting target accurately
		Dribbling is rarely grabbed by the opponent
	Base	Back to the original position
	Cover	Keeping the opponent when the opponent has the ball
Support	Looking for a vacant position when his teammate has the ball	

### 3.1.2 Rubric

Table 2: Decision Making.

Score	Items
3	Always making the right decision during play
2	Sometimes making the right decision during play
1	Never making the right decision during play

Table 3: Passing.

Score	Items
3	Always accurate when passing to a teammate
2	Sometimes accurate when passing to a teammate
1	Never accurate when passing to a teammate

Table 4: Shooting.

Score	Items
3	Always hitting the target when shooting
2	Sometimes hitting the target when shooting
1	Never hitting the target when shooting

Table 5: Dribbling.

Score	Items
3	Dribbling is never grabbed by the opponent
2	Dribbling is sometimes grabbed by the opponent
1	Dribbling is always grabbed by the opponent

Table 6: Base.

Score	Items
3	Always going back to the original position early
2	Sometimes going back to the original position early
1	Never going back to the original position early

Table 7: Cover.

Score	Items
3	Always keeping the opponent when the opponent carries the ball
2	Sometimes keeping the opponent when the opponent carries the ball
1	Never keeping the opponent when the opponent carries the ball

Table 8: Support.

Score	Items
3	Always looking for a vacant position when his teammate has the ball
2	Sometimes looking for a vacant position when his teammate has the ball
1	Never looking for a vacant position when his teammate has the ball

### 3.1.3 Observation Sheet

Working Instructions:

Put a  $\checkmark$  mark in the score 3 column, if the student is always right on target/going back to the original position/keeping the opponent/ looking for a vacant position.

Put a  $\checkmark$  mark in the score 2 column, if the student is sometimes right on target/going back to the original position/keeping the opponent/ looking for a vacant position.

Put a  $\checkmark$  mark in the score 1 column, if the student is never right on target/going back to the original position/keeping the opponent/ looking for a vacant position.

Indicator	Assessment weight	Score of scale			Indicator Score
		1	2	3	
Decision making	10				20
Skill execution	Passing	10			30
	Dribbling	10			30
	Shooting	40			120
Base	10				20
Cover	10				30
Support	10				30
Total Indicator of Score					280

Score of scale:

1.0 - 1.5 Less; 1.6 - 2.0 Enough; 2.1 - 2.5 Good; 2.6 - 3.0 Very Good

Score of Assesment:

Score of assesment = Total of indicator score : 100 (280 : 100 = 2.8). The score of assesment 2.8 Very Good

### 3.2 Content Validation Test Results

The quantitative content validity test using the Aiken’s formula generates a high Content Validity Index. The complete results are presented in Table 1.

Table 9: Quantitative Content Validity Test Results.

Factor	Indicators	Items	V
The performance assessment in the invasion game	Task	Task play basketball	0.90
		Task play football	
	Decision making	Decision-making is right	0.81
	Skill execution	Passing to a teammate accurately	0.90
		Shooting target accurately	0.90
		Dribbling is never grabbed by the opponent	0.95
	Base	Going back to the original position	0.81
	Cover	Keeping the opponent when the opponent has the ball	0.81
	Support	Looking for a vacant position when his teammate has the ball	0.81
	Rubric		0.81
Observation Sheet		0.90	
Content Vakidity Index (CVI)			0.86

Table 1 shows that the Content Validity Index value of item task is (V) = 0.90, Content Validity Index

value of item decision making is (V) = 0.81, Content Validity Index value of item passing is (V) = 0.90, Content Validity Index value of item shooting is (V) = 0.90, Content Validity Index value of item dribbling is (V) = 0.95, Content Validity Index value of item base is (V) = 0.81, Content Validity Index value of item cover is (V) = 0.81, Content Validity Index value of item support is (V) = 0.81, Content Validity Index value of item rubric is (V) = 0.81, Content Validity Index value of item is observation sheet (V) = 0.90, Content Validity Index value of item 11 is (V) = 0.90. The average of the items have a high content validity coefficient of 0.86.

## 4 DISCUSSION

Some of the efforts to improve the quality of physical education learning on the materials of invasion games by using tactic approach in the senior high school can be done through the game's learning improvement and performance assessment. This is in accordance with the opinion of Babar Khan (2012) who stated that assessment and learning process are both interrelated. Therefore, a good physical education learning process will result in a good performance assessment. Assessment of the physical education learning outcomes of invasion game materials is said to be good if the instrument used can measure the learning objectives. In other words, the instruments used have to be valid and reliable.

The learning objective of invasion games (basketball and football) in senior high school is for students to be able to play basketball or football skillfully and sportively. Students are said to be skilled at playing football and basketball when students master the factors in the games. The factors in basketball and football games in terms of tactics include decision making, skill execution, base, support, and cover (Grehaigne, et al, 2005; Oslin, 2003). Therefore, to be able to know the learning outcomes of the skills in the invasion games, the existing factors in the games need to be assessed.

Performance assessment is an assessment towards the students which is conducted by observing students at the time of demonstrating or applying the knowledge that they have acquired and describing a student's ability through a process, task, or performance in accordance with the desired criteria. Therefore, this assessment is referred to as the performance assessment or authentic assessment (Lund, 2010; Mueller, 2009; Linn, et al, 1991; Hargreaves, et al 2002).The performance assessment of invasion game learning outcomes in senior high

school is done by observing the students when performing the tasks that have been prepared by the physical education teachers. In observing the students' performance in the invasion games, the teachers need a valid and objective instrument.

These are the results of the study on the performance assessment instrument or the authentic is all items used have already fulfilled the content validity with an average of 0.86. This means that the performance assessment for football and basketball invasion games has a very good internal validity. This is in accordance with the theory stating that the content validity value above 0.80 is categorized into a very good category (Polit DF and Beck CT. 2006.).

## 5 CONCLUSIONS

Based on the results of the study as well as the discussion, it can be concluded that the performance assessment instrument of the physical education learning process on invasion games (football and basketball) in senior high school has a high content validity. Therefore, this performance assessment instrument of the physical education learning on invasion games can be used by the physical education teachers in the senior high school to assess the physical education learning outcomes in the senior high school.

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