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Development of a Physical Fitness Activity Movement Quality Test Instrument

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Abstract

This study aims to produce a test instrument for the quality of motion for physical fitness activities and to determine the feasibility of a test instrument for the quality of motion for physical fitness activities in junior high school students. This type of research is research and development (research & development) of the Borg and Gall model which is simplified by Puslitjaknov involving five steps, namely: 1) analysis of the product being developed, 2) product development, 3) expert validation and revision, 4) group trials small scale and revision, 5) final product. The results of the research are in the form of a test instrument for the quality of movement for physical fitness activities, suitable for use and has been validated by experts for valid and reliable criteria, where the validity criteria are high, namely 0.80, with moderate expert consistency, namely 0.562, and based on the results of product trials of motion quality test instruments obtained valid and reliable criteria, where the results of the product Cobe test obtained an average value of r count $0.78 > 0.70$, the validity was classified as high, and the reliability test obtained a score of 0.943 from 12 students the data is valid thus the instrument is in the high criteria. So it can be concluded that the resulting motion quality test instrument is suitable for use as a learning evaluation tool on physical fitness activity material.

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INTRODUCTION

Education will never be separated from the term "learning" because formal institutions usually carry out the learning process known as education. In addition, learning is a unit that aims to maximize student learning activities to expand knowledge. Throughout the world, improving human resources is highly dependent on education. Education is polished in various ways in various countries, but so is our country, Indonesia; the field of education is regulated by law, namely laws, to solve problems and advance education (Mustafa, 2022).

One indicator of the achievement of learning in Indonesia is contained in the law, based on the mandate of the opening of the 1945 constitution, which aims to educate the nation's life, therefore the government with various efforts to meet educational goals (Armpits & Sofa, 2017). Likewise, PE, which stands for physical education, seeks to achieve educational goals through sports activities and games related to physical or physical activity (Seodjatmiko, 2015). In its implementation, physical education includes activities that are part of the skills development process and are related to students' intellectual, mental, and spiritual aspects. Physical education is an important aspect of learning carried out in schools; planned efforts are then carried out in physical education to foster an environment that encourages students to have positive behavior from the results of physical activities that have been carried out (Rizki & Yuwono, 2021). Physical education aims to improve

students in terms of cognitive, affective, and psychomotor (Permana et al., 2021). The condition of students' physical fitness is an important factor that teachers must consider. Physical fitness is one of the benchmarks for learning achievement in physical education (Bahari et al., 2020). A person's physical fitness level can affect the physical or mental abilities that are useful for receiving excessive work activities (Latifah S & Priambodo, 2021). Each student's level of physical fitness must always be considered to maintain his physical condition (Suryadi, 2022). It is essential to pay attention to students' fitness status and related needs because they are constantly faced with busy schedules in learning activities that are carried out every day.

One of the community's hopes is that schools will provide high-quality physical education teaching so that children can become physically fitter and develop various abilities closely related to sports. Quality education will also produce high-quality individuals consistent with goals. National education (Bete, 2021). Because PJOK has become part of formal education in Indonesia since elementary school (SD), junior high school (SMP), and high school (SMA), and there are still PJOK majors in tertiary institutions, it is clear that PJOK subjects are crucial, especially in junior high school (Nurchakim & Wisnu, 2017). Adequate physical training is needed so that physical development for children and adolescents reaches its best condition, and students are experiencing changes in junior high schools. Therefore, teachers must assist

(putri & sundari, 2019). In order to increase physical fitness, pjok teachers must encourage students to carry out frequent and measurable physical activities (dzahabiyah & nurhayati, 2019).

Based on data collected from the results of observations, observations, and informal interviews with senior pjok teachers in the city of bekasi, that the assessment he made of his students in physical fitness learning for physical fitness activity material was only limited to measuring their level of physical fitness, and based on the results of researchers' observations. In knk activities which are held for 3 months, from september to november, especially observing the level of physical fitness of the community in karyamulya village, batu jaya sub-district, which is focused on batu jaya karawang vocational high school, the student's physical fitness activity is only concerned with the results of the test test, not concerned with the quality of the movement they do in physical education, and also based on the observational data of the researcher after one month at smpn 1 branch bungin regarding physical fitness activities the students carried out the motion test not paying attention to the appropriate movements only concerned with results. From the three observations, the researcher revealed that the material only measured fitness levels to evaluate physical fitness.

In the physical fitness activity material, see the results of the fitness level of students using tkji. As for data collection by tests and measurements, the tests were carried out using the tkji (indonesian physical fitness test) age

(13-15 years), which consisted of 5 test items, including 1) a 50-meter run, 2) body lifting, 3) lying down, 4) jumping straight up, and 5) endurance tests for 800 and 600 meters for men and women (damsir et al., 2021). Based on the results of the researcher's observations of the material for physical fitness activities, students ignored the quality of their movements and were only concerned with the results.

If the test taker shows the maximum movement ability determined by the instrument, the test results will provide an accurate prediction. Instrument quality is a major portion of achievement test scores, learning achievement tests that consist of several high-quality instruments will be much more useful than tests that have many low-quality instrument items, even in small numbers (khaerudin, 2015; arif luqman hakim et al., 2020). quality education can result from effective planning, and the community's expectation of improving children's physical fitness is quality school-level physical education (bahari et al., 2020). Talking about the quality of learning means questioning how the learning process that has been implemented and has occurred can take place properly and produce good graduates as dreamed by all parents (habib syafi'i, 2020). The importance of the learning process prepared by teaching staff as a reference for implementation and minimizing misunderstandings in implementing the material.

Based on the background description above, the author intends to research to

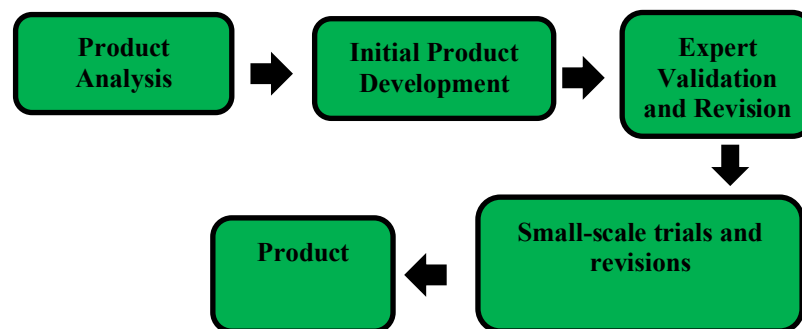
develop a test instrument for the quality of motion in physical fitness activity material for junior high school students.

METHODS

This study used the research method of R&D (research and development). A research method known as research and development (r&d) is used to create a particular item or product and assess its success (sugiyono, 2019). Because the purpose of research and development, according to borg & gall, is to produce and validate the product being developed, this development research uses the borg & gall model development approach. The resulting product will be manufactured and validated. Since a student can only complete

some r & d research cycles, it is advisable to carry out a limited number of small-scale projects with instructional designs (Gall et al., 1983; Trisnawati & Wardani, 2020).

Therefore, this research uses the borg and gall research method, which has been simplified by the puslitjaknov team (center for policy and innovation research). The borg and gall model simplified by the puslitjaknov team involves five steps, namely: 1) analysis of the product being developed, 2) product development, 3) expert validation and revision, 4) small group trials and revisions, 5) final product (puslitjaknov, 2008; utomo, 2013). The puslitjaknov team's research uses the borg and gall method approach, which is simplified into the research design presented below.



(1) Product Analysis: (a) Preliminary studies; this research begins with the existence of related potentials and problems. The needs analysis activity aims to reveal the actual condition of PJOK teachers in evaluating learning material for physical fitness activities. Behind the potential that appears to be triggered by problems that occur in the field, there are obstacles to evaluating PJOK learning in schools, one of which is the teacher evaluating

or conducting an assessment of physical fitness activity material using the TKJI instrument, which is only concerned with the results of what has been moved by students so that students only do test movements, do not use the right movements, or tend to be ignored by PJOK teachers. (b) Library Studies Review various literature sources as material that will be displayed in the learning tool for quality instruments for physical fitness activities to

obtain more detailed data and obtain data on the importance of quality instruments. The information obtained by researchers is beneficial to be able to design and develop products that can be trusted, effective, and efficient.

(2) Initial Product Development: In this step, the researcher designed a cover design, formulated an instrument, and fitness theory, designed a motion grid, and made student work formats and data processing tables based on the information that had been collected. In the TKJI instrument, there are 5 test components which are then developed into a process instrument with indicators for each test, namely from the

initial attitude, implementation, and follow-up.

(3) Expert Validation and Revision: Newly created products can be evaluated by a panel of knowledgeable professionals who can offer their opinions and ratings. This validation consists of material experts, evaluation experts, and practitioner validation. The product will show its flaws after being validated by professionals or validators. Researchers will make product designs more ideal after they realize this. The results of expert validation will be tested for content validity using Aiken V. With Aiken's V validity coefficient criteria proposed (Febriandi & Susanta,2019).

Table 1. Aiken's V validity coefficient criteria

Correlation coefficient	Validity Interpretation
>0.80	Tall
$0.60 \leq V < 0.80$	High enough
$0.40 \leq V < 0.60$	Enough
$0 \leq V < 0.40$	Bad

As well as the results of expert validation will also be discussed inter-rater reliability test of ICC. Regarding the method of proving reliability between raters using the

SPSS 22.0 program. Zaki divides the level of reliability into several groups (Ismunarti et al., 2020).

Table 2. ICC Value Classification

ICC value	Classification
<0.40	Less Reliable
0.40 – 0.75	Reliable
>0.75	Very Reliable

(4) Small-Scale Trials and Revisions: This small-scale trial aims to apply a quality

movement instrument for physical fitness activities to junior high school students. This

trial was conducted to test the feasibility of the validity and reliability of the instrument for the research object. The product trial subjects that have been validated are carried out to class VII students of SMPN 7 Karawang Barat. Revision is needed if there are deficiencies in the product being developed so that it becomes a

product that is suitable for use. The number of samples used was 12 people. According to Multiyaningsih, this small group trial involved 6-12 respondents (Mabruroh, 2022). In this product trial, the resulting data will be tested using the validity and reliability of Cronbach's Alpha (Abdillah & Widodo, 2019).

Table 3. Classification of degrees of validity and reliability

Classification	validity	Reliability
Very high	0.80 – 1.00	0.90 – 1.00
Tall	0.70 – 0.79	0.80 – 0.89
Enough	0.50 – 0.69	0.60 – 0.79
Very bad	0.00 – 0.49	0.00 – 0.59

(5) Product: Making the instrument aims to measure the ability of students' learning outcomes in fundamental movement skills and physical fitness activities; this product is an instrument that has been developed through several research and development processes so that it is suitable for use.

FINDINGS AND DISCUSSION

The results of this study several findings were found based on data analysis techniques through qualitative and quantitative data. Before this research got the results, this study used several trials to produce a quality motion test instrument product.

Findings

The results, in addition to using a qualitative data test, the motion quality test instrument performs a quantitative data test;

here are some of them: For experts who become material validators are Dr. Febi Kurniawan S.Pd.Kor., M.Or. As a lecturer in sports tests and measurements at the University of Singaperbangsa Karawang, who is competent in the material field. For experts who become evaluation validators are Dr. Resty Gustiawati S.Pd., MM As a lecturer in evaluating physical education at the University of Singaperbangsa Karawang who is competent in the field of learning evaluation. For experts who become practitioner validators are Dr. Nizwarman S.Pd., M.Pd. As a corner teacher at SMKN 15 Bekasi City who is competent in the field of applying material at school.

Based on the table above, statement 1 shows the Aiken's V coefficient value of 0.75; statement 2 shows the Aiken's V coefficient value of 0.94; statement 3 shows the Aiken's V

coefficient value of 0.88, statement 4 shows the Aiken's V coefficient value of 0, 75, statement 5 shows the Aiken's V coefficient of 0.88, statement 6 shows the Aiken's V coefficient of 0.69, statement 7 shows the Aiken's V coefficient of 0.88, statement 8 shows the Aiken's V coefficient of 0.88, statement 9 shows the coefficient Aiken's V is

0.75, aspect 10 shows the coefficient value of Aiken's V is 0.94. aspect 11 shows Aiken's V coefficient value of 0.5, aspect 12 shows Aiken's V coefficient value of 0.75, aspect 13 shows Aiken's V coefficient value of 0.81, and aspect 14 shows Aiken's V coefficient value of 0.88. The average of all V results is 0.80. Validity is high.

Table 4. ICC Reliability Test Results Data

	Intraclass Correlation Coefficient			F Test with True Value 0			
	Intraclass Correlation ^b	95% Confidence Intervals		Value	df1	df2	Sig
		LowerBound	Upperbound				
Single Measures	.243a	.035	.549	3,288	13	39	.002
Average Measures	.562c	.127	.829	3,288	13	39	.002

The reliability value of Intraclass Correlation Coefficients (ICC), which was carried out on four raters or raters from the trial results, obtained a score of 0.562, making the ICC reliability test obtain good results so that it could proceed to the next stage namely product trials to be tested using the validity and reliability of Cronbach's Alpha. The following is the quantitative data from the trial results. Validity was carried out on 12 class VII students of SMP N 7 West Karawang with

15 items or test criteria in the form of a testing rubric.

Based on Cronbach's Alpha validity test table, the average value of the r count is $0.78 > 0.70$; it can be concluded that the motion quality test instrument has high validity and can be continued in the reliability test to measure the accuracy of the test results from the motion quality instrument. Proof of reliability using the Alpha Cronbach Consistency technique, which gets the following results:

Table 5. Cronbach's Alpha Reliability Test Table

Reliability Statistics	
Cronbach's Alpha	N of Items
.943	15

The data processing was carried out using SPSS 22 software. Providing the results of the basis for proving the reliability of Consistency, Alpha Crobach obtained a score of 0.943 out of 12, the number of students. The data is valid, so the instrument is in the high category, so it is suitable to be used to see the quality of motion of physical fitness activities.

Discussion

This research is a type of research that uses research methods to develop a product that can be tested for its usefulness. In this case, the researchers produced a quality test instrument for physical fitness activity in junior high school students. The movement quality test instrument used aims to determine the accuracy of students' movements in carrying out tests on physical fitness activity material. This instrument consists of covers, introductory words, introduction to instruments, test instrument studies, motion theory studies, motion alternative solutions, essential instrument development, motion quality instrument development, motion quality test rubrics, classification tables, and data collection formats.

This product test is seen based on how good a qualitative and quantitative assessment of a test instrument product is a motion quality instrument. The research tool used is a questionnaire instrument that already contains statement items that can be used to assess the product of the quality test instrument for

physical fitness activities. Product evaluation of the development of motion quality test instruments through several assessments tested on several examiners so that researchers can see how much researchers carry out the success rate of developing motion quality test instruments. Material expert validation tests, evaluation expert validation tests, practitioner experts, user tests, and product trials are among them.

This product test was seen based on how well the researcher carried out the qualitative and quantitative assessment of the development of the quality test instrument media. The validity test aims to see the accuracy of measurement, and said reliability test aims to determine the extent to which the instrument can be trusted (Puspasari & Puspita, 2022). The results of the validation test of the four experts were tested using content validity, which is the extent to which the elements of the assessment instrument are relevant and represent the construct of the measuring instrument targeted for a particular purpose (Haynes et al., 1995; Ihsan, 2015) The results of the expert validation test resulted in an average of all Aiken V results, which was 0.80. Validity is high.

The results of the ICC reliability test, the reliability value of the Intraclass Correlation Coefficients (ICC) performed on four raters or raters from the trial results obtained a score of 0.562, making the ICC reliability test obtain reliable results. The results of product trials using Cronbach's

Alpha validity test have an average value of r count $0.78 > 0.70$; it can be concluded that the movement quality test instrument has high validity. The results of the product trial proving the reliability of Alpha Cronbach Consistency obtained a score of 0.943 out of 12 students whose data was valid so that the instrument was in the high category.

The advantage of developing this motion quality test instrument is that it can be used as an evaluation tool in teaching and learning activities on physical fitness activity material. Besides that, the existence of this instrument is an advancement in the world of education. Instrument quality is the central portion of the learning achievement test scores; learning achievement tests that consist of several high-quality instruments will be much more helpful than tests that have many low-quality instrument items (Khaerudin, 2015; Arif Luqman Hakim et al., 2020). Quality education can result from planning effectively (Bahari et al., 2015).

CONCLUSION

Based on the product feasibility test carried out through the expert validation stage and product trial, the results of all Aiken V data were 0.80. The validity is high, and the reliability test results get a score of 0.562, making the ICC reliability test obtain reliable results. The results of product trials using the validity test of Cronbach's Alpha average value r count $0.78 > 0.70$, it can be concluded that the motion quality test instrument has high validity proving the reliability of Consistency Alpha

Cronbach getting a score of 0.943 out of 12 the number of students the data is valid. Hence, The instrument is in the high category. So the test instrument for the quality of motion for physical fitness activities in junior high school students is appropriate to determine the accuracy of students' movements.

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