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Instrument Development of Authentic Assessment for Manipulative Fundamental Motor Skill at Elementary School

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Abstract. The aim of the study is to develop an authentic assessment instrument for manipulative fundamental motor skills in Physical, Sport and Health Education for elementary school in Medan, North Sumatera. This study uses research and development method with procedure from Djaali and Muljono. The instrument which was develop consist of assessment of manipulative fundamental motor skills. The qualitative and quantitative analysis shows that the instrument have the good content validity, construct validity and reliability. It is also have the good difficulty level and distinguished power for cognitive assessment. It can be concluded that the authentic instrument of manipulative fundamental motor skills in physical education and sport learning can be used widely as an assessment instrument in the teaching and learning for Physical, Sport and Health Education skills for fourth grade students of primary school.

1. Introduction

Physical, Sport and Health Education (PSHE) was one of main subjects in elementary and secondary education. The aim of PSHE was very specific, gave emphasizing in aspect which was supported by appropriate ability in knowledge and right attitudes. PSHE had overbalance compared with other subjects because not only studied about the theory of sport science (knowledge), but also did the practice (manipulative fundamental motor skill), and did socialization, communication, inspired and spiritual influences on students. All the aspects should be monitored and did assessment in the learning process. Teacher can use assessment as the key for planning and implementing daily instruction so that all students achieve the objectives that was targeted in the curriculum [1].

The interviews conducted with some teachers of PSHE Elementary School in the city of Medan, showed that although teachers did an assessment based on the results of motor skills shown by students, but none of the teachers who have the assessment rubric for expected achievement skills of students. The assessment process held in the end of learning. Assessment is so much more than giving test in the end of the unit learning. It is an ongoing teaching process by which teachers evaluate student performance over several opportunities continually [2]. It is not a separate process performed occasionally but an integral part of learning process.

When conducting an instruction or a test, the teacher usually only assess on the achievement results, and the typical performance of student. Most teachers still look at the elements that demonstrate excellence (faster, stronger and higher). Many physical educators, due to a lack of accountability, have been reluctant to use student achievement as the basis of their grading systems and instead use non achievement criteria to determine physical education grades [3]. When the tasks that are the focus of instruction and assessment are important tasks that tell the learners something about their knowledge



and skills relative to themselves rather than the other the instruction and assessment are authentic [4]. Authentic assessments focus on the learning process, sound instructional practices and high-level thinking skills and proficiency needed for success physical movement in sport performance.

It is necessary to develop a set of authentic assessment instruments on manipulative fundamental motor skill for elementary school. It must be easy to understand by PSHE teachers and had a good validity refers to indicators of learning outcomes. The assessment not only refer to the results of learning, but also the process of doing tasks. It is need to get an authentic assessment instrument for manipulative fundamental motor skills that are valid and reliable in physical education sports and health in elementary schools.

2. Conceptual framework

PSHE is an integral part of the overall education, aims to develop aspects of physical fitness, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral action, the aspects of healthy lifestyles and the introduction of healthy life through physical activity and sport that was selected by the systematically plan in order to achieve national education goals. Physical education is a phase of the overall educational program that contributes for whole of growth and development for each children, mainly through the experience of motion [5]. Many studies confirm that physical education should involve physical activity that can stimulate the ability of physical fitness and the formation of mastery of skills motion [6]. Physical education is defined as education through movement and should be implemented in appropriate ways to gain meaning for the child.

Physical education is a lesson with unique characteristics because it involves together the three domains such as knowledge, attitude and fundamental motor skills. Fundamental motor skills are common motor activities with specific observable patterns. Most skills that was advanced version of fundamental motor skills used in sports and movement activities [7]. Physical education not only involves the mastery of factual knowledge, but also includes the understanding of the symptoms and principles of motion, including those pertaining to the scientific basis of physical education and sport. By learning to move and learn through movement, the aspects of psychomotor behavior, attitude and cognitive related to the development of learners should be considered in teaching physical education, sports and health [8].

The development of motor skills, physical fitness and knowledge must begin in the earliest years of students [6]. Students must be given the opportunity to learn the essential motor skills that are often displayed by students at play a sport or game. During the early years of development, as children are in the process of refining fundamental movement skills, involvement in a series of coordinated and developmentally sound experiences provides a wealth of information on which to base perceptions of themselves and the world about them [8]. In general, the development of manipulative fundamental motor skills can be directed at two main objectives, first to achieve the development aspects of physical fitness, and second, the development of perceptual motor aspects. Physical educators should also be able to identify specific performance criteria in each fundamental motor skill. For skills not yet mastered, they must be able to design learning tasks that produce significant gains in performance.

The cognitive domain includes the knowledge of facts, concepts, reasoning and problem solving skills as it has been defined in the taxonomy cognitive domain. Through the development of personal and social responsibility, and correct social behavior, physical Education can not only help children develop psychomotor skills, but also can provide psychological benefits [9]. Research reveals that children with low motor skills can be at risk of reduced self-esteem and choose to avoid physical activity [10, 11]

Assessment has become an important key to the improvement of the quality of education. The quality of education can be reached by improving the quality of learning and assessment system [12]. The assessment of learning in physical education is unique, involve all aspects of knowledge, skills and attitude and carried out by using various types of tests, both physical fitness and sports skills tests [13]. Determining the value of physical education based on the principle that the value should be based on

the instructional objectives, and not solely on the results of comparison skill / physical fitness of the students.

Implementation of the assessment can be done with two approaches, quantitative assessment and qualitative assessment [14]. With more complex skills or when students are introduced to new skills, learning often occurs more slowly and performance of the whole skill is not a good measure of learning and improvement. In these instances it is often more useful to use qualitative types of assessment.

The term authentic assessment describes the multiple forms of assessment that reflect student learning, achievement, motivation, and attitudes on relevant instructional classroom activities. In accordance with teaching materials, the authentic assessment in the assessment process that involves some form of performance measurement that reflects students learning, achievement, motivation and attitude [15]. Authentic assessment in physical education gives students situations that occur in the real world/games which require them to apply their relevant movement skills and knowledge. Finally, the assessment can be used in order to determine the position, status, classification, diagnosis guidance and to motivation of students [16].

3. Methodology

The procedure of this study was a synthesis of systematic steps to develop an instruments, that is:

- Analyze of products that will be developed. A preliminary investigation in the context of the needs analysis. The instrument was developed based on the basic competencies "practice variations and combinations of basic pattern locomotors, non-locomotors and manipulative motor skills in the small-ball game based on the concept of motion in various games and traditional small-ball sports". The preliminary study consisted of interviews with the PHSE teachers, field survey, and literature study and arrange the draft of authentic assessment instruments.
- Identify and determine the student's skills achievement, objectives and order of learning, in order to develop initial product.
- Validity established using a panel of five experts of PHSE and educational evaluation in order to gain the best construct of variable that use to measure the fundamental motor skills of the grade four elementary students.
- 102 students from 3 elementary schools was observed with 5 experts in the small-scale field trials. Inter-rater reliability test used to assess the degree to which different raters/observers give consistent estimates of the same skills performance of the student that observed with the instrument. The results from validity and reliability test used to make revision on the draft instrument.
- 962 students was elaborated in the further field trials, conducted on 20-30 schools with the PHSE teachers as the observer in their schools. Based on feedback and suggestions from the teachers on major field trial, the final revision instrument was arranged.

4. Results and Discussion

The instruments that was developed in this study is an authentic assessment instrument that covers the realm of the manipulative fundamental motor skills. Based on the results of panel expert validation, the instrument is categorized properly and in accordance with the average of 6.56 on a scale of 1 - 7.

The development of assessment instruments oriented on process and learning outcomes of students, so that the validation of the instrument is more emphasis on the content validation. This validation step involves panel experts and physical education teachers. The form of instrument is observation sheet that contains indicators of manipulative movement skills. The result of reliability test of each sheet observations developed in this study can be seen in Table 1.

Table 1. Reliability of Manipulative Skills Instrument

NO	Manipulative Skills	Reliability
1	Throw	0.953
2	Catch	0.863
3	Hit	0.955
4	Batter team	0.616
5	Guardian Team	0.564

The manipulative fundamental motor skills assessment instrument had a reliability with a mean 0.79, it means that these skills assessment instruments can be used widely. In accordance with the empirical test, the validity and reliability of the instrument of authentic assessment for manipulative fundamental motor skills was good. Furthermore, it can be a reference that authentic assessment instrument can be used by teachers, especially in elementary school. Based on the results of the study, with use of the instrument teachers will be able to know the level of student's mastery especially manipulative motion skills. The student's motor skills can be increase by using a motor development model. The result of good assessment, can give feedback to teachers for improvement of learning. If the results are less satisfactory, the PSHE teachers can make an innovation and modification of learning. Teachers need to modify or adapt activities to suit different age groups and select appropriate equipment for the better learning. They should teach skills from simple to complex and break down the instruction into smaller steps.

From the results of teacher assessment can overview and improvement of teaching skills through the proper measures even though little by little, eventually the child master these skills. Thus should assessment conducted in accordance with the process and integrated with teaching program. Kelly (2010: 28) stated that the assessment is not a separate process performed occasionally when time permits but an integral part of the learning process that precedes and follows all instruction. Furthermore, Kelly suggests a six-step assessment namely: 1). Determine what objectives should be assessed. 2). Select an Appropriate assessment instrument. 3). Score and record performance. 4). Select an assessment activity. 5). Conduct an assessment activity. 6). Conduct other forms of assessment.

5. Conclusion

The authentic assessment instruments of manipulative motor skills in teaching Physical Education and Health which is developed in the Basic Competence "to practice variations and combinations of fundamental motion patterns locomotors, non-locomotors and manipulative in the small ball game which is based on the concept of motion in various games and traditional small ball sport, has had a good validity and reliability and can be used on widely. It can be concluded that:

- It had been arranged a package of assessment instrument for manipulative fundamental motor skills for fourth grade elementary school students in subject matter 'permainan bola kasti'.
- The indicator of the instrument of authentic assessment for manipulative fundamental motor skills were the ability to throwing, hitting, catching, playing as hitter team and guardian team.
- The instrument of authentic assessment for manipulative fundamental motor skills have a good validity and reliability and can be stated as a good instrument.
- The study of the effectiveness of the instruments shows that this instrument is simpler, effective, and easy to understood and used.

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