



Analysis of Instruments for Assessment of Basic Movement Skills PJOK Elementary School

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Abstract

This study aims to analyze the validity results and the reliability and practicality of the basic movement skills assessment instrument for primary school PJOK. The research method in this study uses an R & D development model using an analysis modified by researchers into three stages, namely define, design and develop. The results of the validity were analyzed using the T Score from several aspects assessed by experts with an ideal percentage value of 90% with a very good category and suitable for use. The results of instrument reliability on a small scale use GENOVA analysis, for locomotor indicators (0.90), manipulative indicators (0.91). The practicality of the instrument which was analyzed using a T score obtained an average score of 52.33 and from the T score of each rater I (49), rater II (54), and from rater III obtained a T score (54) and based on the teacher's assessment of the instrument assessment of basic movement skills is quite practical. In conclusion, the instrument for assessing basic movement skills in PJOK learning that was developed has met the requirements of validity, reliability and practicality, as an evaluation tool that can be used further by primary school PJOK teachers.



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INTRODUCTION

The curriculum underwent several significant changes from the previous curricula, one of which was the 2013 curriculum which contained several elements that underwent changes covering 4 aspects including (1) standard graduate competencies, (2) content standards, (3) process standards, and (4) assessment standards (Saraswati et al., 2022). The 2013 curriculum brings a fundamental change in the teacher's role in learning. Basic motor skills include locomotor, non-locomotor, and manipulative. These three basic motor skills are in the curriculum for elementary school children in lower grades (Supriadi et al., 2022)

Actions are consciously designed by the teacher and carried out in the right circumstances to stimulate the growth and development of students (Surahni, 2017) Teachers are at the forefront of implementing the compulsory curriculum as an important concern. The teacher is someone who deals personally with students in learning so that it has a personal effect on student success in completing learning tasks (Pjok et al., 2016) Article 1 paragraph 1 of the Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers stipulates that teachers are professional educators whose main task is to educate, teach, guide, and guide students through education. Training, evaluation and evaluation. Formal, primary and secondary education. Meanwhile, Article 20 stipulates that in carrying out professional duties, teachers must plan lessons, carry out quality learning processes, and evaluate and evaluate learning outcomes. Physical Education, Sports and Health are subjects given at certain school levels which are one part of the overall education that prioritizes physical activity and fostering a healthy life for physical, mental, social and

emotional growth and development, namely harmonious, harmonious and balanced (beautiful) (Akhmad et al., 2022). Physical education is part of overall education, so it can be concluded that physical education is education that achieves learning objectives through physical activities (Taqwim et al., 2020). (Pjok et al., 2016) Assessment is a process or activity that is systematically or continuously structured to collect information about the learning process and learning outcomes of elementary school students' basic movement skills to make decisions based on certain criteria and considerations.

The purpose of the assessment is to find out how successful the teacher is in the successful implementation of the learning process, which can provide feedback for the teacher in planning the next learning process. (R. P. Yudha et al., 2019) In the learning process, the evaluation of learning outcomes is often ignored, this is because the teacher is too focused on the material to be taught to students, so that the learning process runs smoothly and neatly, but the evaluation tool used can no longer see the objectives to be evaluated. (Dewi & Verawati, 2022) Improving the quality of education and assessment of its application can not be separated, the assessment can accurately measure the final results of the learning process, meaning that the final results need to be evaluated in a learning quality measurement tool. The ability of teachers in preparing test kits will definitely affect student learning outcomes (Nisa & Pahlevi, 2021) With an assessment test instrument that meets the criteria, of course, student learning outcomes will be detected properly and can be used as evaluation material for the next learning program. A test is said to be good if it has the following criteria: (1) validity, (2) reliability, and (3) has practical value (Adnan et al., 2019)

Education is a conscious and planned effort to create a learning atmosphere and learning process for students to actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society (Akhmad et al., 2022). Physical education is a bridge for children in mastering the skills of a sport that is their specialty towards their highest achievement (Supriadi et al., 2022). Physical Education, Sports and Health is an inseparable part of overall education, which aims to develop physical fitness, motor skills, critical thinking skills, social skills, reasoning, emotional stability, moral behavior, aspects of a healthy lifestyle, and the introduction of a clean environment through physical exercise. To achieve the national education goals, several sports and health programs were selected in a planned manner. Physical education is a course that has a characteristic, because it involves three fields at once, namely cognition, emotion and psychological movement, so there are many aspects that need to be evaluated in education. Of course, an appropriate evaluation system is needed so that students can clearly describe and demonstrate all the achievements that have been obtained by students in the learning process according to the actual situation in the field. (Mustafa & Dwiyoogo, 2020). Physical education will make more sense before basic training, because elementary students prefer to play games first and like toys around. In learning, the teacher can connect the condition of students with the surrounding environment so that they can achieve learning objectives correctly (Altavilla & Isanto, 2016)

Assessment of students' basic movement skills is another type of assessment, which focuses on two main activities, namely: observing the process of skill performance and evaluating

student movements. This form of assessment is carried out by observing when students perform activities while performing basic movements according to their learning objectives.

Assessments that emphasize basic movement skills related to actual situations such as in PJOK learning, and can find out the expected student attitudes, and make it possible to measure student skills in a complex manner (Palm, 2008)

Basic movement skills assessment is a form of test in which students are asked to carry out special activities under the supervision of an examiner (teacher) who will observe their performance and make decisions about the quality of learning outcomes that they will show (Rivo Panji Yudha, 2016). Assessment of basic movement skills is an assessment carried out by observing the activities of students in doing something (R. P. Yudha et al., 2019).

The skills shown by the students are the assessed variables. Student level assessment is based on a comparison between student achievement and predetermined goals. The evaluation process starts from the preparation and distribution work until the final result is obtained. Therefore, written and oral assessment alone cannot represent the overall assessment required, especially when the discussion material requires students to solve problems and determine attitudes, especially when working with friends and other people.

Based on the results of observations in the field, the teachers stated that there were many obstacles in assessing the basic movement abilities of elementary school students. Several problems were found in the field, namely: (1) the criteria for the assessment of the instrument were not clear, making it difficult to use, and the components being evaluated were difficult to observe so they were often ignored. ; (2) the evaluator is

usually only one person, the teacher in the research field, and the component being evaluated. (3) The number of students evaluated is large, so it is difficult to compare the material to be considered when making decisions; (4) there may be a tendency for high scores, and vice versa, because the tools used are not valid, due to reliability and practicality requirements.

Various obstacles faced by teachers in assessing the basic movement skills of elementary school students, covering several aspects including the following: (1) the evaluation tool used was not equipped with assessment criteria, so content that was considered difficult to observe was often ignored. (2) there is only one evaluator, the teacher in the field of study, and many components and students are assessed. Therefore, it is difficult to use comparisons as a consideration for decision making, which makes the assessment invalid. (3) evaluation is basically still subjective, because there is a tendency for high scores, and vice versa because the tools and instruments used do not meet the requirements of validity, reliability, effectiveness and practicality. (4) data files and student grades are not stored in the school's academic information system (online), making it difficult for anyone to access. (5) the instrument used still uses the manual method by only checking on the prepared paper or book, so this takes a lot of time. (6) the use of technology by using android makes it easier for teachers to assess the ability of elementary school students' basic movement skills. (7) the instrument is directly connected / listed on the IOP android device.

The study (Chaabene et al., 2018) concluded about the psychometric properties of the main SCAT3 components (symptoms, cognition, balance) and derived clinical decision criteria (i.e., reliable cut-off scores and normative conversation tables) for clinicians to apply

to cases. with and without baseline data before injury were available. The research of (Lam & McHale, 2015) concludes to highlight the importance of performance assessment in the teaching and learning process as well as a motivational instrument for students. In particular, the purpose of this research is to

Design a reliable and comprehensive basic movement skill assessment instrument for elementary school students that uses three levels to minimize the level of subjectivity, and in terms of data analysis technology, previous research still uses classical statistical analysis. for the calculation of validity and reliability. In this study, the latest advances in theoretical testing using the genova software are expected to fully support its use.

This study also focuses on the process by which teachers use tools to assess students' basic motor skills. This is not based on the results of student research questions, which means that novelty is a process of concentration level among evaluators in the evaluation process. Based on the description above, the effective application of basic movement skills assessment in elementary school students is reliable, practical, and can be reused in various performance tasks, which can help teachers evaluate student performance during field practice. It is necessary to do research on the product development of the basic movement skills assessment instrument for elementary school students before deciding to use it by teachers. The aim is to obtain information about whether the product developed is effective, reliable and practical. By examining the facts found in the field, it was found that there was a discrepancy between physical learning in elementary school and the evaluation system used. So far, the assessment process that is usually carried out by teachers can only describe students' mastery of concepts, so they cannot

achieve and describe the curriculum objectives of physical education subjects as a whole. In addition, there are still misunderstandings about the performance evaluation of the interviewees. Most of the informants did not understand the procedure for making appropriate evaluation tools, and due to time constraints and the large number of resource persons, some respondents who had a good understanding still had difficulties regarding the number of students in the class.

METHODS

This research is a development research with the aim of producing a product in the form of an instrument for assessing basic movement skills. The development model used in this research is the ten-step Borg and Gall R & D development model which is modified into three main activity stages, namely: (1) Define; (2) Design (3) Develop.

The Define stage consists of three main activities which include needs analysis activities, grid design and making basic movement skills assessment instruments. The needs analysis activity aims to reveal the real conditions of PJOK teachers in assessing students' basic movement skills at this time. Needs analysis is in the form of survey results using interviews conducted with primary school primary school teachers. As a research subject at the needs analysis stage, it was found that there were obstacles in assessing students' basic movement skills in PJOK learning activities in elementary schools, one of which was that the teacher still did not understand the scanning guidelines on unclear instruments. difficult to use, components that are considered difficult to observe, tend to be ignored.

Design stage, at this stage the instrument has been designed in consultation with the supervisor. Expert Test or Validation, carried out by expert respondents of product design or model. This activity is carried out to review the initial product which provides input for improvement. This validation process is called Expert Judgment. The resulting instrument is evaluated, whether the resulting format is feasible or not, and how the content of the learning assessment material is appropriate. If the instrument is not feasible, then the instrument is revised again so that the instrument becomes feasible to be tested. Before being tested, the instrument was validated by four evaluation experts, then the instrument was tested to assess the students' ability to perform basic movements during small-scale learning, namely in small-scale class V students. It aims to determine whether the instrument is suitable for use or not to find out the performance of students. The results of the experimental use of the instrument in class V are used as a reference for further development and refinement of the instrument.

Develop stage, at this stage it is tested more widely in different schools with the same class, namely class V and on a larger scale. Real product trials were conducted to assess the performance of class V students during learning. The result of this stage is the conclusion of the success or failure of the product design developed for the benefit of the users and the teams involved.

Instrument data used in This research is as follows: (1) Rating Scale (2) Rubric (3) Instrument practicality sheet (4) Basic Movement Skills Test Instrument (5) Observation Observation Sheet, then the rating scale is determined for each material. In this study used a scale of four, namely one to four (1-4).

RESULT

Preparation of the instrument, the evaluation tool developed in this study is an instrument to assess students' basic movement skills in learning basic movements. The arrangement of the basic movement skill assessment instrument grid refers to core competencies and basic competencies. For more information, see table 1 as follows.

Table 1. Basic Movement Instruments

No	Movement Skills Basic	Movement Types
1	Locomotor	Walking
		Running
		Jumping
		Jumping
2	Non Locomotor	Pushing
		Pulling
		Twisting
		Bending
3	Manipulative	Throwing
		Catching
		Hitting
		Kicking

After the instrument for assessing basic movement skills, the next step is the expert validation stage. At this stage the instruments that have been designed are consulted with experts. The instruments that have been produced are evaluated, whether the resulting format is feasible or not, and how appropriate the content of the learning assessment material is. The researcher chose 4 experts from different points of view and with different criteria based on the wishes of the researcher, homogeneous according to their interests and their relationship to the variables they wanted to be validated from both academics, practitioners, and content, to find the selected variables. From the 4 experts, comments or suggestions will be obtained in the form of research variable sentences, addition and subtraction of the number of variables, data processing, and so on. The following are experts who meet

the requirements of researchers. **Table 2** Summary of Instrument Validation Results.

Table 2. Summary of Validation Results of Basic Movement Skills Assessment Instruments in Primary School PJOK Learning

No	Aspects Assessed	Score	Quality
1	Appropriateness of aspects of basic skills assessment	35	SB
2	Writing	54	SB
3	Language	52	SB
4	Physical Appearance	31	SB
Total Score		172	SB

Results of the assessment of the four assessors of the basic movement skills assessment instrument is summarized in Table 2. The aspects of the assessment include: the suitability of aspects of the assessment of basic movement skills with existing indicators, aspects of conformity with indicators, writing, language aspects, and physical appearance aspects. From the results of trials conducted on 3 instrument experts and 1 PJOK learning expert, the average percentage of test results was taken, namely for basic movement skills for class V, Percentage of Ideality of assessment instruments 91%, Conformity Test 95%, Writing Test 88%, Language Test 90%, Physical Appearance Test 92.5%.

In addition to the ideal percentage value of the general validation results from the four assessors of the basic movement skill assessment instrument, it can be seen from the expert judgment value, which gets a maximum score of 20 in the writing aspect. In addition to the data presented in the table, written data were also obtained from the notes column and verbal data which were transcribed from the results of interviews with experts and practitioners. Some of the main points that became input from the four assessors were: (1) Sentences on the instrument should go

straight to the root of the problem; (2) The appearance of the instrument is still not attractive; (3) The instrument should measure the specific competencies that are expected to appear in learning. Table 3 provides an overview of the generalizability coefficient changes for various compositions of sample sizes P (person), R (rater), and T (item). In the component of the assessment of students' basic movement skills, question number 1 if the composition only uses one indicator (D study design number 001-001 with P = 15, R = 1 and T = 1) then the level or coefficient of understanding and agreement (reliability in coefficient G) of 0.30 This means that the rater has a level of understanding and agreement on the use of the assessment instrument construct used by 30%.

Table 3. Analysis Genova Estimation of the Generalizability Coefficient on the Assessment of Basic Locomotor Movement Skills

Design D Study	Sample Size			Generalizability	
	P	R	T	Coef.	Phi
001-001	15	1	1	0.30	0.011
001-002	15	2	2	0.42	0.023
001-003	15	3	3	0.58	0.054
001-004	15	4	4	0.62	0.061
001-005	15	5	5	0.77	0.068
001-006	15	6	9	0.80	0.08
001-007	15	7	7	0.84	0.10
001-008	15	8	8	0.90	0.12

If the rater uses two indicators (design D study number 001-002 , with P = 15, R = 2 and T = 2) namely indicators 1 and 2, then the level or coefficient of understanding and agreement is 0.42; and so on for the design of 001-008 obtained a coefficient of 0.90. Based on these results

it can be said that to reach an understanding and agreement that meets the level of observation that is acceptable for a wider facet. The higher the level of understanding and agreement, the number of assessment indicators must be increased, the number depends on the condition of the facet concerned, in this case, if all 8 indicators are used, a coefficient of understanding and agreement will be achieved by 90%.

Table 4. Analysis Genova Estimation of the Generalizability Coefficient on the Assessment of Manipulative Basic Movement Skills

Design D Study	Sample Size			Generalizability	
	P	R	T	Coef.	Phi
001-001	1	1	1	0.67	0.0132
001-002	1	2	2	0.72	0.0132
001-003	1	3	3	0.67	0.0141
001-004	1	4	4	0.80	0.0146
001-005	1	5	5	0.83	0.0152
001-006	1	6	9	0.85	0.0166
001-007	1	7	7	0.90	0.031
001-008	1	8	8	0.91	0.040

Table 4 gives an overview of the changes in the coefficients Generalizability for various compositions of sample sizes P (person), R (rater), and T (item). In the student performance assessment component number 1 if the composition uses only one indicator (D study design number 001-001 with P = 15, R = 1 and T = 1) then the level or coefficient of understanding and agreement (reliability in coefficient G) is 0,67. This means that the rater has a level of understanding and agreement on the use of the assessment instrument construct used by 68%. If the rater uses two indicators (design D study number 001-002, with P =

15, R = 2 and T = 2), namely indicators 1 and 2, then the level or coefficient of understanding and agreement is 0.72, and so on for the 001 design. -008 obtained a coefficient of 0.91. Based on these results it can be said that to reach an understanding and agreement that meets the level of observation that is acceptable for a wider facet. The higher the level of understanding and agreement, the number of assessment indicators must be increased, the number depends on the condition of the facet concerned, in this case, if all 8 (eight) indicators are used, a coefficient of understanding and agreement will be reached 91%.

Next, the results of observations from each rater are processed or analyzed using the intraclass correlation formula (Intraclass Correlation Coefficients) using SPSS v.16 software. ICC shows the comparison between the variation caused by the measured attribute and the overall measurement variation.

Table 5. Intraclass Correlation Coefficient Reality Test Large Scale

	Intraclass Correlation Coefficient						
	C or re la ti o n	95% Confidence Interval		F Test With True Value 0			
		Loco moto r	M ani pu lat ive	V	Df 1	Df2	Sig
Mea sure men t Res ults	0. 92 1	0.71 0.9	2.1 6	0. 2	37 12	602	0.0 00
Mea n Mea suri ng	60 24 9	0.371 2.1	2.1 0.	0. 37	37 93	Intra class	0.0 00

From Table 5 , it can be explained that from the results of the ICC calculation using SPSS V.21, the results of the

analysis show that the average agreement between rates is 0.921 while for raters the consistency is 0.931 and it can be concluded that the instrument used has stability quality in the Fairly High category. . (Larsen Moen & Hall-Lord, 2016)

Table 6. Rater's Assessment Data on Practicality of Basic Movement Skills

Perso n	x	x- \bar{x}	Instruments		Sco re T	Criteri a
			(x- \bar{x}) ²	Z=(x- \bar{x})/S D		
Rater I	48	- 1.32	1.7 6	- 1.14	48	Practic al
Grade II	50	0.66	0.4 4	0.57	53	Practic al
Grade III	50	0.66	0.4 4	0.57	53	Practic al
Total	15 0				156	
Mean		50.3 2	2.5		52.3 2	Practic al
SD			1.1 4			

Furthermore, the practicality of a test is an indicator of the quality of a measuring instrument classified as good or not. The results of the analysis of the practicality of the basic movement skills assessment instrument based on the data obtained by giving a questionnaire to the four assessors (teachers) who tried out the use of the instrument.

Empirically the seven raters were asked to fill out a questionnaire with five types of questions in the form of a rubric with a value range of 1 to 5, which relates to practicality of use. Data from respondents' answers were then analyzed statistically using the T Score formula. Based on the data analysis, it can be interpreted that through the standard score test (standard) with a T score, the practicality of using assessment instruments in PJOK learning is shown in Table 6.

seen from Table 6 that in general, the teachers rated the basic movement skill instruments as having good subjectivity, systematicity, construction, linguistic and practicality. This is illustrated by the T score of each rater I of 48, rater II obtained a T score of 53, and from rater III obtained a T score of 53. Thus, according to the practicality criteria of the Glicman formula, this basic movement skill instrument can be said to be generally considered practical by the teachers (raters) in assessing the level of practicality of the basic movement skill instruments of elementary school students in physical education learning basic movement materials.

DISCUSSION

Various obstacles faced by teachers in assessing the basic movement skills of elementary school students, covering several aspects including the following: (1) the evaluation tool used was not equipped with assessment criteria, so content that was considered difficult to observe was often ignored. (2) there is only one evaluator, the teacher in the field of study, and many components and students are assessed. Therefore, it is difficult to use comparisons as a consideration for decision making, which makes the assessment invalid. (3) evaluation is basically still subjective, because there is a tendency for high scores, and vice versa because the tools and instruments used do not meet the requirements of validity, reliability, effectiveness and practicality. (4) data files and student grades are not stored in the school's academic information system (online), making it difficult for anyone to access. (5) the instrument used still uses the manual method by only checking on the prepared paper or book, so this takes a lot of time. (6) the use of technology by using android makes it easier for teachers

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The study (Lam & McHale, 2015) concluded about the psychometric properties of the main SCAT3 components (symptoms, cognition, balance) and derived clinical decision criteria (i.e., reliable cut-off scores and normative conversation tables) for clinicians to apply to cases. with and without baseline data before injury were available. The research of (Altavilla & Isanto, 2016) concludes to highlight the importance of performance assessment in the teaching and learning process as well as a motivational instrument for students.

Furthermore, (Chaabene et al., 2018) systematically reviewed and critically assessed the methodological quality, data validation, and appropriateness of sport-specific assessments in Olympic combat sports such as amateur boxing, fencing, judo, karate, taekwondo, and wrestling. The majority of studies (64%) ignored and/or provided incomplete information about test eligibility and limitations of sport-specific testing methodologies. In 28% of the included studies, insufficient or incomplete information was provided in the respective areas of test application. Several methodological gaps exist in studies using sport-specific performance tests in Olympic combat sports. Additional research should adopt more stringent validation procedures in the application and description of sport-specific tests in Olympic combat sports.

The results of the research by (D'Isanto et al., 2019) concluded that the objectives and all aspects related to the assessment, will be taken into consideration, together in order to have a positive impact on performance, enabling every athlete, team, and coach to perform a good exercise or match. , regardless of

their competitive level. Coaches and anyone involved in the training of young athletes and teams should have an in-depth theoretical knowledge of sports performance factors, operational tools and detection and evaluation procedures, in order to be able to direct all physical and technical programming, methodological choices and procedural attention, while keeping respect for the characteristics of athletes and sports teams. Sports evaluation is a fundamental moment in the training process of every athlete and every team and is an indispensable tool for any coach or sports operator. Knowledge of the main theoretical aspects, which we have discussed in this study, is necessary to avoid conceptual and interpretive errors. It is important that every sportsmanship technique is included in the training planning moment dedicated to the assessment, which allows him to verify the achievement of the set goals as well as the goodness of his work.

Then (Moran et al., 2020) reviewed that with increasing awareness and advocacy to include individuals with disabilities in sports, the implementation of assessment strategies and concussion management is needed. Limited research is available on the assessment of concussions in customized wheelchair sports athletes. The increasing adoption of multifaceted adjunctive assessments for concussion has been in response to consensus recommendations and the development of clinical tools, such as VOMS. However, with increasing use of symptoms, postural stability, and VOMS, data are needed to examine the effects of exercise, as athletes are more likely to have concussions and undergo side-by-side assessments under stress. While baseline data are important for making diagnosis and management decisions, comparing the baseline resting state test with post-exercise testing and post-injury testing may not be appropriate. It is hoped

that in the future, clinicians will begin to use basic post-exercise/activity tests for assessment to be used for side evaluation and diagnosis. Furthermore, tests that are performed only at rest, such as computerized neurocognitive testing, will not be performed on the side, in either the computerized version or the recently developed tablet version.

Based on the results of the study, it can be concluded that the basic movement skills assessment instrument is valid and can be used as an instrument for assessing students' basic movement skills in primary school PJOK learning. This is in accordance with the opinion of (Rivo Panji Yudha, 2016) which states that validity is a measure that shows the levels of validity or validity of an instrument. A valid or valid instrument has high validity. On the other hand, an instrument that is less valid means it has low validity. The validity of a test is the measuring accuracy possessed by an item (an item that is an integral part of the test as a totality), in measuring what should be measured through item items (Palm, 2008). Based on the results of the item analysis, the reliability is classified as high. This can be interpreted as a basic movement skill instrument that has the same constancy when measured repeatedly, this is in accordance with Dati's opinion (Taqwim et al., 2020) which explains that the reliability of the instrument can be interpreted as consistency, so from this explanation it can be interpreted that The basic movement skill instrument that the researcher developed can be used repeatedly and has a good level of constancy.

CONCLUSION

Based on the results of the research that the researchers have done, it can be concluded that: (1) the assessment of basic movement skills so far has used invalid

and unreliable instruments (2) the existing instruments only use the instincts of sports teachers without any instruments which is in accordance with the basic movements of elementary school students. (3) the validation of the assessment instrument is carried out through expert testing and empirical validity. The assessment results obtained from expert validation stated that this basic movement skill assessment instrument was appropriate to be used as a measurement tool for basic movement skills in PJOK learning for elementary school students.

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