Development of interactive sport measurement test learning media

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Abstract: Media is one of the factors that support the success of the learning process, but there are still several shortcomings in the use of media to support learning. The aim of this research is to produce learning media in the physical education measurement test subject based on interactive multimedia, with product results in the form of mobile applications, interactive VCDs, printed books, and indexed reputable international journals which will later be used both in learning activities and in independent learning to facilitate in delivering learning material for physical education measurement tests. This study used the research and development approach from Borg and Gall. The target products or users in this study were lecturers in the sport's physical education measurement test course. The subjects in this study were all PJKR FIK Unimed students who took the sport physical education measurement test course. The findings of the small group test showed that the questionnaire product had a total score of 565, an average of 28.25, and a total percentage of 70.62% in a small trial with a fairly valid category (used). The product could thus be used in this study, but the authors chose to carry out a large group trial to validate the product. Based on the findings of the large group test, the product questionnaire has a total score of 1369, an average of 34.22, and an overall percentage of 85.56% in a small trial with a very valid (used) category. Paired T-test employed to validate the product. Tcount = 5.11 determined from the findings of the calculation of the effectiveness test data. Pricing t-table = 2.08 calculated from the distribution list t using probability 1- = 0.95 and dk n-1 (30-1) = 1. This is mean there is an effect of learning media on interactive multimedia - sport-based measurement test, so that t count > t table. It can be concluded that the interactive sports measurement test learning media in this study are well developed, valid, and effective to improve sport measurement test learning outcome.

Keywords: development, interactive multimedia, test and measurement.

INTRODUCTION

Media is one of the factors that support the success of the learning process in schools because it can help the process of conveying information from teachers to students or vice versa (Saputro et al., 2018), Then the Value and Benefits of Learning Media, learning media can enhance the learning process of students in learning which in turn is expected to enhance the learning outcomes it achieves (Louk & Sukoco, 2016), and regarding the use of learning media, one of which can overcome the limitations of space, time, and sensory power, such as movements that are too fast can be slowed down with the help of timelapse, movements that are too slow can be helped with high-speed photography (Ghazali Indra Putra, 2016). Technology has a very important role for the educational process and provides direction in the development of the world of education. Utilization of science and technology, especially in the development of interactive multimedia-based packaging of learning resources, is needed so that learning resources are packaged in a more attractive and complete form in presentation. Multimedia is one of the supporting devices that can be used in this regard. This is because multimedia technology includes several aspects that are synergistic, between text, graphics, static images, animation, film and sound. Multimedia technology will bring a new revolution in sports education, educational thinking and educational theory in colleges and universities during the multimedia period. Sports education needs to

seize the opportunity to change traditional educational mindsets. In colleges and universities, bringing multimedia technologies into education, enriching teaching content, incorporating various media techniques to arouse students' interest in learning by applying energy to teaching activities thus enhancing sports teaching in colleges and universities (Suhairi et al., 2020).

Based on this description, it can be concluded that learning media is a tool that can help the teaching and learning process and serves to clarify the meaning of the message conveyed, so that it can achieve the learning objectives properly and perfectly. Given the many forms of learning media, the teacher must be able to choose them carefully so that they can be used appropriately. In teaching and learning activities, the use of the word learning media is often replaced with terms such as: instructional material, audio-visual communication, visual education aids, teaching aids and explanatory media. Objectives, materials, techniques, media, and learning assessment are five crucial elements in the teaching and learning process. (Louk & Sukoco, 2016). These five factors interact with one another. Without ignoring three more crucial factors, namely objectives, resources, and learning assessment, the optimal sort of learning medium will depend on the particular teaching style chosen (Ghazali Indra Putra, 2016).

Learning is still a lot of emphasis in the form of "teacher centered" lecturers as the center so that students lack knowledge and freedom in performing maximum movement skills (Santoso, 2019). This is what happened to PJKR FIK students at Medan State University, there was no use of learning media in the form of applications on Android phones, and textbooks, as companions in the physical fitness measurement test course. Research on the development of this media, the researcher chose the Android mobile application, interactive multimedia as a learning medium, and will be uploaded on the Playstore and SIPDA networks, this media can understand the learning speed of each student, is able to be a patient tutor because it is a program, can be used by lecturers while teaching, and giving lectures and can be used independently by students as a learning resource, especially after post-COVID-19 they are still implementing online learning (Santoso, 2019).

The hope is with interactive multimedia (Qistina et al., 2019), students' learning will be more effective and efficient, which will boost their knowledge and competency as well as their academic accomplishment and allow them to optimize their understanding of the physical education assessment exam course material. (Fitriadi & Rachman, 2014). In essence, this world is a place where people of all ages may study (Kurniawati & Nita, 2018). Learning resources are any sources (whether in the form of information, people, or objects) that may be utilized to give students access to learning facilities (convenience), according to the Educational Communication Technology Association (AECT) (Z. Siregar & Marpaung, 2020). Messages, people, things, tools, strategies, and environments/backgrounds are all examples of learning resources. software that includes educational contents that are often delivered via specific technology, such as audio program cassettes, video program tapes, slide programs, and films (Maiti & Bidinger, 2019). Hardware used to display messages that were stored in the material. OHP, tape recorders, video players, slide projectors, film projectors, smartphones, and computers are a few examples (Febrita & Ulfah, 2019).

This is achievable if teachers provide students as many opportunities as possible to engage with current learning materials while encouraging them to use different learning resources in different ways (Nopembri et al., 2022). Everything that individuals use to communicate ideas is considered learning media. According to Gagne, a component of the learning environment that might motivate students to study is media (Saputro et al., 2018). In accordance with that, Briggs sees media as a tool for stimulating kids' minds so that learning can take place. What connection exists between educational and learning media? (Kaltsum, 2017).

The definition and intent of audio-visual aids (AVA) are the same; however, the focus is on audio and visual technology (Ruslinawati & Wulandatika, 2020). The learner (student), however, is the main emphasis of teaching tools. Media is a message presenter and disseminator, and in some circumstances, learning media can represent students presenting learning material to students (Aspar et al., 2021).

In order to give pupils individualized attention and advice, the media's role is expanding (Moto, 2019). Because of this, students have more time to fulfill their responsibilities as advisers, mentors, motivators, and facilitators of learning activities (Tafonao, 2018). Learning resources are any sources (whether in the form of information, people, or objects) that may be utilized to offer students learning facilities (convenience), according to the Educational Communication Technology Association.

Learning resources include messages, individuals, objects, tools, procedures, environments, and context. (Fauzi Fahmi et al., 2021).

The following principles of learning are included in the tertiary learning process, according to SN-DIKTI: 1) interactive; 2) holistic; 3) interactive; 4) scientific; 5) contextual; 6) thematic; 7) effective; and 8) student-centered (Majelis Akreditasi, 2019). Additionally, pupils should be given enough room to exercise initiative, creativity, and freedom in accordance with their abilities, interests, and levels of physical and psychological development. The commitment to producing learning outcomes and graduates must be taken into account while choosing learning methodologies (B. Y. Siregar, 2022).

the following learning outcomes in sports and physical education measuring tests; (1) The fundamental idea of the theory guiding the implementation of sports branch tests, including a) badminton, b) volleyball, c) basketball, d) table tennis, and e) court tennis. (2) Capabilities for administering the Sports Branch exam.

The test (test) is a written assessment instrument used to track or monitor student progress toward the assessment aim. (Ermawan Susanto, 2017). A sequence of tasks, inquiries, or assignments used to collect information about a certain psychological or academic feature is referred to as a test (Muhammad Wahyu Kuncoro, 2012). Tests are one of the planned measuring strategies instructors employ to try to provide pupils a chance to demonstrate their accomplishments in relation to predefined goals (Edi Istiyono, Wipsar brams Dwandaru, 2018). The exam serves as a tool for evaluating students' capacities to carry out a variety of particular activities, exhibit mastery of a skill, or display subject-matter knowledge (Muharram, 2020).

Measurement is the act of gathering data through empirical observation in order to gather information that is pertinent to the goals that have been established (Aiman Faiz & Fajar Nugraha, 2021). Measurement is the process of evaluating an object's characteristics numerically in accordance with predetermined standards or units (Adib Rifqi Setiawan, 2020). Therefore, measuring may be seen as a process of matching data about an item with facts about a certain unit (Gumantan & Mahfud, 2020).

The creation of interactive multimedia-based learning products is the next phase, which includes a) make storyboards, create development flow, collect supporting materials, create designs, related to complete the product, b) make a development flowchart in the form of a flowchart, c) gather materials to make products.
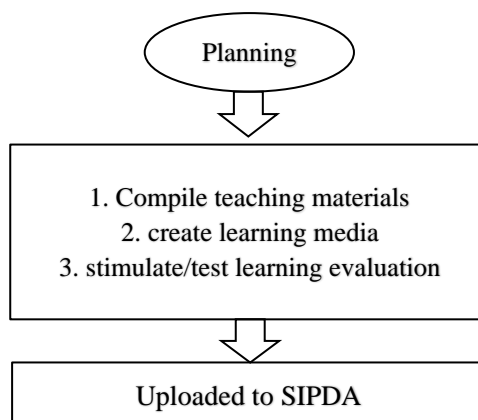
Figure 1. Mechanism of Developing Teaching Materials
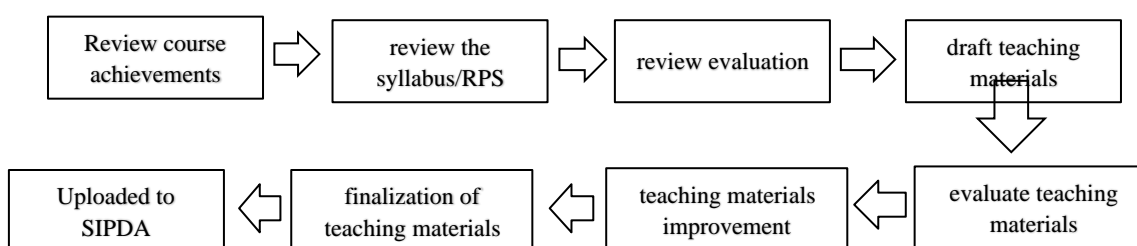
Figure 2. Stages of Teaching Material Development

Stages of compiling interactive learning media for the Android mobile application is shoewd in Figure 3.
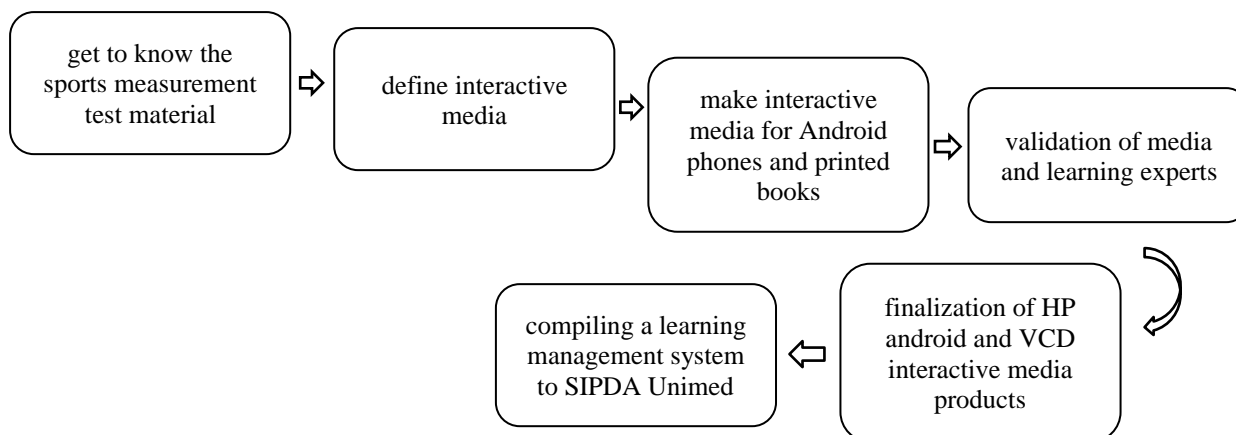

Figure 3. Stages of Learning Media Development

Product Model Design (Concept Map) development of interactive multimedia-based Sports Physical Education Measurement Test is showed in Figure 4.
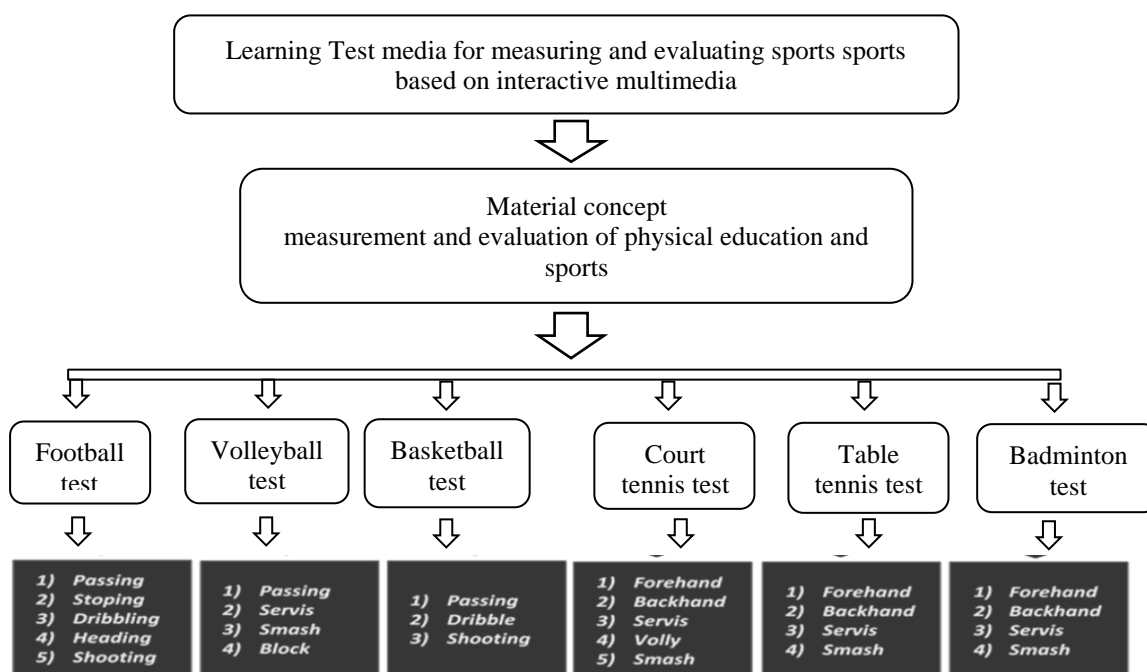

Figure 4. Product Model Design (Concept Map) Development of Interactive Multimedia-Based Physical Education Measurement Test Media

Research related to the development of interactive multimedia-based sports learning media measurement tests found that one of the difficulties was first, the level of difficulty in mastering knowledge and implementing several test items. Second, learning media is less attractive. Third, students' interest in the library is very low. Fourth, the low ability of lecturers in developing learning media. Fifth, the low appreciation of students in independent learning. However, other facts were also found that the difficulties in the physical condition of students before taking the test were also not evenly distributed. This causes a gap between the research that has been done and the facts in the field.

The urgency of this research raises a problem that occurs in the learning media available to students, which will be followed up on this problem later. The research object chosen by this researcher is based on the analysis of the needs and considerations of the researcher in describing the uniqueness that exists in this place. When carrying out the research later the researcher will ask for the data as

desired. The solution in this research is to produce a new product starting with a need to form processes and results that must meet the criteria, consistency, and effectiveness, namely the product of Interactive multimedia-based sports measurement test learning media.

METHODS

The target products or users in this study were lecturers in the sport's physical education measurement test course. The subjects in this study were all PJKR FIK Unimed students who took the sport physical education measurement test course. This study used the research and development approach from Borg and Gall which is grouped into three stages namely, (1) Identifying Stage, at this stage the developer's first step is to identify learning needs, which is the first step in this research. Identification of learning needs, analysis and formulation of course learning outcomes, formulation of teaching materials and re-design of learning tools (syllabus, lesson plans and course contracts) as well as problem grids. (2) The development stage, at this stage the development of interactive multimedia-based media products for learning sports physical education measurement tests. Take steps, including: (1). Creating storyboards, creating plots, supporting materials, designing, producing, and displaying related materials to complete the product. (2). Create flowchart flowcharts. (3). Collect materials for products, such as: materials, animations, audio, images, video models and will be uploaded in SIPDA (4) validation and feasibility tests. (3) Evaluation stage which consists of; At the evaluating and revising stage, designing, and carrying out formative evaluation activities are carried out with the following steps: review by sportswear measurement test experts and media experts, one-to-one evaluation, small group evaluation, and field trials. If there is an improvement in the formative evaluation, a revision will be made(Mahfud & Fahrizqi, 2020). Figure 5 shows the content design flowchart planning on the learning media for sports physical education measurement tests.
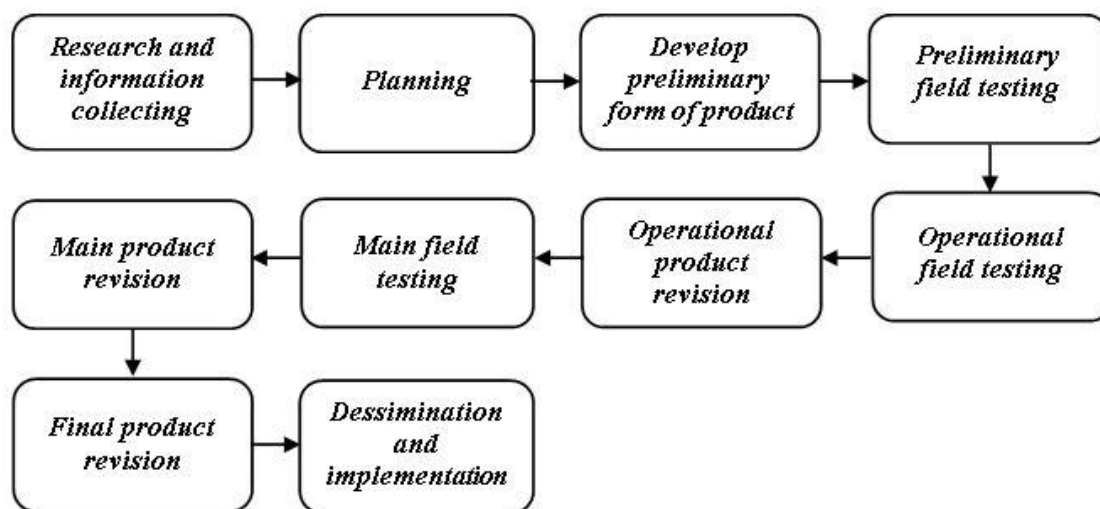
Figure 5. Instructional Design R and D (Firdaus et al., 2018)

Research and development techniques are used in this study (Research and Development). According to Barg and Gall, there are ten steps in the development process, including (1) research and data gathering, (2) planning, (3) product draft development, (4) field trials, (5) product improvement, (6) field trials, (7) improving the results of field trials, (8) field implementation tests, (9) completion of the final product, and (10) dissemination and implementation. There are design phases at each level of this study and development whose explanations are presented and updated in accordance with the goals and real circumstances of the research (Trisnayanti et al., 2019).

Table 1. Details of Research Activities and Indicators of Achievement

Activity	Execution Technique	Achievement Indicator
1. Pre-Development Stage Identification of learning needs, which is the first step in this research to improve student performance	1.1. Identification of the needs of the learning process for the sports physical education measurement test course. 1.2. Analysis and formulation of learning outcomes for the physical fitness measurement test course. 1.3. Formulation of teaching materials for sports physical education tests. 1.4. Compilation of question grids	1.1. Initial needs in learning have been reviewed/studied. 1.2. Physical Education Measurement Test Course Achievement. already formulated 1.3. Formulation of teaching materials for the physical education measurement test course. 1.4. Learning documents (syllabus, GGPB RPS, and lecture contracts) 1.5. Questions for evaluation are prepared.
2. Development Stage Development of interactive multimedia-based media products for learning sports physical education measurement tests.	1.6. Create a storyboard, create a development flow. 1.7. Producing, and displaying material in multimedia form. 1.8. Make a development flowchart in the form of a flowchart 1.9. Developers create products, materials, animations, audio, clip-art images, video models to be uploaded in SIPDA 1.10. Validation and feasibility test	2.1. Formulation of methods, media and learning strategies for physical education sports measurement tests. 2.2. Documents for printed and electronic sports jersey measurement test materials 2.3. Availability of interactive multimedia learningphysical fitness measurement tests. in the form of (Program in HP). 2.4. Teaching materials will be uploaded in SIPDA 2.5. The results of the Medel Multimedia Interactive validation for learning the physical education measurement test subject.
3. **Evaluation Stage** Evaluate and revise	3.1. Design and carry out formative evaluations 3.2. Review by physical assessment test experts and media experts 3.3. Small group evaluation, and field trials. 3.4. Improved formative evaluation, 3.5. Evaluation Development 3.6. Implementation of Assessment of learning outcomes	3.1. A collection of questions about the Physical Education measurement test for UTS. 3.2. Collection of physical education measurement test questions for UAS. 3.3. Ready-to-use documents 3.4. Value Process and Learning Outcomes sports physical education measurement test

Figure 6 shows the content design flowchart planning on the learning media for sports physical education measurement tests.

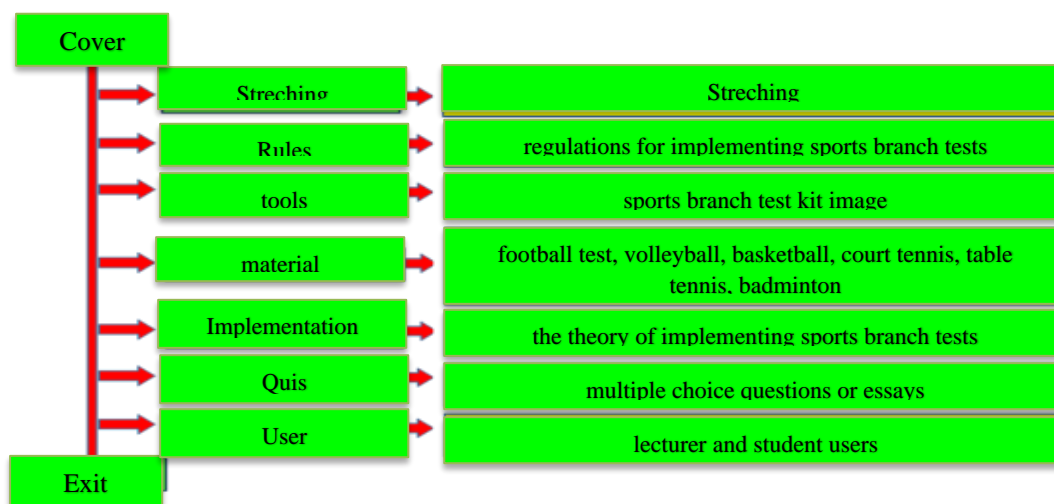**Figure 6**. Flowchart of Interactive Multimedia Design Development of Learning Media Physical Education Measurement Tests

RESULT

Conduct small-scale first field tests with 20 research volunteers. Data collection and analysis at this stage may be carried out by observation, interviews, or questionnaires. This step is a limited product test that entails: (1) carrying out initial field tests on the product design, (2) being limited in nature, both the parties involved and the design's content, and (3) carrying out the initial field tests repeatedly to produce a design that is workable, both in terms of content and methodology. The trial results from 20 study volunteers in small groups are shown in table 2.

Table 2. Small Group Trials

No	Name	Amount	%
1	X1	26	65
2	X2	28	70
3	X3	30	75
4	X4	35	87.5
5	X5	35	87.5
6	X6	31	77.5
7	X7	30	75
8	X8	28	70
9	X9	27	67.5
10	X10	27	67.5
11	X11	25	62.5
12	X12	25	62.5
13	X13	26	65
14	X14	25	62.5
15	X15	23	57.5
16	X16	26	65
17	X17	26	65
18	X18	29	72.5
19	X19	31	77.5
20	X20	32	80
	Amount	565	
	Average	28.25	
	Small Trial Percentage	70.625	

According to the aforementioned statistics, the product questionnaire's overall score is 565, its average score is 28.25, and the overall success rate of the small trial is 70.62%, making the category "quite valid" (used). As a result, although the product can be utilized in this study, the author decided to conduct a large group trial to verify the product.

Product Operational Revision

Based on the findings of the initial testing, enhance the original product that was manufactured. According on the results of the small trial, it is extremely probable that this change will be made more than once, resulting in a primary product (media) draft that is prepared for larger trials. version II is a version that takes into account the concerns, challenges, and preferences of the users. changes based on limited field testing that enhance the media or the design.

Three specialists—media experts, materials experts, and test and measurement experts—conducted modifications for this study. The outcomes of expert modifications in small group trials are shown in table 3.

Table 3. Expert Revision In Small Group Trials

No	Expert	Education	Score	Percentage	Category	Revision	Suggestion
1	Material	S3	9	81.82	Very Worth it	The material in the initial trial was too much	Shorten, clarify to be efficient
2	Media	S2	7	63.64	Decent Enough	The media listed have not focused on the core	Focus on material to be more efficient and effective

3	Tests and Measurements	S2	9	81.82	Very Worth it	activities of interactive multimedia Use books and theory in compiling material	Use a test and measurement book
	Amount			25			
	Average			8.33			
	Percentage			75.76			
	Category			Decent Enough			

The results of the expert revision in the small group test where it can be concluded that from the material expert obtained 9 and a percentage of 81.81% in the very decent category. As for what the expert revised, it was because the material was too long, so it was better to be brief and clarified. Then the revision results of media experts from obtained a score of 7 with a percentage of 63.64. His revision is that multimedia is less varied, it is better to make it as interesting as possible so that students are interested in reading it. The revised results of the test and measurement expert where the acquisition score is 9 and the percentage is 81.82% in the appropriate category. The revision from the expert is to use the teacher's book in compiling the material so that the material presented is in accordance with the learning concept. The overall result of expert revision in the small group trial was 25 for a score with an average value of 8.33 and 75.76% for the percentage with a fairly decent category (used).

Main field testing

The primary study with 40 research participants. (1) performing first field tests on the product design, (2) being constrained in terms of the design's content and the parties involved, and (3) repeating the initial field tests until they provide a design that is workable in terms of content and technique. The main trial's (big group) results are listed in table 4.

Table 4. Large Group Trial Results

No	Name	Amount	%
1	X1	31	77.5
2	X2	32	80
3	X3	36	90
4	X4	36	90
5	X5	38	95
6	X6	34	85
7	X7	36	90
8	X8	36	90
9	X9	29	72.5
10	X10	35	87.5
11	X11	34	85
12	X12	32	80
13	X13	37	92.5
14	X14	37	92.5
15	X15	32	80
16	X16	36	90
17	X17	33	82.5
18	X18	35	87.5
19	X19	33	82.5
20	X20	35	87.5
21	X21	34	85
22	X22	33	82.5
23	X23	35	87.5
24	X24	35	87.5
25	X25	37	92.5
26	X26	36	90
27	X27	34	85

28	X28	35	87.5
29	X29	37	92.5
30	X30	36	90
31	X31	28	70
32	X32	35	87.5
33	X33	34	85
34	X34	32	80
35	X35	31	77.5
36	X36	33	82.5
37	X37	29	72.5
38	X38	37	92.5
39	X39	36	90
40	X40	35	87.5
	Amount	1369	3422.5
	Average	34,22	
	Percentage of Large Trials	85.5625	

According to the aforementioned information, the small trial's overall proportion with a highly valid (used) category has a total score of 85.56%, an average of 34.22, and a total score of 1369 for the product questionnaire. This indicates that although the product can be utilized in this study, the authors chose to assess its performance in order to support the product.

Main product revision

Make adjustments to the findings of larger trials so that the generated product is a functional media design that is prepared for validation. Revision of Results from Wider Field Tests: This stage represents the second improvement following the completion of wider field tests than the initial field test. The outcomes of expert modifications in large group trials are shown in table 5.

Table 5. Results of Expert Revision of Large Group Trials

No	Expert	Education	Score	Percentage	Category	Revision	Suggestion
1	Material	S3	10	90.91	Very Worth it	-	-
2	Media	S2	9	81.81		-	-
3	Tests and Measurements	S2	10	90.91	Worthy	-	-
	Amount			29			
	Average			9.67			
	Percentage			87.88			
	Category			Very Worth it			

The findings of the expert review in the big group exam showed that the material expert, received 10 and a percentage of 90.91% in the very decent category. There was nothing that the expert had changed. The expert thought the product was excellent. After expert revision by the document received a score of 9 and an accuracy rate of 81.81% in the relevant category. There was nothing that the expert had changed. The expert thought the item was excellent. The expert updated findings, which have an acquisition score of 10 and a percentage of 90.91% with a highly respectable category. There was nothing that experts corrected because they thought the final result was excellent. The total number of expert revisions in the big group trial was 29, with an average value of 9.67 and an employed percentage of 87.88%.

Final Product Revision

Testing the operational media that has been created for validation. Results of the last revision of due diligence. This process, which comprises (1) assessing the efficacy and adaptability of sports testing abilities, will refine the product being produced. (2) The design media is ready to be used, both in terms of content and process, according to the field test results. The efficacy test findings in this study were determined utilizing tests and measurements, and a T-Score was then used to compare the research data.

Table 6. Pre-Test and Post Test Z Score Results

No Resp	Pre-Test	Post Test
1	222.16	260.09
2	214.90	267.88
3	192.51	249.85
4	223.17	220.74
5	212.50	241.37
6	227.13	321.64
7	218.01	237.77
8	215.72	251.01
9	193.00	236.41
10	204.66	273.50
11	211.22	225.15
12	208.04	240.72
13	243.13	230.50
14	240.19	229.10
15	228.52	309.30
16	220.27	217.83
17	204.16	228.14
18	218.43	304.35
19	211.09	234.91
20	203.96	288.12
Amount	4312.78	5068.39
Average	215.64	253.42
SD	13.25	31.05

After the t-score is used to equate the data, the pre-test and post-test data are shown above. The application of learning media for sports measurement tests as evidenced by the results of the effectiveness test showed an increase in technical skills of the study participants. There was an increase as there were more post-tests than pre-tests (5068.39 vs. 4312.78). The average pre-test score was 215.64 and the average post-test score was 253.42, respectively. For the pre-test and the post-test, the obtained standard deviation (standard deviation) is 13.25 and 31.05, respectively.

Tcount = 5.11 was determined from the effectiveness test data calculation findings. The pricing for ttable = 2.08 is calculated from the list of the t distribution using the probability 1- = 0.95 and dk n-1 (30-1) = 1. The hypothesis reads, "There is an Influence of Learning Media on Interactive Multimedia-Based Sports Measurement Tests," in order to have t count > t table".

The discussion in this study refers to previous studies that are in line, The researcher makes a product concept based on student learning needs, the resulting product can be given to students via download on the specified link, after the researcher creates a product concept, it is followed by expert validation. Researchers validate the product to the instrument. Learning media helps teachers and students to achieve learning goals and increase students' learning motivation (Dirin et al., 2023). Currently, teachers can choose a variety of learning media, including electronic-based media. Learning media such as pictures, animations, and videos are believed to be able to help visual perception problems experienced by students (Prana Dwija Iswara, J. Julia, Tedi Supriyadi, 2023), The effectiveness of using digital learning media can provide information to the millennial generation easily and quickly using media based on digital and non-digital technology is also very helpful for life skills information needed by students (Wardana et al., 2022).

The learning process is a process that involves interaction between students and teachers and students (Roccetti et al., 2020). With this interaction, it is expected that students can gain an understanding of what is obtained in teaching and learning interactions. In the process of implementing school learning there are several factors that influence it, namely internal and external factors, not only that media or multimedia greatly influence the learning process in achieving maximum learning outcomes (Pedaste et al., 2021). Therefore, it is necessary to develop innovative media or other multimedia developers (Rohman et al., 2022), Learning media is one of the factors that influence motivation and educational components that are useful for helping students understand the material. Media must be packaged in such a way that it can attract students' learning motivation. Inappropriate media application will lead to low learning motivation. This can be seen from the observations of

researchers in the form of most teachers only using textbooks as learning media. So that students easily feel bored, don't pay attention to learning, don't have the spirit to compete with their friends, and easily feel satisfied with the results they get (Tri Kusyanti, 2021).

The media used must be effective, can foster interest, and generate student learning motivation. Of course, with the development of technology and science, it is necessary to add media that can assist teacher efforts in arousing student learning motivation. in his research concluded that in the learning process the teacher uses media that has high effectiveness will have an impact on student achievement (Bima et al., 2021). So, it can be said that the effectiveness of learning media can be seen from the learning outcomes obtained by students. But in addition to learning outcomes, the effectiveness of the media can also be seen from the feedback given by students during the learning process.

Multimedia which contains various elements of text, images, video, audio, and animation has an appeal for students in obtaining learning experiences that follow an independent learning style (Hapsari et al., 2022). Interactive multimedia can foster student learning motivation and independent learning processes to improve learning outcomes. Interactive learning media can stimulate interest in learning and facilitate students' understanding of material. There are also significant differences in learning outcomes between students who are taught using interactive learning media and those who are not. Interactive multimedia learning is designed based on problems that occur in everyday life (Lail et al., 2022).

In general, the characteristics of interactive multimedia that are developed are self-instructional where children are able to learn independently without other parties, interactive multimedia that is developed without depending on other media or does not need to be used in conjunction with other media, user friendly, which means that interactive multimedia used fulfills aspects of ease of use (Indah Septiani et al., 2020). Used, interactive multimedia that is developed has consistency in terms of font, space, and margins, the entire learning material from one competency unit or sub-competence that is studied exists. interactive multimedia (Rachmadtullah et al., 2018). The interactive multimedia specifications developed are: (1) interactive multimedia can encourage children to be more active and creative in learning mathematics; (2) the material presented is in the form of questions that are presented in an interesting way; (3) this interactive multimedia has been validated by media, material, and practice experts; (4) this interactive multimedia is simple which does not require various media or complicated tools for children to learn; (5) complete if equipped with a guidebook on how to use, how to solve questions, answer keys, and assessment indicators obtained by children; (6) the child's response level, the completeness of the child's learning outcomes, and the activities shown by the child reflect that the child is very enthusiastic in solving problems and learning the material provided. Compared to other media, the advantage of this multimedia is that this multimedia can include various media such as audio media, text, images, and animation. It is hoped that this multimedia can help dyscalculia children in providing visual stimulation in understanding correlations between numbers (mathematical operations such as addition, subtraction, division, or multiplication), solving story problems, understanding numbers, and using appropriate calculation strategies (Patricia & Zamzam, 2021).

The novelty of this research is to produce learning media in physical education measurement test subjects based on interactive multimedia, with product results in the form of mobile applications, interactive VCDs, printed books, and indexed international journals which will later be used both in learning activities and in independent learning for facilitate the delivery of physical education measurement test learning material and make it easier for lecturers and students to achieve the expected goals and produce teaching material products for physical education measurement test courses and will be included in Unimed's SIPDA content.

CONCLUSSION

The researcher's conclusion is based on the justification advanced, according to which development research is research used to create new goods and starts with a need to design procedures and outcomes that must adhere to requirements for consistency and overall effectiveness. The findings of the small group test revealed that the product questionnaire had a total score of 565, an average of 28.25, and a total percentage of 70.62% in the small trial with a reasonably valid category (used). The product can thus be utilized in this study, however the author opted to conduct a large group trial to validate the product. According to the findings of the big group test, the product questionnaire had a total score of 1369, an average of 34.22, and an overall percentage of 85.56% in the small trial with a highly valid category (used). This indicates that while the

product can be utilized in this study, the authors decided to examine its efficacy in order to validate the learning media**.** Tcount = 5.11 was determined from the effectiveness test data calculation findings. The pricing for ttable = 2.08 is calculated from the list of the t distribution using the probability 1- = 0.95 and dk n-1 (30-1) = 1. The hypothesis reads, "There is an Influence of Learning Media on Interactive Multimedia-Based Sports Measurement Tests," in order to have t count > t table". It can be concluded that the interactive sports measurement test learning media in this study are well developed, valid, and effective to improve sport measurement test learning outcome.

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