



## Development Of Floor Gymnastic Learning Device Based On Articulate Storyline Application

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### Abstract

In conducting research, it certainly has a specific goal, namely to develop a teaching and learning tool for floor gymnastics material based on the articulate storyline application. The method used when conducting research is the Research and Development (R&D) approach with the development model that has been carried out. Assessments from several experts including learning experts obtained good results, and for the media expert's assessment obtained a good value, the SD game expert's assessment obtained a good value, the PJOK expert's assessment obtained a good value, the floor gymnastics expert's assessment obtained a good value, and when conducting small group trials and large group trials get very good ratings and can be used by educators to teach floor exercise material. So it can be concluded that the product development of floor exercise learning tools based on the articulate storyline application can be used for teaching & can be used as a reference for learning success for PJOK material for class IV Elementary School when learning floor gymnastics.

**Keywords:** Learning Devices, Floor Exercises, Articulate Storyline Applications

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## **A. Introduction**

The world of education is required to be able to produce advanced human resources (HR), possessing various knowledge and skills in accordance with their respective fields by utilizing technological advances. Teachers / educators are the front guard in the world of education in educating the nation. Teachers must be able to produce future generations of young people who are qualified and capable of high competitiveness. Therefore, the teacher must have an important role in the scope of education, so that almost all efforts in renewal in the field of education are in the hands of a teacher.

In education, there are several subjects, one of which is PJOK. Of course, with PJOK lessons aiming to be able to change attitudes, behavior, responsibility, honesty, cooperation and uphold sportsmanship and be able to develop individual skills, PJOK is an educational center in schools that involves physical activity. In physical education there is a physical activity including big ball game material. According to Wiarto, (2015), PJOK is subject matter that is systematically arranged and planned and also has elements including psychomotor elements, cognitive elements, and affective elements with the aim of

increasing one's self-knowledge. Meanwhile, according to Akhmad, (2016), stated that PJOK is education that can improve and encounter changes in a person including mental, physical and emotional burdens. From the statement above, it can be concluded that physical education is part of teaching and learning that is structured in a planned manner so that a person can change himself in increasing knowledge so that it can include affective, psychomotor, and cognitive elements.

Education. Physical education is a subject that is given at every level of school. According to Mylsidayu, (2014), physical education is a physical and physical activity that includes cognitive, affective, and psychomotor aspects. Physical education is provided to help students add knowledge and be skilled in the field of sports science. Meanwhile, according to Mustafa, & Dwiyoogo, (2020), physical education is education that improves skills through movement so that they can obtain health and can also obtain the expected goals such as skills, knowledge, and attitudes. Therefore educators must understand the purpose of the educational process, especially PJOK lessons so that students can develop according to the targets to be achieved. Therefore, it can be concluded that

Physical Education is education that focuses on the physical, movement, and emotional activities of students. Punjab also emphasizes that students get better spiritual changes, as well as achieve physical, movement, social, and mental changes. In PJOK learning there are several learning materials, one of which is the material in PJOK at school is floor gymnastics lessons.

Learning can be interpreted as a form of interaction involving several parts, including educators with students, and vice versa, and subject matter. Communication failures often occur during teaching and learning. According to Pane, & Dasopang, (2017), learning is a way to impart knowledge or guidance directly to students in the learning process. Meanwhile, Larsson, & Karlefors, (2015), states that an educator is not only a source of learning, because an educator must be able to modify existing learning so that students can understand when learning activities take place and are not easily bored with existing learning. Floor gymnastics is a physical education subject material given at school. According to Sapsuha, (2019), states that a floor gymnastics is a form of activity that can be done with elements of flexibility,

accuracy, and speed, as well as self-confidence. Therefore, it can be concluded that floor gymnastics is an activity that involves elements of beauty and all parts of one's body movement skills. besides that, good floor exercise movements can improve body fitness and motion experience including movement agility, flexibility, balance, as well as speed, and agility. Meanwhile, Agustina, (2020), states that floor gymnastics is part of gymnastics, as the name implies floor gymnastics activities are carried out on a carpeted floor which is part of the floor gymnastics infrastructure. Floor gymnastics is usually better known as independent training, because when gymnasts do activities or exercises that don't involve any tools at all. So the floor gymnastics material is very closely related to the existence of psychomotor competence and affective competence by formulating this into KI, KD which is given at the SD level in class IV. In physical learning, students can learn the basic movements of floor gymnastics contained in the skill competencies and knowledge competencies of physical and health education at the grade IV elementary school level which are formulated as follows:

**Table 1 KI & KD Class IV Physical and Health Education**

**(Permendikbud No 37 of 2018)**

Core Competency of Knowledge Class IV	Class IV Skills Core Competencies
3. Understanding factual knowledge by observing and asking questions based on curiosity about himself, God's creatures and their activities, and objects that they find at home, at school, and on playgrounds	4. Present factual knowledge in a clear, systematic, and logical language, in aesthetic works, in movements that reflect healthy children, and in actions that reflect the behavior of children of faith and morality.
Basic Knowledge Competence Class IV	Basic Skills Competency Class IV
3.6 Understanding variations and combinations of various dominant movement patterns (resting, hanging, balance, moving/locomotor, repulsion, swing, hovering, and landing) in floor exercise activities	4.6 Practicing variations and combinations of various dominant movement patterns (resting, hanging, balancing, moving/locomotor, repulsion, swing, hovering, and landing) in floor exercise activities

The statement above can be used as a teacher's reference when teaching to increase abilities and can also be used as material for consideration in developing learning media. The duties or obligations of educators in accordance with their activities are: 1) determining the material to be given, 2) carrying out the teaching and learning process, 3) evaluating teaching and learning outcomes, 4) conducting guidance to students, and 5) carrying out additional tasks in accordance with the obligations of an educator. All educators have responsibilities in preparing systematic & complete lesson plans (RPP) so that learning takes place in an inspiring, interactive, fun, challenging way, so that students are motivated to be more active in the teaching and learning process.

Multimedia is a combination of several media such as text, audio, graphics, and is used as information or a means of conveying messages and receiving information. Sports teachers almost never make or apply interactive multimedia in their learning process, especially floor gymnastics learning materials. This makes students feel bored because the interest of students during the teaching and learning process decreases. So along with the rapid development of technology, it is hoped that it will be able to develop competence and increase creativity when using media used for the learning process to improve the quality of learning. Learning media is very influential during learning, especially during the teaching and learning process in more sophisticated times where most educational institutions use a tool to be

used in delivering teaching and learning material so that students can understand and accept the material presented. According to McNeil, (2015), states that a learning media can make it easier for students when understanding information so that students can easily understand the skills that have been practiced. The learning process will be interesting if using various variations when teaching and learning, especially PJOK subjects (Kurniawan, & Tangkudung, 2017).

Based on the answers from the KKG when conducting initial research in Trowulan District, Mojokerto Regency, the researchers conducted interviews to seek needs analysis according to what the researchers needed, by conducting direct interviews with the head of the KKG PJOK SD in Trowulan District, Mojokerto Regency, there is also a way On the other hand, by distributing questionnaires via Google forms to KKG members, the researcher obtained the result that teachers still use learning media such as student worksheets/LKS as learning media, while this method is the old method that is often used (conventional). In addition, the facilities owned by PJOK teachers are quite adequate, starting from LCDs, smartphones, and computers/laptops. However, PJOK teachers do not balance this in using learning media in the form of

applications or by displaying pictures of learning practices, independent learning activity units or power points. In addition, there has not been an application created for floor gymnastics learning based on the articulate storyline application. The application of an articulate storyline is a medium used as a way to channel information with the desired intention, to produce an interesting presentation requires a person's creativity and high innovation so that it can be combined into a work (Pratama, 2018). The articulate storyline application is software to function as communication objects as intermediaries for channeling and displaying information that has the desired parts, such as including videos, images, animations, audio, and others that can be accessed online and offline (Purnama, & Asto, 2014).

## **B. Method**

The development and research part of the floor exercise learning process based on the articulate storyline application aims to create a product that is needed today. In line with the opinion of Winarno, (2013), that development research is a research that seeks to create products according to the desired needs. The product manufacturing design is very useful for solving a problem that is currently being faced in the educational environment, very

useful when the teaching and learning process of PJOK material is used. The development of floor exercise learning tools based on the articulate storyline application is able to take advantage of existing stages including: 1) Needs Analysis Stage, 2) Product Design Stage, 3) Product Development Stage, 4)

Implementation Stage, and 5) Product Evaluation Stage . The Likert scale instrument has various ratings ranging from bad to good categories. To make it simple when analyzing data, it should be given a predetermined value such as a value of 1, value 2, value 3, and value 4 for the Likert rating scale (Sugiyono, 2017).

**Table 2 Rating Scale for Positive Statements**

No	Information	Answer	Score Positif
1	Strongly agree	A	4
2	Agree	B	3
3	Doubtful	C	2
4	Don't agree	D	1

The formula used to process the data is in the form of a descriptive quantitative percentage analysis as follows:

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

Information:

V : Validity

TSEV : Total empirical score of the

validator

S-max :Maximum score expected

100% : Constant number

In order to make it easier for researchers when the process of concluding data from the results of percentage analysis can be classified into percentage classifications as follows:

**Table 3 Product Quality Criteria**

Kriteria	Information	Meaning
00,00%-25,00%	Totally Invalid	Forbidden to use
25,01%-50,00%	Invalid	Can not be used
50,01%-75,00%	Valid Enough	Used with minor revisions
75,01%-100,00%	Very Valid	Used without revision

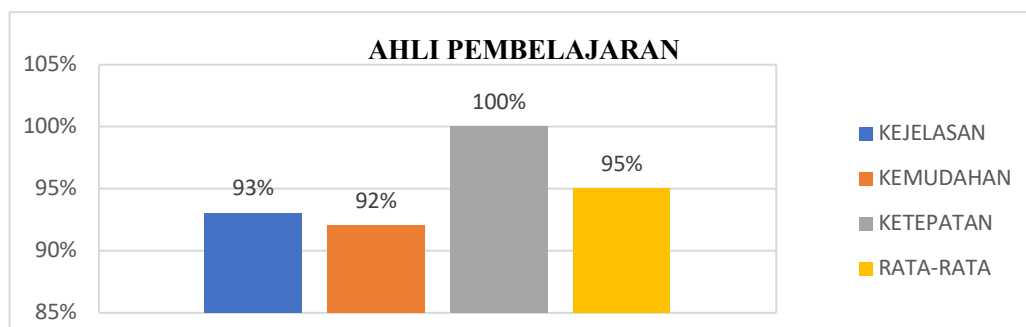
### C. Result and Discussion

In this section the researcher describes data analysis on the product being developed, data presentation is part of the required analysis, validation by experts, and data from small and large group test results. The results of the analysis

obtained by the assessment of learning experts refer to the aspects of accuracy, clarity, and ease of product development for floor exercise learning tools which are presented in the following table:

**Table 4 Assessment of Data Analysis by Learning Experts**

No	Aspect	%	Category
1	Accuracy	93	Very valid
2	convenience	92	Very valid
3	Clarity	100	Very valid
	Average	95	Very valid



**Figure 1. Percentage Diagram of Learning Expert Outcomes for Product Development of Articulate Storyline Application-Based Floor Gymnastics Learning Devices**

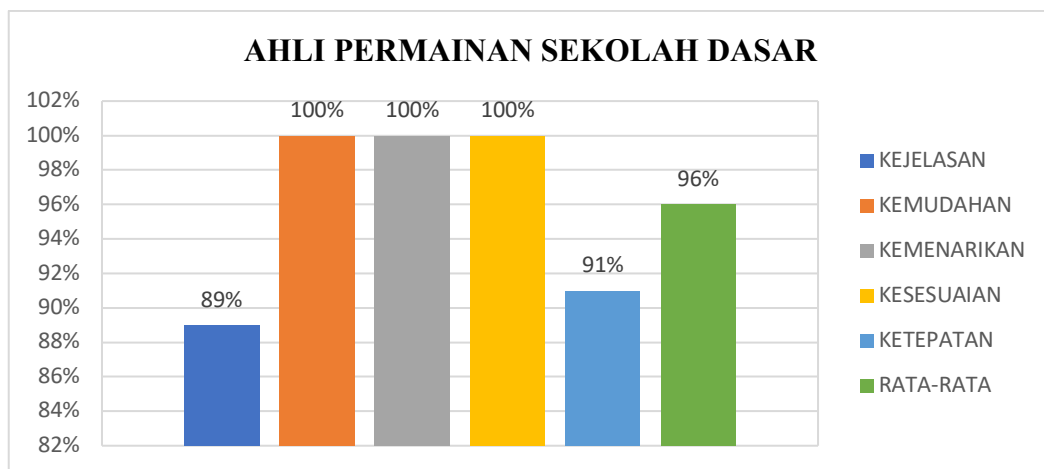
The diagram above states that the percentage obtained when carrying out the learning expert validation test obtained a result of 95%, then the results were modified into a table which will later refer to the criteria and assessment of the feasibility of floor exercise learning

devices that have been developed and can be used.

Data analysis obtained from the assessment of elementary school game experts refers to the perspective of convenience, accuracy, clarity, suitability, and attractiveness as presented in the following table:

**Table 5 Assessment of Data Analysis by Elementary Game Experts**

No	Aspect	%	Category
1	Clarity	89	Very Valid
2	convenience	100	Very Valid
3	attractiveness	100	Very Valid
4	compatibility	100	Very Valid
5	Accuracy	91	Very Valid
Average		96	Very Valid



**Figure 2. Percentage Diagram of Elementary Game Expert Results for Articulate Storyline Application-Based Floor Gymnastics Learning Device Development Products**

The diagram above states that the percentage obtained when conducting an SD game expert validation test obtained a result of 96%, then the results were modified into a table which would later refer to the criteria and assessment of the feasibility of floor exercise learning

devices that have been developed and can be used.

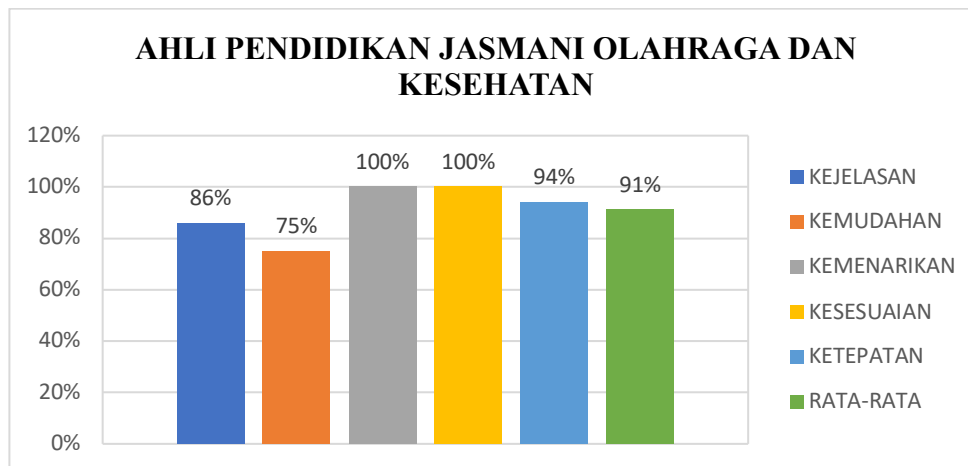
Data analysis obtained from the assessment of PJOK experts refers to the perspective of convenience, accuracy, clarity, suitability, and attractiveness which is presented in the following table:

**Table 6 Assessment of Data Analysis by PJOK Experts**

No	Aspect	%	Category
1	Clarity	86	Very Valid
2	convenience	75	Valid Enough



3	attractiveness	100	Very Valid
4	suitability	100	Very Valid
5	Accuracy	94	Very Valid
Average		91	Very Valid



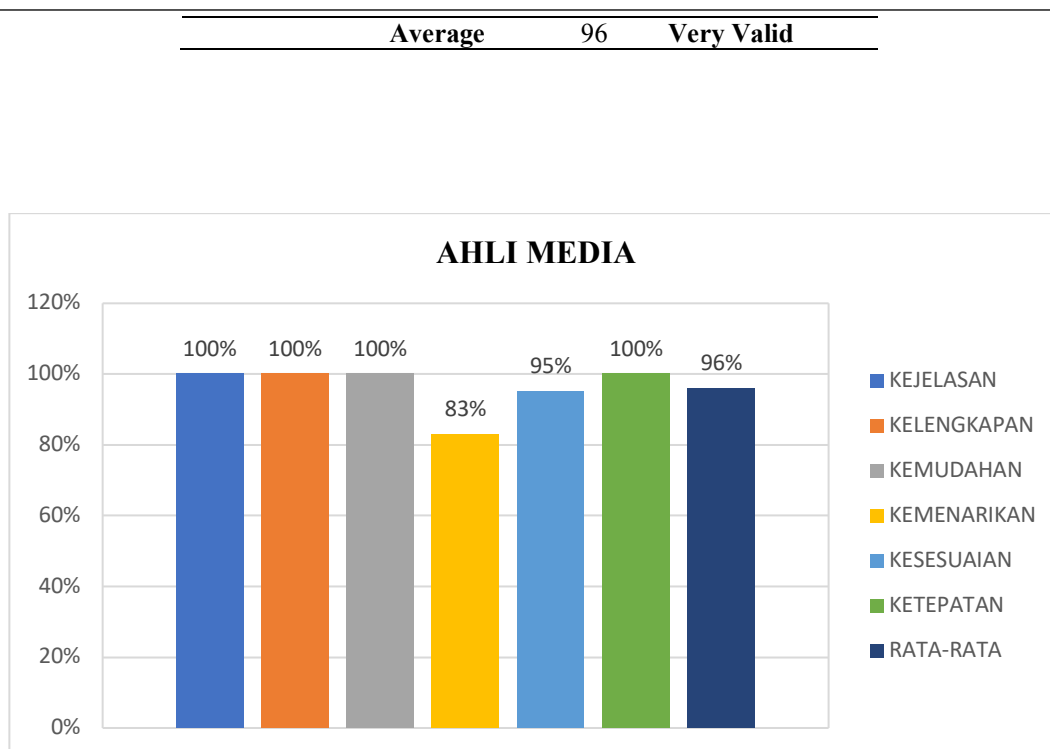
**Figure 3. Percentage Diagram of PJOK Expert Results for Product Development of Articulate Storyline Application-Based Floor Gymnastics Learning Devices**

The diagram above states that the percentage obtained when carrying out the PJOK expert validation test obtained 91% results, then the results were modified into a table which will later refer to the criteria and assessment of the feasibility of floor exercise learning devices that have been developed and can be used.

The data analysis obtained from the assessment of media experts refers to the viewpoints of convenience, accuracy, completeness, clarity, suitability, and attractiveness as presented in the following table:

**Table 7 Assessment of Data Analysis by Media Experts**

No	Aspect	%	category
1	convenience	100	Very Valid
2	Completeness	100	Very Valid
3	Clarity	100	Very Valid
4	Accuracy	83	Very Valid
5	attractiveness	95	Very Valid
6	suitability	100	Very Valid



**Figure 4. Percentage Diagram of the Results of Media Experts for Product Development of Articulate Storyline Application-Based Floor Gymnastics Learning Devices**

Based on the results of data analysis from the media expert validation test, the percentage obtained in the diagram above states that the percentage obtained when carrying out the media expert validation test obtained 96% results, then the results were modified into a table which will later refer to the criteria and assessment of the feasibility of floor

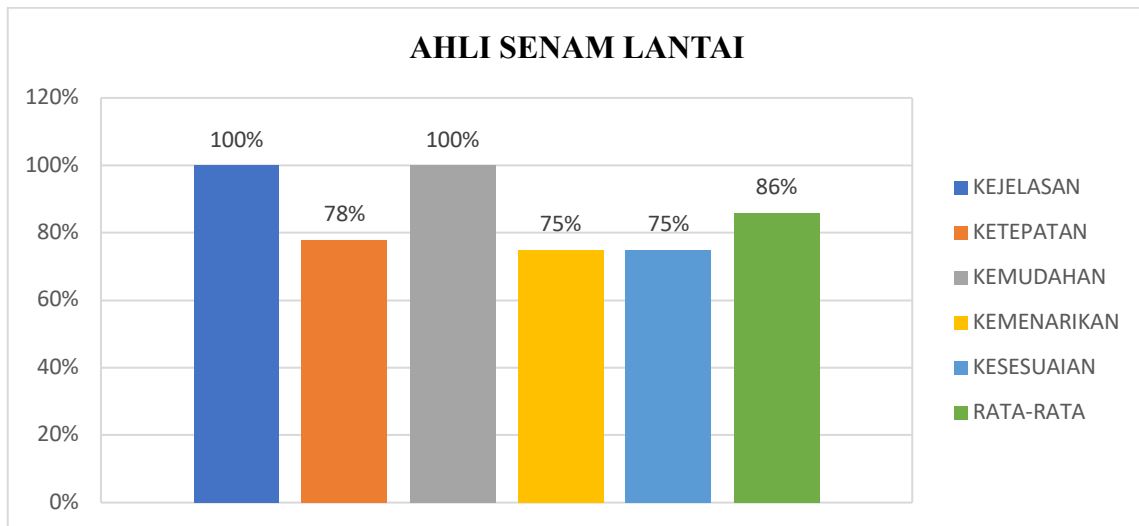
exercise learning devices. has been developed and can be used.

The analytical data obtained from the assessment of floor gymnastic experts refers to the point of view of convenience, accuracy, clarity, suitability, and attractiveness which is presented in the following table:

**Table 8 Assessment of Data Analysis by Floor Gymnastics Experts**

No	Aspect	%	Category
1	attractiveness	100	Very Valid
2	suitability	78	Very Valid
3	Clarity	100	Very Valid
4	Accuracy	75	Valid Enough

5	convenience	75	Valid Enough
	Average	86	Very Valid



**Figure 5. Percentage Diagram of Floor Gymnastics Expert Results for Articulate Storyline Application-Based Floor Gymnastics Learning Device Development Products**

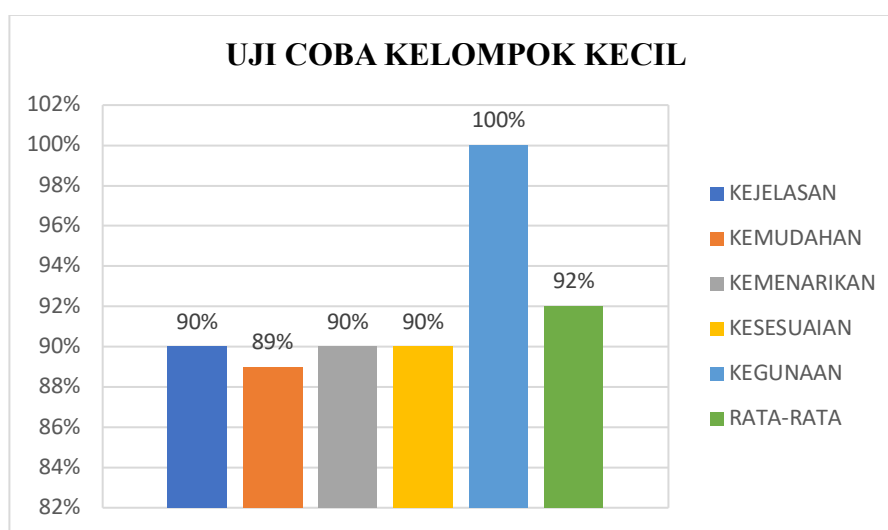
The diagram above states that the percentage obtained when carrying out the floor exercise expert validation test obtained 86% results, then the results were modified into a table which would later refer to the criteria and assessment of the feasibility of floor exercise learning

devices that have been developed and can be used.

The data analysis obtained from the small group test refers to the point of view of convenience, usability, clarity, suitability, and attractiveness as presented in the following table:

**Table 9 Assessment of Small Group Trial Analysis of KKG PJOK SD**

No	Aspect	%	Category
1	Utility	90	Very Valid
2	suitability	89	Very Valid
3	Clarity	90	Very Valid
4	convenience	90	Very Valid
5	attractiveness	100	Very Valid
	Average	92	Very Valid



**Figure 6. Percentage diagram of the results of the small group trial analysis of KKG PJOK SD**

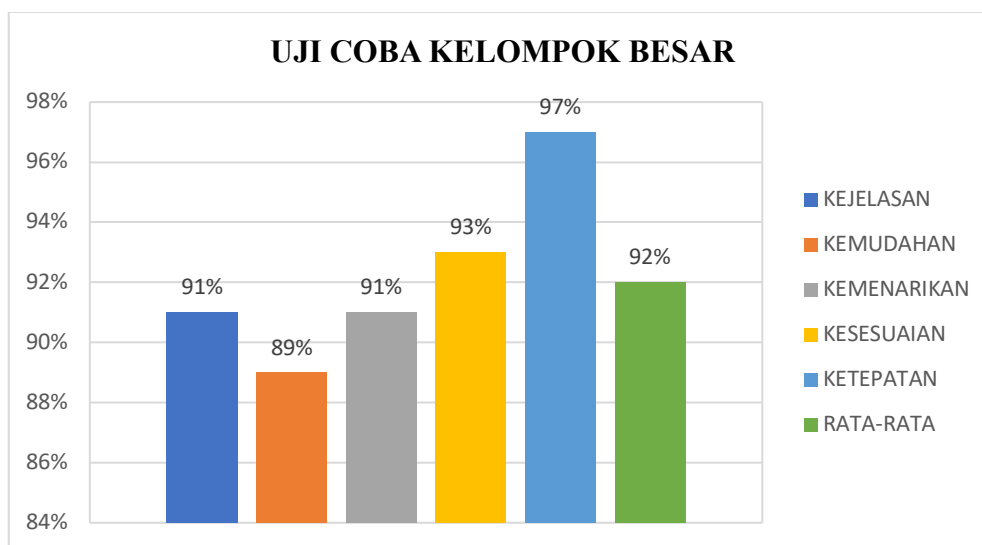
The diagram above states that the percentage obtained when conducting small group trials on PJOK SD teachers in Trowulan District, Mojokerto Regency obtained a result of 92%, then the results were modified into a table which will later refer to the criteria and assessment of the feasibility of floor exercise learning

devices that have been developed and usable.

Data analysis obtained from the large group test refers to the point of view of convenience, usability, clarity, suitability, and attractiveness as presented in the following table:

**Table 10 Assessment Analysis of the Large Group Trial of KKG PJOK SD**

No	Aspect	%	category
1	convenience	91	Very Valid
2	Clarity	89	Very Valid
3	Utility	91	Very Valid
4	suitability	93	Very Valid
5	attractiveness	97	Very Valid
Average		92	Very Valid



**Figure 7. Percentage diagram of the results of the small group trial analysis of KKG PJOK SD**

The diagram above states that the percentage obtained when conducting large group trials on PJOK SD teachers in Trowulan District, Mojokerto Regency obtained a result of 92%, then the results were modified into a table which will later refer to the criteria and assessment of the feasibility of floor exercise learning devices that have been developed and usable.

The development carried out is a floor exercise learning device product based on an articulate storyline application to be combined into several parts such as: text, video, sound, graphics. Floor gymnastics material learning device in the form of an articulate storyline application development product. This articulate

storyline application refers to class IV floor gymnastics lessons which are put together in learning material videos. According to Sapitri, & Bentri, (2020), argued that Articulate Storyline is one of the tools that can be used to compile a material by presenting it. Articulate Storyline itself is a device that is in the same position as Microsoft PowerPoint, the advantages of this articulate storyline are more interesting and creative. There are various features that this software has, including movies, pictures, timelines, characters, and many others that are simpler to implement. Articulate Storyline is part of the media authoring tools so that it can be used in making a product, especially for teaching

tools that have been combined into one containing images, videos, text, sound, drafts, and learning animations. The above statement is in accordance with Darnawati, et al, (2019), explaining that an articulate storyline is part of the software created in 2014, the capabilities of this application can combine slides, videos, flash (swf), there are also character animations to be used as a learning media, the benefits of this articulate storyline application can involve students being seen as active when learning takes place. This articulate storyline application can have a good influence on students and educators when delivering learning material in class.

The application-based floor exercise learning device development product will be used as an application form on an Android smartphone that can be accessed by everyone, of course it also makes people curious to try it, this application can be used everywhere. The above is in accordance with Ekayani's statement, (2017), explaining that the existence of learning media can be used as a tool to encourage one's attention and also one's ability to become more motivated in the teaching and learning process takes place, so that learning can be carried out properly and efficiently. Therefore educators realize that with the development of creative and innovative learning media, the teaching and

learning process will be more mastered by students, especially if the material is perceived as very difficult or complex, as well as educators who find it easier to deliver the material. Meanwhile, according to Rachmadtullah, & Sumantri, (2018), explaining that with the development of computer-based media it will be simpler for educators to present material to be learned and can also make it easier for students to receive the material being taught. Therefore it is very necessary to develop innovative and creative learning media so that students can understand the skills that have been given by the teacher. The above is in line with Leow, & Neo, (2014), suggesting that when carrying out a creative learning process, including being able to use learning media content, you can include students, but students are not aware of it so that it can increase the enthusiasm of students and students can be motivated, this has a very good effect on the results of the learning process taking place, especially for students. So the existence of this product can have a good influence on the teaching and learning process in class, especially in PJOK learning. The final form of product development for the articulate storyline application is put together in an application which will later make it easier for everyone to access it both online and offline, because this application can be used via smartphones and laptops and is easy to

carry anywhere. Furthermore, in this articulate storyline application there are various choices of learning implementation plans including KI, KD, floor gymnastics learning materials, floor gymnastics learning videos, assessment, evaluation, and for the last one there is the author's or researcher's biodata which is put together into a product.

The product developed is not just an articulate storyline application, because it refers more to grade 4 floor exercise learning material which is combined into a video display of floor exercise learning material. The product that has been developed will be used as a learning medium when providing floor gymnastics learning material in class to students before putting it into practice, this product can be used as a substitute for infrastructure when the school does not have sufficient infrastructure, therefore with this development product educators are still can channel learning information well. With examples of floor exercise practice images, it can help PJOK teachers when providing floor exercise lessons which have been integrated into an application which contains various kinds of floor exercise movements, including rolling, jumping, spinning, and leaning or what is better known as with floor exercises. This is in line with Mulhim's statement, (2014), floor

gymnastics is an effort to improve physical fitness and exercise can increase dexterity which is done without using tools. Floor gymnastics is part of the material provided at school, especially during the PJOK learning process in elementary schools. This floor exercise material is given in the form of a grid of questions and practice, when learning is in progress, students are expected to be able to understand the basic floor exercise arrangement that has been given by the teacher in each semester and grade level. Basically floor gymnastics is carried out using a mat as a tool for students to protect against injury when practicing it, because floor gymnastics is related to the floor surface.

According to learning experts when testing validations got 95% results, Elementary School game experts when testing validations got 96% results, PJOK experts when testing validations got 91% results, media experts when testing validations got 96% results, floor gymnastics experts when testing validations got results of 86%, small group test when testing validation gets 92% results, large group test when testing validation gets 92% results, so it can be interpreted with the results that have been determined by experts when conducting large and small group trials for learning products in the form of the articulate

storyline application has met good results for its validity and can be used. It is hoped that when learning floor gymnastics takes place educators are able to use current technology and can also add learning media in accordance with the times, so that it can encourage students' attractiveness when learning at school by adding knowledge to educators during the teaching and learning process of physical education sports and health subjects. The above is the same as the statement of Rahman, et al, (2020), stated that from the research that has been done it shows that learning development products about physical fitness in the speed aspect based on interactive multimedia at SMAN 1 in the Turen sub-district can be used due to the development of products in the form of In this interactive multimedia, students look more enthusiastic and active when participating in the learning process, especially on physical fitness material on the speed aspect, because this product contains audio-visual, and many others that are easy to use. With the development of this interactive multimedia product, it can be used as a teacher's reference for learning resources in PJOK subjects. Meanwhile, according to Manulu, et al, (2020), said from the results of research that has been done that with something being developed such as interactive multimedia in the form of Autoplay Media

Studio it can improve strength training abilities, it can also be done by increasing physical strength when doing weight training for students the Sports Coaching Education major is a specialist in basic physical conditions, because it is very suitable for similarities, accuracy, convenience, and attractiveness to understand, learn, and practice.

#### **D. Conclusion**

The results of research and development of learning products for floor gymnastics material based on the articulate storyline application can be concluded as a product that has been developed in the form of developing floor exercise learning tools based on the articulate storyline application which is very suitable for use for class IV floor gymnastics material and can be a reference as a support for activities learning to teach class IV PJOK materials for floor gymnastics learning materials.

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#### **F. Conflict of Interest**

No Conflict of interest

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