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Development of Interactive Multimedia-Based Physical Fitness Learning Media in Junior High School

Lokananta Teguh Hari Wiguno[a], Ari Wibowo Kurniawan[b*], Heri Wahyudi[c], Ahmad Hanif Aqsha[d]
[a,b,d] Universitas Negeri Malang, Indonesia
[c] Universitas Negeri Surabaya, Indonesia

Correspondence: ari.wibowo.fik@um.ac.id
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Abstract
This work seeks to provide a new teaching material for instructors in the physical fitness material of speed to aid teachers and students in the learning process and learning in physical education, sports, and health topics. This research and development method uses the Research and Development (R&D) approach developed by Lee & Owen. Small group trial subjects consisted of 20 students, large group trial subjects consisted of 30 students. Based on the results of product validation and trials, it was obtained 93% learning experts, 87% physical fitness experts, 91% media experts, 83% class VII user experts, 93% class VIII user experts, the results of the five validators met the criteria and were included in the category very valid and does not need to be revised. While small group trials for class VII were 83%, small group trials for class VIII were 82%, large group trials for class VII were 84%, large group trials for class VIII were 82%. From these results it was concluded that the development of this learning met the very good criteria and could be used to help the physical education learning process, especially on physical fitness material on the element of speed.

Keywords: Development; fitness; learning media; physical education; speed.

1. Introduction

In facing the current era of modernization, education is a very important element to be able to compete with other countries in the world. Education can affect the quality future generations, and create human beings who can be useful for the homeland and the nation. Education in the world is currently in a learning process and has yet to take full advantage of the technology and media that make the atmosphere of the teaching and learning process more comfortable. Education, therefore, is to create learning environments and processes in which students actively develop their religious spiritual strength, self-discipline, character, intelligence, noble character, and competencies necessary for themselves, society, and society (Abidin et al., 2013). One of them can be done through sports education, as sport is currently very popular and can develop various achievement of students.

Law Number 20 of 2003 Concerning The National Education System Chapter X Article 37 explains that physical education, sports and health are mandatory fields of study that must be delivered at every level of education, from elementary to secondary education. Junior High School (SMP) as one of the school levels that is required to carry out the field of physical education, sports and health studies and is expected to be able to achieve goals according to the existing curriculum.

While physical education, sports, and health are undoubtedly important for promoting physical health and wellness, there are other critical perspectives of learning that also play a significant role in overall development. These may include: 1) cognitive development: The development of critical thinking skills, problem-solving abilities, and creativity are essential to academic and personal success 2) social

and emotional development: The ability to communicate effectively, form relationships, and manage emotions are essential to success in personal and professional settings 3) cultural awareness and understanding: Understanding and valuing diverse perspectives and cultures promotes empathy, tolerance, and appreciation for differences 4) environmental awareness and sustainability: Understanding the impact of human actions on the environment and promoting sustainable practices is essential for a healthy and thriving planet. Therefore, while physical education, sports, and health are undoubtedly important, it is essential to recognize that there are many other critical perspectives of learning that are equally important in promoting holistic development. Sport and health designed that way.

Alamsyah et al., (2017) argues that physical fitness is known to have a positive impact on productivity. When an individual is physically fit, they are more likely to have the energy and stamina needed to carry out work-related tasks without becoming excessively fatigued. This can lead to increased productivity and better job performance. Muhajir (2017) states that there are 10 components of physical fitness, namely: cardiovascular endurance, muscle endurance, muscle strength, flexibility, body composition, movement speed, agility, balance, reaction speed, coordination. However, cardiovascular endurance is more dominant in determining a person's level of physical fitness, because the heart plays an important role in regulating the supply of food to all organs of the body.

Speed in fitness is part of the components of physical fitness. Budiwanto (2017) explains that speed is the distance traveled per unit of time measured in minutes or a quantity scale. Speed is the ability of organisms to move from one position to another as best and as fast as possible. When an individual has more or more satisfactory speed abilities, then this ability can be personally beneficial, usually speed can be seen from his ability to run, or move things from one place to another. And in the world of physical education, sports and health learning about physical fitness, the element of speed is still minimal for teachers to teach, because teachers have difficulty in providing variations in learning and the media used so that students' enthusiasm in participating in learning decreases.

In today's times and technological developments, studying science and technology is very important in a variety of ways, such as in the current era, the learning process, such as the speed of using interactive multimedia, is needed and developed because it can make it easier for students and teachers to provide material and understand material, because success during learning is largely determined by two components, namely teaching methods and learning media. Wiarto (2016) argues that media is a very important component in learning and can be viewed as an effective alternative strategy in helping achieve learning objectives. But there is still a lack of teacher knowledge and creativity in making and implementing interactive multimedia in the learning process so that students when participating in learning easily feel bored.

Abidin et al. (2013) states that learning is an activity in which a person attempts to gain information, skills, and good values via the use of various learning sources. One of them is learning media which is a tool that functions to explain parts of the whole learning program that are difficult to explain verbally. And to facilitate the process of learning activities, namely using multimedia media sources, namely media that involve various senses in the learning process. Kurniawan (2019), "Multimedia is a mixture of different media (file formats) such as text, images, audio, and interactivity used to transmit messages and information from a sender to a receiver. It can be thought of as a mixture of different media (file formats) including text, images, audio, and interactive formats used to convey messages and information from senders to recipients.

SMP Negeri 4 Malang is one of the good and standardized schools because it has facilities such as LCD (Liquid Crystal Display) and a projector as a supporting tool in the process of learning activities. In the results of the initial research observations that have been carried out by researchers and based on data analysis carried out at SMP Negeri 4 Malang to students totaling 100 children consisting of 50

class VII students and 50 class VIII students which were carried out on April 26 2019 to April 30 2019 with the following results: (1) All students (100%) have received physical education, sports and health activities for physical fitness material on the element of speed; (2) Only 35% of students have ever received physical education, sports and health activities on speed elements in class; (3) 95% of the learning media for physical education, sports and health activities for physical fitness for the elements of speed used by teachers come from books; (4) And when learning physical education, sports and health activities, physical fitness materials for speed elements to students, namely 48% use video, 45% never use interactive multimedia and 7% use PPT. So there is still a lack of teacher creativity in the learning process; (5) All classes at SMP Negeri 4 Malang have LCDs.

The results of the needs analysis obtained, the researcher chose to develop interactive multimedia-based physical fitness learning media in SMP Negeri 4 Malang, self-development is very important to solve a problem as stated by Kurniawan (2014), development research is a process to study something that can produce something new (product) that is effective and efficient and can be used to solve a problem, while in SMP Negeri 4 Malang there is still a lack of speed learning media in the class and in order to maximize the use of existing learning facilities in SMP Negeri 4 Malang which have been provided in each class, namely LCD and projectors, because at SMP Negeri 4 Malang itself in learning they still tend to use books and videos with monotonous games which are common practice so because of that the enthusiasm of students is reduced in participating in learning.

This research has advantages because in product development this is a new learning media and in learning physical fitness subjects this element of speed can be done not only in the field but can also be done in the classroom because it uses interactive multimedia and SMP Negeri 4 Malang also has facilities such as LCD and a computer as a support, so it can make it easier for the teacher to convey a material and of course it's also easier for students to accept and understand the material provided by the teacher because in this development product it can contain material on physical fitness elements of speed, videos and variations on speed learning as well as questions questions that can measure students' knowledge in following the learning process that has been carried out. This product is supposed to make the learning process more enjoyable for students, increasing student learning motivation and creating a new environment that is less dull and more effective and efficient in the learning process. So, based on the background of the problems that have been described and explained above, the researcher wants to conduct a study entitled "Development of Learning Media for Physical Fitness Elements of Speed Based on Interactive Multimedia Class VII and VIII at SMP Negeri 4 Malang".

2. Method

It was a Research and Development (R&D) approach using multimedia development model developed by Lee & Owen (2004) using the following steps: 1) Needs analysis, 2) Product design, 3) Product development 4) implementation and 5) Evaluation. Research and development procedures that aim to develop a physical fitness teaching material for the element of speed using interactive multimedia will use development procedures (Lee & Owens, 2004).

Needs analysis

At this stage of the analysis there are 2 parts namely needs assessment andfront-end analysis. Needs assessment is the collection of data as a whole that is used for materials for developing teaching materials for physical fitness elements of speed using interactive multimedia. Andneeds assessment carried out by direct observation and interviews. Front-end analysis analyzes the data and information that is really needed. Stagefront-end analysis in research there are several types namelyaudience analysis used to determine targets that will use interactive multimedia-based physical fitness teaching

materials.Tecnology analysis used to determine the type of technology needed for development research and running interactive multimedia in the form of hardware and software, media analysis used to determine the type of media developed, the next data analysis used to determine the content of the material used in the application. Analysis is the steps used to discuss field conditions with the aim of the product being developed whether it can be accepted or not by the subject.

Product design

This design stage is a step of developing instructional materials for physical fitness aspects of speed based on interactive multimedia that will be generated based on the knowledge collected in the analysis stage. Which includes material collection (collect materials or needs needed to develop interactive multimedia, manufacture story board, and manufacturing flowchart).

Product development

This development stage is where the design of speed-based physical fitness teaching materials with interactive multimedia will be carried out in line with the designs that have been produced and designed, and it will be divided into three stages: development, validation, and revision. Development comprises interface design, coding, testing, publishing, and packaging. To improve interactive multimedia goods, the validation step was carried out by media professionals, learning experts, and physical fitness experts. And the revision step will be carried out at this point based on the opinions and ideas provided by professionals in order to generate a decent product.

Implementation

This stage is a trial phase which will involve several students from class VII and class VIII of SMP Negeri 4 Malang. At this stage, researchers will use a questionnaire as material for enhancing the product to measure how the replies and assessments of the product development of physical fitness learning elements of speed based on interactive multimedia are produced.

Evaluation

At this evaluation stage after obtaining assessments from several experts such as media experts, learning experts, and physical fitness experts, and trials that have been carried out on users. This is done with the aim of knowing how high the level of feasibility of this interactive multimedia-based physical fitness teaching material product. And will also explain the advantages, disadvantages and specifications of this interactive multimedia-based physical fitness teaching material.

Product trials

At the product trial stage this will be used as basic data collection to determine the feasibility level of a product being developed, in this feasibility trial it will cover the efficiency, effectiveness and benefits of the product being developed. The steps of (1) product trial design, (2) test subjects, (3) data development instruments, (4) data analysis techniques are as follows.

Trial design

At the expert evaluation stage, 5 (five) experts will be carried out, consisting of learning expert, physical fitness expert, media expert, as well as 2 (two) user experts, namely physical education, sports and health teachers for class VII and class VIII. At the expert evaluation stage, the aim is to provide criticism and suggestions that will later be useful for researchers to use as material for improving

products that have been developed. The product trial phase is a trial of the product design that has been made with the subject of students in class VII and VIII, each of which consists of 10 students in class VII and 10 students in class VIII, with a total of 20 students. In contrast to trial I, trial II used student subjects with a total of 60 students consisting of 30 students in class VII and 30 students in class VIII.

Subject trial

The subjects of the research and development trials carried out by media experts were lecturers from the Faculty of Education who had a minimum qualification of Masters and who had an understanding and mastery of media. The subjects of the research and development trials carried out by these learning experts were lecturers at the Faculty of Sports Science who had a minimum qualification of Masters and who had an understanding and also mastered learning. The subject of the research and development experiment carried out by this physical fitness expert is a lecturer at the Faculty of Sports Science who has a minimum qualification of Masters and who has an understanding and mastery of physical fitness. The subjects of the research and development trials carried out by the user experts were teachers from class VII and class VIII of Physical Education, Sports and Health who were still actively teaching at SMP Negeri 4 Malang. The subject of this research and development trial will be carried out by students of SMP Negeri 4 Malang class VII and class VIII with a total of 80 students.

Data type

This form of research and development data is both qualitative and quantitative, and it will be employed in learning observation. Qualitative data is gathered from interviews with Physical Education, Sports, and Health instructors, as well as the findings of expert evaluations that comprise guidance and exposure, whilst quantitative data is obtained from trial I and trial II results in the form of numbers.

Data Collection Instruments

A questionnaire was used as the data collecting tool in this research and development to acquire information from specialists and test participants. Learning experts, physical fitness experts, media experts, user experts, and trial data I and trial II are among them. Throughout the process of gathering research data and product development, the design of the questionnaire for each expert will be different in terms of assessment in the form of expert criticism and suggestions. Then also distributing questionnaires to students during trials I and trials II at SMP Negeri 4 Malang.

Data analysis technique

Descriptive statistics are used in data analysis approaches in product research and development. The Likert scale approach is used for data collecting, and it tries to measure a person's or group's attitudes, views, and perceptions of social phenomena (Sugiyono, 2015). The Likert scale tool contains response levels ranging from extremely positive to extremely negative.

Table 1. Rating scale for statements (Sugiyono, 2015)

Information	Answer	Score
Strongly Agree	A	4
Agree	B	3
Diagree	C	2
Don't agree	D	1

The formula for processing data in the form of percentage quantitative descriptive analysis according to (Akbar & Sriwijaya, 2010) is as follows:

$$V = \frac{HOME}{S-max} \times 100\%$$

Information:
In : Validity
Home : Total Empirical Validator Score
S-max : Expected Maximum Score
100% : Constant Numbers

The results of the data that have been collected may then be categorised according to the percentages that have been obtained to ease the process of concluding the data from the percentage analysis findings. According to (Akbar & Sriwijaya, 2010) the percentage classification used is as follows:

Table 2. Product quality criteria (Akbar & Sriwijaya, 2010)

Percentage	Information	Meaning
75,01% - 100,00%	Very Valid	Used Without Revision
50,01% - 75,00%	Valid Enough	Used With Revision
25,01% - 50,00%	Invalid	Can not be used
00,00% - 25,00%	Totally Invalid	Prohibited Use

3. Result

Product development in this research produces learning media for physical fitness elements of speed based on interactive multimedia that uses an autoplay media. In this development application product, there are 8 forms of physical fitness game elements of speed which are packaged in the form of games consisting of 4 games for class VII and 4 games for class VIII.

This data analysis aims to determine the feasibility of the development product of learning physical fitness elements of speed based on interactive multimedia at SMP Negeri 4 Malang. This section describes the analysis of data from learning experts, physical fitness experts, media experts, user experts which include class VII physical and health education teachers and class VIII physical education and health teachers as well as data on the results of small group trials and large group trial data. From the discussion of experts and large and small group trials, it can be concluded that this product is suitable for use to assist the learning process and can become a learning medium that can improve students' learning abilities.

Learning member

Analysis of the data obtained based on aspects which include aspects of clarity, accuracy aspects and convenience aspects are presented as follows:

Table 3. Result of learning expert data analysis

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	94	Very Valid
2	Aspects of Accuracy	89	Very Valid
3	Convenience Aspects	100	Very Valid
Average		**94**	**Very Valid**

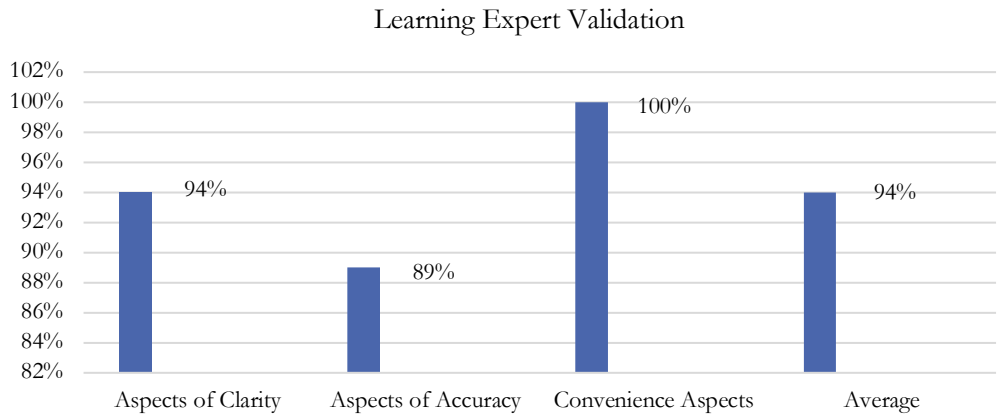

Figure 1. Percentage Diagram of Data Analysis Result of Learning Experts on Learning Media Development Products for Physical Fitness Elements of Speed Based on Interactive Multimedia

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Physical fitness expert

Table 4. Results of data analysis of physical fitness experts

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	88	Very Valid
2	Aspects of Accuracy	83	Very Valid
3	Convenience Aspects	100	Very Valid
4	Aspects of Suitability	100	Very Valid
5	Interesting Aspect	75	Valid Enough
Average		**89**	**Very Valid**

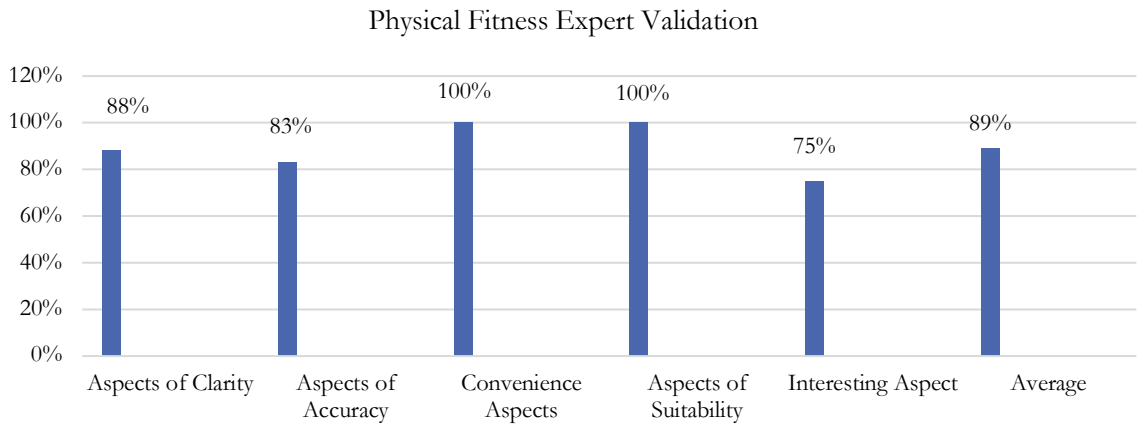

Figure 2. Percentage Diagram of the Results of Data Analysis of Physical Fitness Experts on Product Development of Learning Media for Physical Fitness Elements of Speed Based on Interactive Multimedia

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Members of the media

Table 5. Results of media expert data analysis

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	100	Very Valid
2	Aspects of Accuracy	75	Valid Enough
3	Convenience Aspects	90	Very Valid
4	Equipment Aspects	100	Very Valid
5	Aspects of Suitability	94	Very Valid
6	Interesting Aspect	80	Very Valid
Average		**90**	**Very Valid**

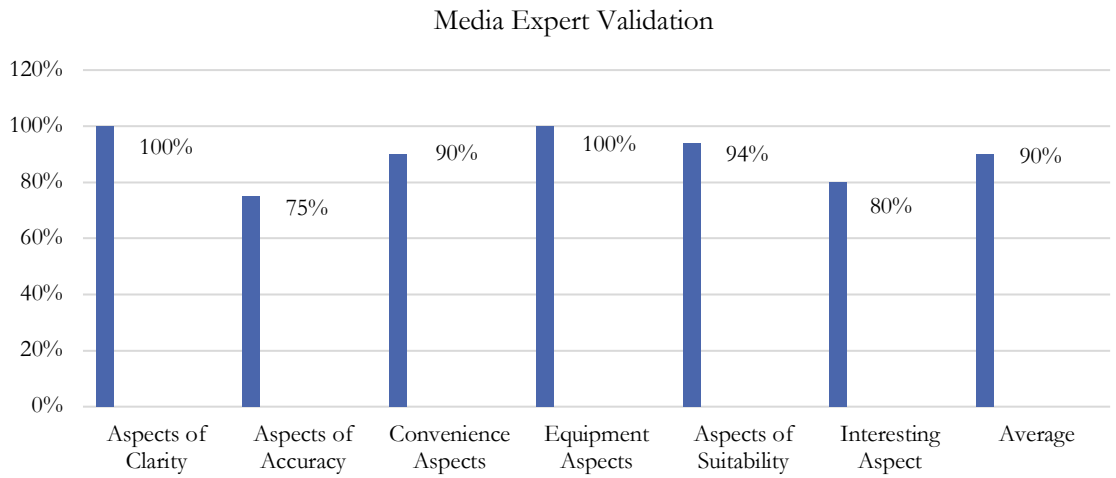

Figure 3. Percentage Diagram of Data Analysis Results of Media Experts on Product Development Learning Media Physical Fitness Elements of Speed Based on Interactive Multimedia

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

User member

Analysis of data from expert users of class VII physical education and health teachers and class VIII physical education and health teachers.

Table 6. Results of expert data analysis of class VII PE teacher users

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	75	Valid Enough
2	Aspects of Use	100	Very Valid
3	Convenience Aspects	83	Very Valid
4	Aspects of Suitability	86	Very Valid
5	Interesting Aspect	84	Very Valid
6	Benefits Aspect	75	Valid Enough
Average		**84**	**Very Valid**

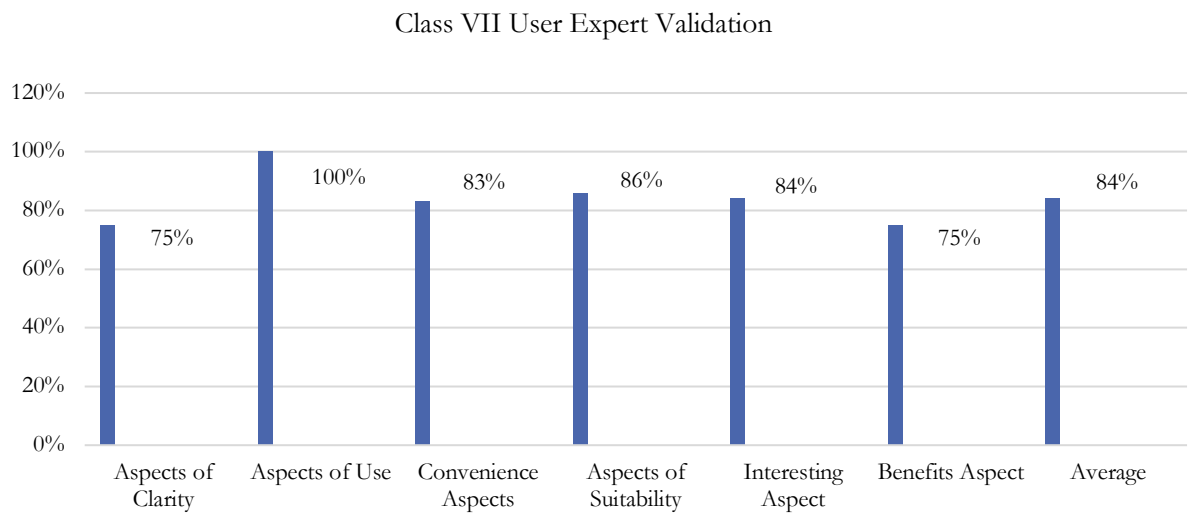

Figure 4. Percentage Diagram of User Review Data Analysis Results for Class VII Physical and Health Education Teachers

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Table 7. Results of expert data analysis of class VIII class users of PE teachers

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	92	Very Valid
2	Aspects of Use	75	Valid Enough
3	Convenience Aspects	96	Very Valid
4	Aspects of Suitability	100	Very Valid
5	Interesting Aspect	89	Very Valid
6	Benefits Aspect	100	Very Valid
Average		**92**	**Very Valid**

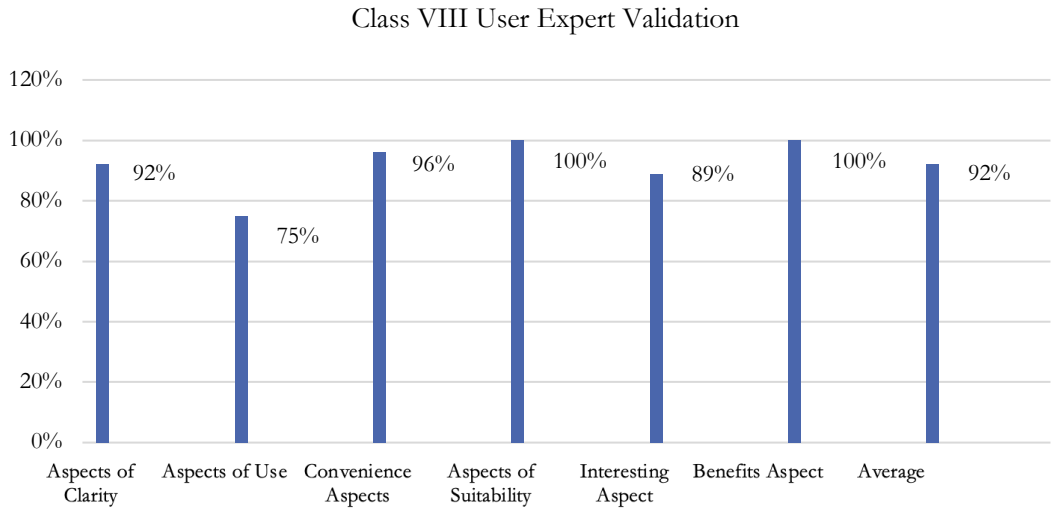

Figure 5. Percentage Diagram of User Review Data Analysis Results for Class VIII Physical and Health Education Teachers

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Small group trial

The results of data analysis from small group trials consisting of 10 class VII students and 10 class VIII students.

Table 8. Results of data analysis of class VII small group trials

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	85	Very Valid
2	Aspects of Use	80	Very Valid
3	Convenience Aspects	80	Very Valid
4	Aspects of Suitability	81	Very Valid
5	Interesting Aspect	83	Very Valid
6	Benefits Aspect	85	Very Valid
Average		**82**	**Very Valid**

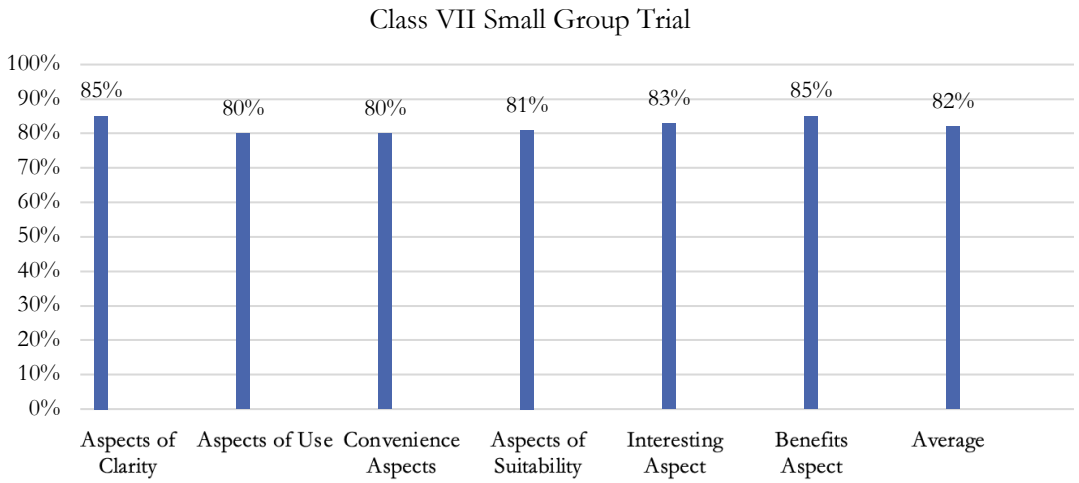

Figure 6. Percentage Diagram of Data Analysis Results for Small Group Trials for Class VII SMP Negeri 4 Malang

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Table 9. Results of data analysis of class VIII small group trials

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	83	Very Valid
2	Aspects of Use	83	Very Valid
3	Convenience Aspects	81	Very Valid
4	Aspects of Suitability	81	Very Valid
5	Interesting Aspect	82	Very Valid
6	Benefits Aspect	88	Very Valid
Average		**83**	**Very Valid**

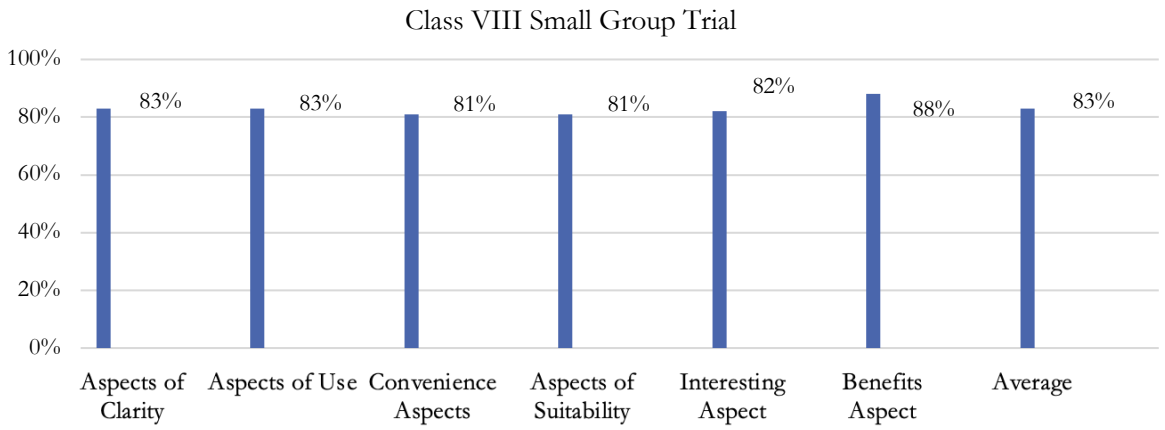

Figure 7. Percentage diagram of results of data analysis of small group trials for class VIII SMP Negeri 4 Malang

Based on the data shown above, it is clear that product development has satisfied the requirements and may proceed to the next step.

Large group trial

The results of data analysis from a large group trial consisting of 30 students of class VII and 30 students of class VIII.

Table 10. Results of data analysis of the class VII large group trial

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	84	Very Valid
2	Aspects of Use	81	Very Valid
3	Convenience Aspects	83	Very Valid
4	Aspects of Suitability	85	Very Valid
5	Interesting Aspect	85	Very Valid
6	Benefits Aspect	85	Very Valid
Average		**84**	**Very Valid**

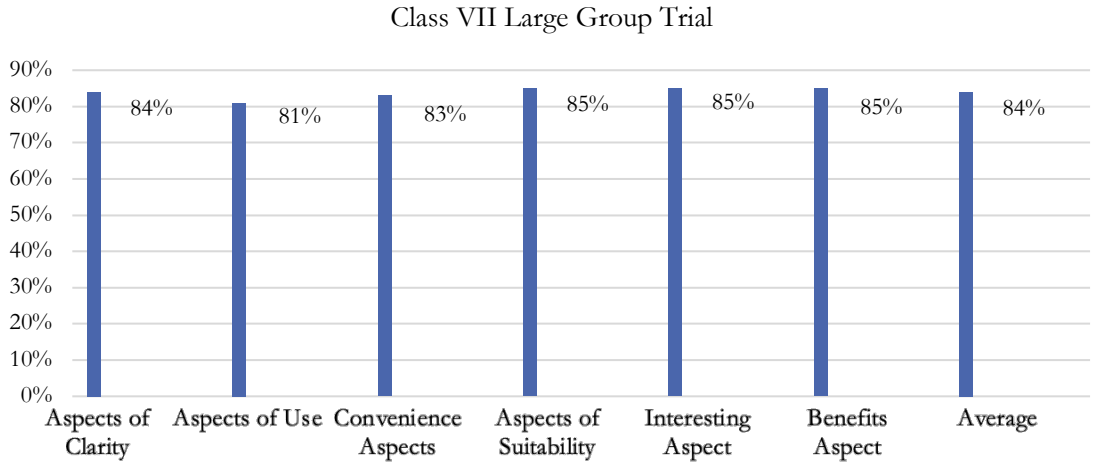

Figure 8. Percentage diagram of the results of data analysis of the large class VII of SMP Negeri 4 Malang Trial

Based on the data shown above, it is clear that the product development has met the requirements and the product can be used.

Table 11. Results of data analysis of the class VIII large group trial

No	Aspect	Percentage (%)	Category
1	Aspects of Clarity	83	Very Valid
2	Aspects of Use	82	Very Valid
3	Convenience Aspects	81	Very Valid
4	Aspects of Suitability	81	Very Valid
5	Interesting Aspect	82	Very Valid
6	Benefits Aspect	83	Very Valid
Average		**82**	**Very Valid**

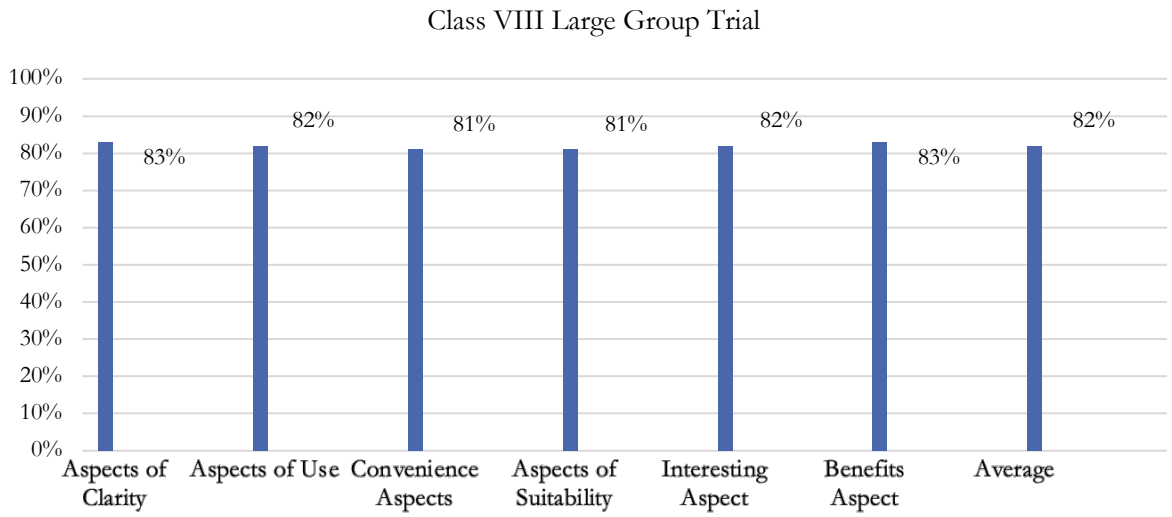

Figure 9. Percentage diagram of the results of data analysis of the large class VIII class trials at SMP Negeri 4 Malang

Based on the data shown above, it is clear that the product development has met the requirements and the product can be used.

4. Discussion

This development product is the development of interactive multimedia-based physical fitness learning media using a mediaautoplay. In this development application product, there are 8 forms of physical fitness game elements of speed which are packaged in the form of games consisting of 4 games for class VII and 4 games for class VIII. In addition, there is an understanding of physical fitness, components of physical fitness, benefits of physical fitness, understanding of speed, factors affecting speed, forms of play for class VII and forms of play for class VIII, facilities and infrastructure for each game, class evaluation VII and class VIII evaluation as well as researcher's biodata.

This development product is based on interactive multimedia which can be used as teaching materials both inside and outside the classroom. The product of the development of physical fitness learning media for the element of speed is emphasized on the material for physical fitness for the element of speed which is packaged in the form of a game consisting of tail chasing games, moving kun, cone relay, paper running for class VII and games of catching the ball, running catching the stick, taking kun, catching up with friends for class VIII the games contained in this interactive multimedia-based

speed element fitness development product already contain an element of speed, namely moving places quickly and precisely. Agree with Wiradiharja & Syarifudin (2017) speed is a person's ability to move from one place to another in the shortest possible time. Development of learning media or learning models needs to be done in order to make learning more varied and interesting for students (Mulyono et al., 2017). The development of learning models that display written pictures and motion assignments helps students in the learning process because they are easy to understand and understand (Wijaya & Kanca, 2019). Packaging learning models using interactive multimedia as learning media that can assist teachers in delivering physical fitness material with speed elements easily and also makes it easier for students to understand the material that has been delivered by the teacher, as stated by Hasan et al., (2021) learning media are all forms of tools that can be used to convey information from a source to students easily, and can stimulate students to participate in learning as a whole or in certain parts, can also be used as motivation for students during learning.

The results of this study agree with several previous studies which show that the development of teaching materials using interactive multimedia can support the learning process at school and at home (Adi et al., 2020). The development of educational game-based interactive multimedia has several implications, namely: (1) to change students' learning habits to become more independent, (2) to motivate teachers to use and create innovative learning media to solve problems in learning, and (3) as student motivation in participating in learning (Rohayati et al., 2019). The development of Interactive Multimedia-Based Physical Fitness Media can be received in a clear, precise, easy, complete, appropriate and interesting way for students in high schools (Mukhlis et al., 2021). The advantages of the product are in the form of interactive multimedia, equipped with descriptions of objectives, facilities and infrastructure used, as well as activity steps, attractively presented images, descriptions of images, as well as attractive colors and layout images so that they are easier to understand and more interesting to learn (Apririsa, 2017).

The creation of interactive multimedia-based physical fitness learning media development based on interactive multimedia is expected to increase student interest, interest and motivation as well as add teacher references in the process of learning physical fitness speed elements at junior high school level. The use of multimedia technology can also be done in the development of teaching materials which can increase students' interest in a teaching material delivered by the teacher (Supriadi, 2015). Interactive multimedia is very helpful for encouraging interest in learning and helping when studying independently (Angga et al., 2020). Learning to use interactive multimedia helps make the learning process more varied (Smaragdina et al., 2020). Interactive multimedia also facilitates individual learning models based on choosing a freer time and place to study and without using an internet connection (offline), this also helps students to be able to study anytime and anywhere (Ashfahany et al., 2017). The advantage of interactive multimedia is that it can combine various kinds of media and can also be used for independent and classical learning so that students with various levels of ability can use it without feeling difficult (Basori, 2016).

5. Conclusion and Recommendation

Based on the development and research results of the interactive multimedia speed-based physical fitness learning media product, it can be concluded that the product development of the interactive multimedia speed-based physical fitness learning media product is suitable for use in learning . Used as a reference for additional learning resources on sports subjects and health in middle school, especially Class VII and Class VII.

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