

Validity and Reliability of the Holistic Assessment Standard (SPH) Based on the Invasion Game Category in Physical Education

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Abstract—assessment acts as a role in enhancing students learning, improving the effectiveness of teachers teaching technique and able to provide reliable sources pertaining to what is being learnt, taught or achieved in a teaching and learning process (Malaysian Examinations Board, 2012). Therefore, it is essential to develop a new standard of assessment which can evaluate the students comprehensively and focus on the ability of teachers to effectively deliver teaching in and out of the classroom. Holistic Assessment Standards (SPH) comprises the achievement of movement skills, the achievement of knowledge application in movement, and achievement of sportsmanship that involves psychomotor, cognitive and affective domains. These criteria are combined and formed in a standard assessment instrument then guided by the teacher to give an overall value of the level of students in the Physical Education subject based on the *Teaching Games for Understanding* (TGfU) invasion game category among Form 2 students. This study aimed to evaluate the validity and reliability of the Holistic Assessment Standard (SPH) at the level of the student domination. The findings showed that SPH validity was $r = 0.88$ while the reliability was based on value of 'Alpha Cornbach' coefficient obtained for this SPH developed instrument is $r = 0.97$ with reliability level is good. The results showed that SPH is suitable to be used as a standard instrument for assessing the level of students' proficiency in learning skills in line with the National Philosophy of Education (NEP) to produce a whole-developed human in physical, emotional, spiritual and intellectual aspects.

Keywords: *Holistic Assessment Standard (SPH), Validity, Reliability, Outcome.*

I. INTRODUCTION

Physical Education subject in schools holds a dominant role in developing the students development holistically in which the implementation is based on three main domains namely cognitive, psychomotor and affective [1]. Besides that, Physical Education subject gives great impact and is able to contribute to a balanced development of students as stated in the National Education Philosophy (NEP) especially in the aspects of psychomotor, cognitive and affective [2]. According to Dauer, Physical Education is a part of Malaysia education program which provides meaningful physical experiences that contributes to overall development of students [3]. Based on the National Education Philosophy,

teachers have to achieve the stated aims and objectives in the Physical Education session so that the effectiveness can be seen and proved through the process of assessment and evaluation. Assessment also functions to measure the achievement of the object as well as to categorise the achievement to specific standard. The assessment process should be carried out systematically and scientifically to ensure the validity and reliability of the result [4].

Ministry of Education (MOE) gives priority to School-Based Assessment (SBE) which aims to develop students' potentials in a balanced and holistic manner. The introduction of this PBS in the new curriculum gives more attention to assessment as a part of learning process as well as to increase teachers' role in the classroom. Assessment system which is introduced in the new curriculum gives autonomy to the schools especially teachers in deciding and implementing the assessment [5]. Teachers are responsible in reporting the students' development in a one-page reporting so that all the SBE components able to develop students' potentials. Therefore, Holistic Assessment Standar (SPH) is designed specifically for the teachers who teach Physical Education subject as well as individuals who involve directly in assessing and evaluating students. This instrument acts as a guide in assessing and analysing activities in Skills Fields in invasion game category (handball) through *Teaching Games for Understanding* (TGfU) approach.

Introduction of School-Based Assessment (SBE) that is explained in Ikhtisas Circular Letter No. 11/2010 on Standard Curriculum for Primary School (KSSR) and Standard Curriculum for Secondary School (KSSM) which is also explained further in Ikhtisas Circular Letter No. 9/2016 claims that teachers have autonomy in conducting assessment. Major autonomy which is given to teachers in implementing and conducting assessment can contribute to the effectiveness of the SBE implementation. The autonomy and recognition to teachers in conducting formative and summative assessment which are school-based have greater potential in elevating the integrity and credibility of teaching profession. Hence, development of assessment instruments coincides with the decree in Ikhtisas Circular Letter in order to achieve the intended aims.

The objectives of the study are as the following:

1. To determine the validity and reliability of Holistic Assessment Standard (SPH) based on *Teaching Games for Understanding* (TGfU) in the Invasion Game Category among Form 2 students.
2. To determine the reliability of the Holistic Assessment Standard (SPH) based on *Teaching Games for Understanding* (TGfU) in the Invasion Game Category among Form 2 students.
3. To determine the reliability of the examiners of Holistic Assessment Standard (SPH) (interobserver) based on *Teaching Games for Understanding* (TGfU) in the Invasion Game Category among Form 2 students.

II. LITERATURE REVIEW AND HYPOTHESES

A. Theoretical Study

Holistic Assessment Standard (SPH) is developed to test three main domains which are psychomotor, cognitive and affective. The researcher used seven resources which include theories that act as strong foundation in developing this instrument. Those resources are *Teaching Games for Understanding* model (Bunker & Thorpe (1986), Malaysia Education Development Plan 2013 – 2025, Ikhtisas Circular Letter, Standard Document of Curriculum and Assessment (DSKP) on Physical Education for Form 2, Constructivism Theory, Krathwohl Taxonomy, Bloom and Masia (1964) and High Order Thinking Skills Document (KBAT). These resources are taken as guidance and references so that the developed instrument is applicable and compatible to the need of the Physical Education Curriculum.

B. Model and Research Resources

There are two models that are used in designing SPH. The models are Dick and Carey Model [6] and Instrument Test Process by Morrow et al., [7] as shown in Figure 1 and Figure 2.

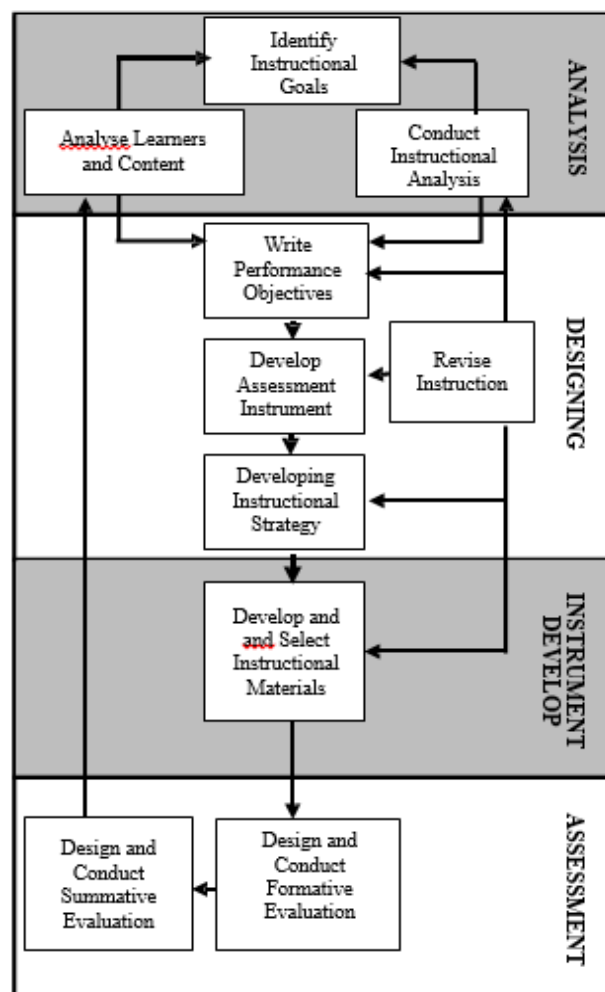


Figure 1: Process of Holistic Assessment Standard (SPH) based on Dick and Carey Model (Ahmad, 2003)

Figure 1 shows process of Holistic Assessment Standard (SPH) based on Dick and Carey Model [6] that acts as a foundation and guide by the researcher in developing SPH. Developing procedures of SPH starts with analysis, designing, instrument structuring and assessment [6]. Researcher will revise every stage of the procedures to ensure that it complements the need of the lesson.

Process of SPH test is conducted based on the flowchart of developing instrument [7] as shown in Figure 2. The flowchart involves detailed process in assessing instrument so that it can be used as a standard instrument.

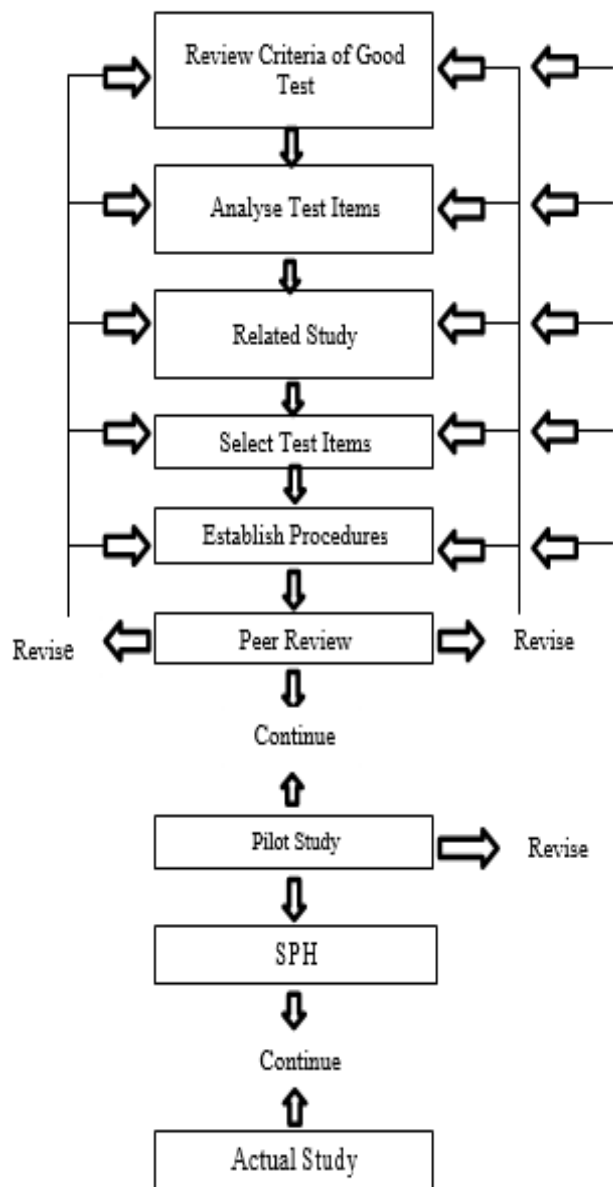


Figure 2: Flowchart of instrument assessment (Morrow et. al. (2005))

Overall, Figure 2 shows a theoretical pictures of the research in developing Holsitic Assessment Standard (SPH) based on *Teaching Games for Understanding* (TGfU) for The Invasion Game Category among Form 2 students. There are two different stages in developing SPH which involve process of developing SPH and process of developing theory.

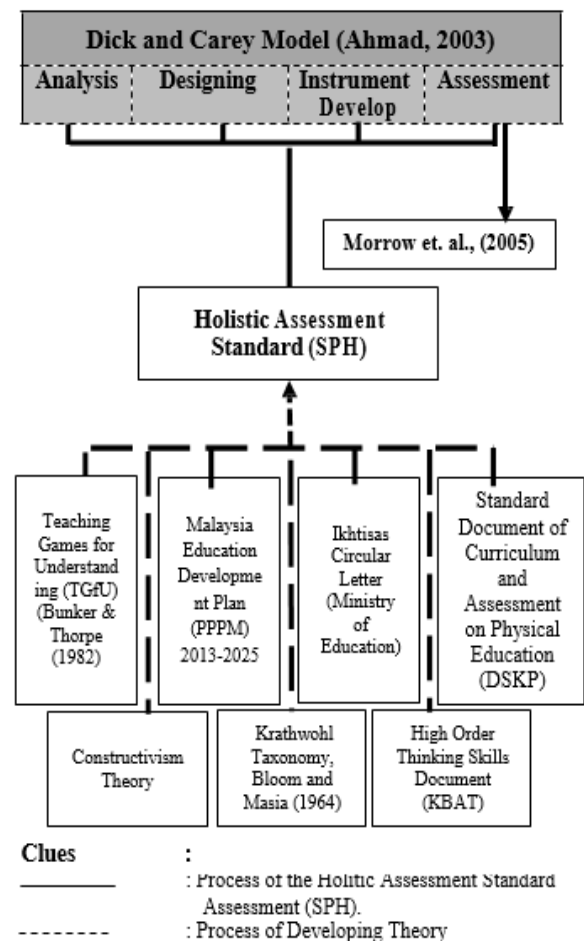


Figure 3: Framework of Theoretical Research

III. METHODOLOGY

A. First Step

The first stage was instrument structuring phase where all assessment criterias in SPH were based on combined mmodels of Teaching Games for Understanding (TGfU) (Bunker & Thorpe, 1982), Malaysia Education Development Plan 2013 – 2025, Ikhtisas Circular Letter, Standard Document of Curriculum and Assessment (DSKP) on Physical Education for Form 2, Constructivism Theory, Krathwohl Taxonomy, Bloom and Masia (1964) and High Order Thinking Skills Document (KBAT) which was inserted explicitly in DSKP. These components were the main foundations and supports in designing SPH. The use of *TgfU* in Physical Education lesson and DSKP acted as basis in designing SPH based on the invasion game category in physical education for Form 2 students in handball game.

B. Second Step

The next step was designing rubric items and SPH achievement standard which was used to show level of students achievement in there domains which were pyschomotor, cognitive and affective. There were six level of students achievement. SPH was an assessment instrument in a rubric form. According to Wolf and Stevens, rubric was a practical guide in assessing the students' product and achievement [8]. Bhasah also claimed that rubric acted as a formatted and

specific guidelines to perform an assessment which explained the scoring of the students' achievement levels, progress and responses [9]. In order to design SPH instrument, researcher determined the content standard and the learning standard which were written in Physical Education DSKP on handball game [10]. And next transferred to SPH instrument.

C. Step

After the rubric and achievement standard were structured, the rubric and achievement standard were given and referred to the expert panels consisted of two content experts to check and review on the written details and remarks that were used to measure the selected domains related to the assessment and TGfU method. There were two language experts to check and review on the use of language, word selection and sentence structure in SPH. Lastly, there were two field experts in Physical Education subject that acted as facilitator that used TGfU method. Critics and opinions from the six experts were taken into considerations to improve on the language use, clarity of the meaning and content of each item to increase the validity and reliability of SPH.

D. Forth Step

In this forth step, after SPH was improved and reviewed, the SPH was given to the six expert panels once again to find the value of SPH validity and reliability.

E. Fifth Step

The next step was to measure the reliability of instrument. In this step, SPH reliability was proved by determining the value of '*Alpha Cornbach*' through pilot study. This pilot study was conducted to several teachers and students in Physical Education subject in Batu Pahat, Johor. Before this pilot study was conducted, the researcher gave explanations and research procedures before Physical Education session on the invasion game category (handball) started.

After all steps were taken and reviewed, the SPH instrument was considered as an applicable and practical to be used as standard assessment instrument to measure students' achievement in Physical Education

IV. ANALYSES AND RESULTS

A. Determining Validity of Holistic Assessment Standard (SPH)

There were six experts involved in determining content validity in this research. The content of the SPH instrument was reviewed and checked by the expert panels. The survey of the content validity was in the value of '0' as the lowest to the value of '10' as the highest. The survey was modified and derived from Sidek & Jamaludin to determine the content validity of the instrument [11]. Based on the survey, opinions and suggestions from the expert panels SPH were used to improve the instrument and the results were presented by using the following formula:

$$\frac{\text{Total Experts Scores}}{\text{Maximum Marks}} \times 100 = \text{Content Validity Achievement}$$

TABLE 1. CONTENT VALIDITY BY EXPERT PANELS OF PILOTS STUDY

Study	
Expert	Correlation Value (r)
Expert 1 (Language)	0.86
Expert 2 (Language)	0.86
Expert 3 (Content)	0.80
Expert 4 (Content)	0.86
Expert 5 (Trial)	0.90
Expert 6 (Trial)	0.82
M	r = 0.85

Based on the Table 1, the validity of SPH was $r=0.85$ ($n = 6$). According to Abu Bakar and Sidek & Jamaludin, the value of 0.70 was considered as good and achieved high level [11] [12]. As stated in the fourth step, SPH was improved according the responses, opinions and suggestions from the expert panels. The researcher also gave the SPH to four expert panels once again to determine the value of SPH validity as well as the content item validity.

TABLE 2. ITEM CONTENT VALIDITY BY EXPERT PANELS

Expert	Correlation Value (r)
Expert 1 (Language)	0.80
Expert 2 (Language)	0.99
Expert 3 (Content)	0.80
Expert 4 (Content)	0.90
M	r = 0.88

Table 2 shows that the item validity for Expert 1, Expert 2, Expert 3 and Expert 4 Holistic Assessment Standard (SPH) was $r = 0.88$ ($n = 4$). Abu Bakar and Sidek & Jamaludin claimed that the validity value of 0.70 was considered as high value [11] [12].

B. Identify the reliability of Holistic Assessment Standard (SPH)

Pilot study was conducted to test the reliability of the instrument. It helped the researcher to get clues on which parts in the instrument that were inaccurate as well as enable the researcher to identify the problem. The corrections and improvement could be done. Pilot study was conducted to determine the value of reliability of the SPH instrument.

The pilot study was conducted on 2 Physical Education teachers and 30 Form 2 students ($n=30$) in Batu pahat, Johor. Before the Physical Education session started for 40 minutes for Form 2 invasion game category (handball), two researchers explained the implementation procedures to the teachers.

As the result of analysis on reliability, it was concluded that the value of reliability '*Alpha Cornbach*' for SPH instrument was ($r = 0.97$) and showed good reliability. Mc Millian and Schumacker stated that the alpha value 0.7 and above was a good range and it proved that the instrument was

applicable and practical to be used in this research [13]. Table 3 shows that the result of the pilot study for the value of *Alpha Cornbach* was categorised to different levels. The table of reliability value could be used as a guideline in determining the reliability based on the coefficients of reliability [14].

TABLE 3. GUIDELINE OF LEVEL OF RELIABILITY COEFFICIENTS

<u>Reliability Coefficients</u>	<u>Level of Reliability</u>
0.90 >	Very Good
0.80 – 0.89	Good
0.60 – 0.79	Moderate
0.40 – 0.59	Doubted
0.00 – 0.39	Rejected

V. CONCLUSION

Overall, after all the process that is followed by Holistic Assessment Standard (SPH), this instrument is suitable to be used as a standard instrument to assess the level of achievement and skills mastery of the Form 2 students in the invasion game category (handball). SPH is applicable for the teachers to evaluate the quality of the Physical Education session in the game category holistically. This is in-line with the aspiration in the National Education Philosophy, which aims to develop a balanced individual in the aspect of physical, emotional, spiritually and intellectual. Apart from that, efforts to enhance the quality of Physical Education session help the students to be more prepared to face any form of assessment.

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