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the Level of Suitability of Physics Material in the Physics Edupark E-Book of Sarasah Kajai Waterfall in Review of the 2013 Curriculum and the Independent Curriculum

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ABSTRACT

E-books are textbooks in electronic form containing text, figures and videos created and distributed via computers or cell phones. Yunita (2022) has developed an inserted high school physics edupark E-book of Sarasah Kajai Waterfall Destination and a approach by scientific to the revolution of industrial at 4.0 by utilizing the waterfall as an edupark or educational park. The developed e-book still uses the curriculum of 2013. The curriculum of 2013 prioritizes learning with a scientific approach while the independent curriculum optimizes content with means students have many opportunities to learn concepts and strengthen competency skills. The research purpose was to reveal the suitability level of the material in the physics edupark E-book of Sarasah Kajai Waterfall in terms of the 2013 curriculum and the independent curriculum. The type of research used is research of descriptive and approach by qualitative. The population in this research includes all Physics Edupark E-books and Independent Curriculum SMA/MA Physics Books used by SMA/MA in West Sumatra. The research samples were the Physics Edupark E-book Sarasah Kajai Waterfall and the Physics Book for SMA/MA class X and XI in 2022 Independent Curriculum published by Erlangga with the author Ni Ketut Lasmi. Material suitability data uses research analysis instruments and techniques for data collection are conducted by documentation studiesThe level of suitability of material physics is measured based on three dimensions of knowledge (factual, conceptual and procedural). The finding shown that the level of suitability of the material in the Sarasah Kajai waterfall physics edupark e-book was 80% categorized as appropriate. Thus, the conclusion that the Sarasah Kajai Waterfall Physics Edupark E-book is in accordance with the Independent Curriculum SMA/MA Physics Book.

Keywords : Suitability Level; E-book; Edupark; Sarasah Waterfall; Independent Curriculum.

I. INTRODUCTION

Education is a planned process to develop the potential within a person. A person's education can be said to be good if it can increase a person's potential and help all learners obtain the necessary tools to achieve their goals. According to law number 20 of 2003 national education purposes, states that education is an effort made and intended to foster a learning environment and a dynamic process in learning so that students can develop the potential that exists in themselves to possess the abilities required by themselves, society, country, and state, as well as the religious and spiritual ideals, self-development, noble character, and individuality [1]. Education will develop if there is a relationship between humans and their environment. to achieve national education, the government needs to make various developments in the education system.

Improving the curriculum is the government's effort in developing the system in national education. The curriculum known as a very important tool for the success of education, the goals and objectives of education will be difficult to achieve if the curriculum used is not appropriate and appropriate [2]. The curriculum in Indonesia has undergone several changes and updates to adapt to technological developments and the times, this is the goal of achieving optimal results. One of them is the change from the curriculum of 2013 to being independent curriculum. According to the Ministry of Education and Culture (2022) Indonesia is experiencing a very long learning crisis. This can be seen from the number of children who are constrained in understanding

basic reading or applying basic math concepts. The covid-19 pandemic worsened this situation because it disrupted the national education system, causing learning loss [3]. To overcome these problems and difficulties, systemic change is needed, and curriculum is one example. The curriculum can influence the speed at which teachers teach to meet learners' needs. Thus, education units have the ability to adjust the curriculum to meet learners' learning needs. Therefore, the government chose the independent curriculum as the best option for education.

The independent curriculum is one that has a diverse and more content-focused intracurricular learning process so that learners have plenty of time to learn concepts and strengthen their skills [3]. The aim of aplication an curriculum independently is to restore learning and change the education system for the better. This curriculum gives teachers the freedom to understand the potential of learners and create more relevant learning. This curriculum not only gives freedom to teachers but also gives freedom to learners to be active in the process of learning. This curriculum also helps learners develop their potential so that it fits the profile of Pancasila [4]. Problem solving skills of students are trained to face future challenges, the samples of which is in physics learning.

In science, physics is the field that studies the interaction between energy and matter. Physics learning is the process of gaining an understanding of the basic concepts of physical science and how they can be applied in various situations [5]. Physics learning is one of the processes of building potential knowledge and studying it in various natural phenomena that exist in the universe and understanding the concepts of science with various learning activities. Physics learning needed to investigate natural events that require critical thinking to understand the basic ideas of physics [6]. Physics learning requires a lot of learning resources in order to understand well, teaching materials are one of them.

Among the teaching materials developed are digital books (e-books). E-books are electronic books has text, figures or both, and create or distribute via computer or cell phone [7]. The government through the Ministry of Education and Culture offers an e-book solution to fix the high cost of existing textbooks and reduce the cutting of forests for paper [8]. The advantages of e-books include interactive content, affordable prices, easy to carry and easy to store. The development of the internet network makes e-books easy to access and open at any time. Currently, many e-books have been developed. One of them is the edupark e-book of physics.

Physics edupark is a learning park, both artificial and natural, that allows students and educators to discover facts, learn concepts, formulate physics principles [9]. The government from the Education and Culture Ministry offers an e-book solution to fix the existing textbooks high cost and reduce the cutting of forests to make paper raw materials [10]. The advantages of e-books include interactive content, affordable prices, easy to carry and easy to store. The development of the internet network makes e-books easy to access and open at any time. Currently, many e-books have been developed. One of them is the physics edupark e-book.

Permendiknas No. 22 aims to maximize regional brand with the environment of surrounding, including tourist attractions, as a resource of learning [11]. Currently, many results have been produced from the development of physics edupark-based materials of teaching, namely the development of high school edupark e-book of physics class X through a approach by scientific inserted the potential of the Bukik Chinangkiek tourist park area [12], the development edupark e-books of physics with an approach by cientific according on Rumah Gadang destinations [13], the development of physics edupark e-books based on Padang Beach destinations [14], and the high school edupark e-books of physics development integrated with Sarasah Kajai Waterfall Destination and a scientific approach to the industrial revolution 4.0 [15]. development of physics edupark textbook mifan waterpark Padang Panjang [16]. physics e-book design based on the South Solok Hot Waterboom edupark using Flip Pdf Professional for SMA / MA students [17].

It is expected that e-books created using eduparks will help learners connect what they know with the real world. The high school physics edupark e-book inserted with Destination of Sarasah Kajai Waterfall and the approach by scientific to the industrial revolution 4.0 has just been developed. However, the physics edupark e-book uses the 2013 curriculum while now it has implemented an independent curriculum.

To determine whether the edupark e-book of physics that has been developed is in accordance with the independent curriculum. Thus, this problem can be solved by analyzing the conformity level of the material in the edupark e-book of physics from Sarasah Kajai Waterfall with the Merdeka Curriculum. the aims of is to reveal the conformity level of physics material in the edupark e-book of physics from Sarasah Kajai Waterfall with the Merdeka Curriculum.

II. METHOD

This research type included in descriptive through an approach by qualitative. Descriptive research aims to describe natural phenomena that present various physics concepts. This research describes the conformity level of the material contained in the physics edupark e-book of Sarasah Kajai waterfall that has been made using the 2013 curriculum with the independent SMA/MA physics book curriculum.

The research population were all Edupark Physics E-books and Physics Books for SMA/MA Independent Curriculum used by SMA/MA in West Sumatra. The sample known as part of the characteristics of the population [18]. The samples in this study were the Physics Edupark E-book of Sarasah Kajai Waterfall and the Book of Physics for SMA/MA class X and XI in 2022 Independent Curriculum published by Erlangga with the author Ni Ketut Lasmi.

The instrument data used is an analysis page for the conformity level of physics material in the edupark e-book of physics from Sarasah Kajai Waterfall with the Physics Book of SMA/MA Independent Curriculum. The instrument has a value of 1 to 5 with the highest value of 5 and the lowest value of 1. The suitability level of the physics subject is assessed from three dimensions of knowledge, namely the suitability of physics material with factual, conceptual and procedural knowledge [19]. As for physics material, there are four physics materials in the Sarasah Kajai Waterfall Physics Edupark E-book that will be analyzed for the level of conformity with the Independent Curriculum SMA/MA Physics Book, namely effort and energy, static fluid, dynamic fluid, and energy sources.

The instrument was then validated by three validators using an instrument validation sheet. The components of the instrument assessment are that the instrument has clear instructions, the instrument's accuracy in relation to the data it is measuring, the suitability of its items, and the language it uses. The assessment is in the shape of a checklist or check-list with a range of 1 to 4. Aiken's formulated the Aiken's V formula with the coefficient of Aiken's V value ranging from 0-1. The overall validation value can be found with the formula of Aiken's V, namely:

$$V = \frac{\Sigma s}{[n(c-1)]}$$

Description:

s = r - I_0
I_0 = Lowest assessment score
c = Highest rating score
r = The score given by the validator

The validation value will be categorized based on Table 1. to see the level of analysis instrument validity of the edupark e-book of physics from Sarasah Kajai Waterfall with the physics book of SMA/MA independent curriculum.

Table 1. Categories of Level of Validity of Instruments

Interval	Criteria
$\geq 0{,}6$	Valid
$< 0{,}6$	Invalid

[20]

Documentation study is a data collection technique used to gather information from various sources. Data or documents required for the research problem are collected and then thoroughly reviewed. The documents are the Physics Edupark E-book of Sarasah Kajai Waterfall and Physics Book of SMA/MA class X and XI published by Erlangga with the author Ni Ketut Lasmi.

The research data analysis technique uses techniques for content analysis, known as analyzing the content of written data. The equation used to analyze the data is:

$$p = \frac{\sum q}{\sum r} \times 100\%$$

Description:

P = Percentage of material suitability indicators
Σq = Number of assessment scores on indicator items
Σr = Total number of indicator items

Then reveal the suitability level of the material seen in Table 2.

Table 2. Criteria for the level of suitability of material in the Sarasah Kajai Waterfall Physics Edupark E-book and SMA/MA physics books.

Percentage criteria	Category
81 – 100	Very suitable
61- 80	Suitable
41 – 60	Moderately suitable
21 – 40	Less suitable
0 – 20	Not suitable

[21]

The result of the research is the conformity level of Physics subject in the Sarasah Kajai waterfall edupark e-book of physics with the book of physics for SMA/MA independent curriculum. To look the conformity level of the subject in the Sarasah Kajai waterfall physics edupark e-book, namely by analyzing the subject suitability in the e-book through the subject in the physics book SMA /MA Independent Curriculum. There are four materials in the Sarasah Kajai waterfall physics edupark e-book that will be analyzed, namely effort and energy, static fluid, dynamic fluid and energy sources.

III. RESULTS AND DISCUSSION

According on the research, the results obtained are the level of conformity of physics material in the Sarasah Kajai waterfall physics edupark e-book with the Merdeka Curriculum SMA/MA physics book. The analysis data is presented in the shape of an analysis of the suitability of physics subject in the Sarasah Kajai waterfall physics edupark e-book with the Merdeka Curriculum SMA/MA physics book.

Analysis of the physics subject suitability in the Sarasah Kajai waterfall edupark e-book with the physics book of SMA/MA Merdeka Curriculum is assessed from three dimensions of knowledge, known as the physics subject suitability with factual knowledge, the suitability of physics material with conceptual knowledge, and the physics subject suitability with procedural knowledge. To see the subject suitability in a material can be reviewed from various aspects of certain knowledge, this knowledge is three dimensions of knowledge, as factual, conceptual and procedural known [22]. Factual knowledge is explained and described about knowledge in the form of facts that occur. Conceptual knowledge is described knowing the forms of knowledge that are organized and complete. While Procedural knowledge explains knowledge about procedures in doing something.

Factual knowledge is grouped into two knowledge, namely terminology and specific elements. For conceptual knowledge, it is grouped into three knowledge specifically, theories, models, and structures; classifications and categories; and principles and generalizations. Subject-specific abilities and algorithms, subject-specific techniques and methods, and criteria for deciding when to employ the appropriate procedure are the three categories of knowledge that make up procedural knowledge [19].

The analysis results using the calculation of the percentage value of the suitability of physics subject in the Sarasah Kajai waterfall edupark e-book of physics with the physics book for SMA/MA Independent Curriculum shown in Table 3.

Table 3. Percentage value of the suitability of physics subject in the physics edupark e-book of Sarasah Kajai waterfall with the physics book of SMA/MA Independent Curriculum.

No.	Assessment Elements	Percentage Suitability Score (%)			
		Work and Energy	Static Fluid	Dynamic Fluid	Energy Source
1.	Factual knowledge	100	100	100	100
2.	Conceptual knowledge	100	100	100	80
3.	Procedural knowledge	40	60	60	20
Average		80,00	86,67	86,67	66,67
Overall average			**80**		

Based on Table 3. obtained information that the conformity percentage of physics subject in the Sarasah Kajai waterfall edupark e-book of physics with the physics book for SMA/MA Merdeka Curriculum gets a percentage of 80% with the category in appropriate, meaning that the physics material in the Sarasah Kajai waterfall edupark e-book is in related with the subject in the physics book for SMA/MA Merdeka Curriculum. The suitability of the material is said to be appropriate if it meets the criteria from the measured knowledge

aspects, namely factual, conceptual and procedural known, the percentage of subject suitability is given a value range of 61-80% for the appropriate category and 81-100% for the very appropriate category. [22].

1. Work and Energy

The analysis results of the suitability of physics subject on effort and energy material in the Sarasah Kajai waterfall edupark e-book with the book of physics for SMA/MA Merdeka Curriculum have a percentage of suitability of 80.00%, so that the effort and energy material in the Sarasah Kajai waterfall edupark e-book of physics is categorized according to the material in the book of physics for SMA/MA Merdeka Curriculum. The analysis of results from subject suitability for each knowledge on effort and energy material shown in Figure 1.

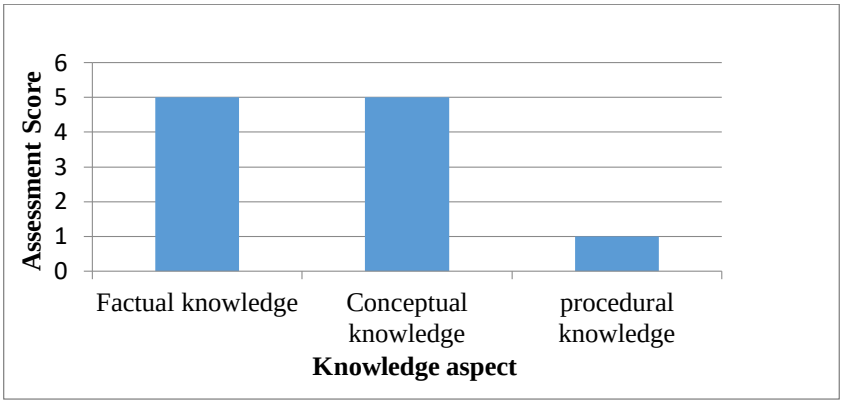

Figure 1. The analysis results of the effort and energy subject suitability in the physics edupark e-book of Sarasah Kajai waterfall with the physics book of SMA / MA independent curriculum.

Based on Figure 1. obtained information that factual and conceptual knowledge on the material of effort and energy in the physics edupark e-book of Sarasah Kajai waterfall gets a score of 5, categorized as very suitable with the material of effort and energy in the physics book SMA/MA independent curriculum. As for the realm of procedural knowledge, getting a value of 2 with a less category in appropriate because there is only 1 procedural knowledge on indicators about skills in certain fields and about certain techniques and methods. Meanwhile, there is no procedural knowledge about the criteria for when to use the right procedure in the Sarasah Kajai Waterfall Physics edupark e-book. Appropriate factual knowledge is knowledge that is directly related to actual facts or events that are thoroughly explained and in accordance with the indicators assessed, namely terminology and specific elements [23].

2. Static fluid

The analysis results of physics subject suitability on static fluid material in the Sarasah Kajai waterfall edupark e-book with the Merdeka Curriculum SMA/MA physics book have a percentage of 86.67% suitability, so that static fluid material in the Sarasah Kajai waterfall physics edupark e-book is categorized as very suitable for material in the Merdeka Curriculum SMA/MA physics book. he analysis results of physics subject suitability suitability for each knowledge on static fluid material can be seen in Figure 2.

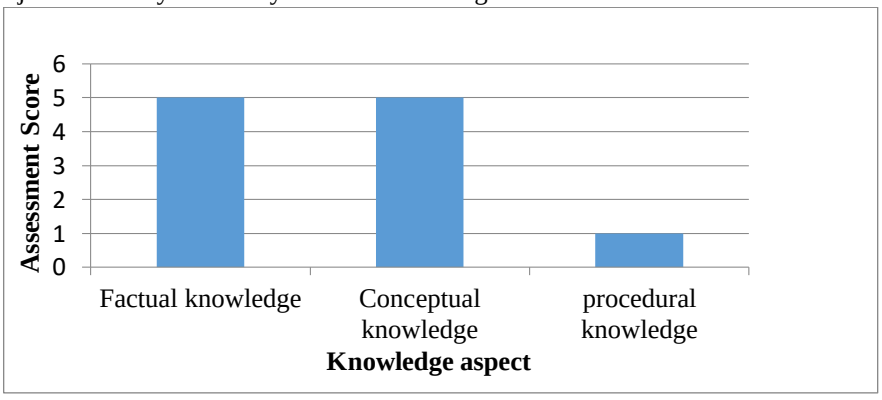

Figure 2. The he analysis results of physics subject suitability of static fluid material in the physics edupark e-book of Sarasah Kajai waterfall with the independent high school physics book curriculum.

In Figure 2. above, it is obtained information that factual knowledge and conceptual knowledge on static fluid material in the physics edupark e-book of Sarasah Kajai waterfall gets a score of 5, categorized as very suitable for static fluid material in the physics book for SMA/MA independent curriculum. As for the realm of procedural known, getting a value of 3 with a category that is quite in accordance with static fluid material in the physics book for SMA/MA independent curriculum, because there is only 1 knowledge in each indicator of procedural knowledge on static fluid material in the Sarasah Kajai Waterfall Physics Edupark E-book which is in related with the Physics Book for SMA/MA Independent Curriculum. Analysis of the suitability level of physics subject with tsunami based on three aspects of knowledge found that many physics materials are suitable for integration with tsunami material because they meet the three aspects of knowledge measured so that tsunami material is in related with high school physics subject [23]. On static fluid material in the Physics Edupark E-book of Sarasah Kajai Waterfall is categorized as in accordance with the Physics Book of SMA/MA Independent Curriculum because almost all dimensions of knowledge measured in the Edupark E-book of Physics are appropriate and the material is also fully explained in related with the subject in the physics book of SMA/MA independent curriculum.

3. Dynamic fluid

The analysis results of physics subject suitability on dynamic fluid material in the Sarasah Kajai waterfall edupark e-book with the Merdeka Curriculum SMA/MA physics book have a percentage of 86.67% suitability, so that dynamic fluid material in the Sarasah Kajai waterfall physics edupark e-book is categorized as very suitable for physics material in the Merdeka Curriculum SMA/ MA physics book. The analysis results of physics subject suitability for each knowledge on dynamic fluid subject shown in Figure 3.

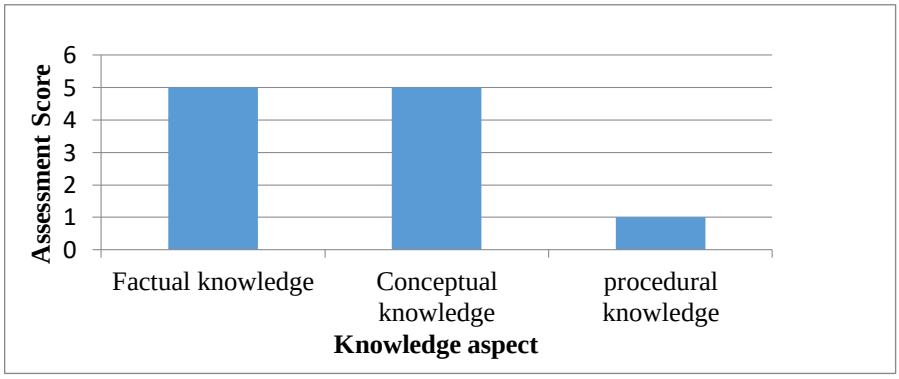

Figure 3. The analysis results of physics subject suitability of dynamic fluid subject in the physics edupark e-book of Sarasah Kajai waterfall with the independent high school physics book curriculum.

Based on Figure 3. obtained the results that factual knowledge and conceptual knowledge on dynamic fluid material in the Sarasah Kajai waterfall physics edupark e-book get a score of 5, categorized as very suitable for dynamic fluid material in the physics book SMA/MA independent curriculum. As for procedural known, getting a value of 3 with a fairly appropriate category because there is just 1 procedural knowledge in each indicator of procedural knowledge in dynamic fluid material in the Sarasah Kajai Waterfall Physics Edupark E-book. Procedural knowledge is knowledge that explains the procedure for doing something, investigation way, and criteria for using skills, algorithms, techniques, and methods [24].

4. Energy source

The analysis results of physics subject suitability on energy source material in the Sarasah Kajai waterfall edupark e-book with the Merdeka Curriculum SMA/MA physics book have a percentage of 66.67% suitability, so that the energy source material in the Sarasah Kajai waterfall physics edupark e-book is categorized in accordance with the material in the Merdeka Curriculum SMA/MA physics book. The analysis results of physics subject suitability for each knowledge on energy source material shown in Figure 4.

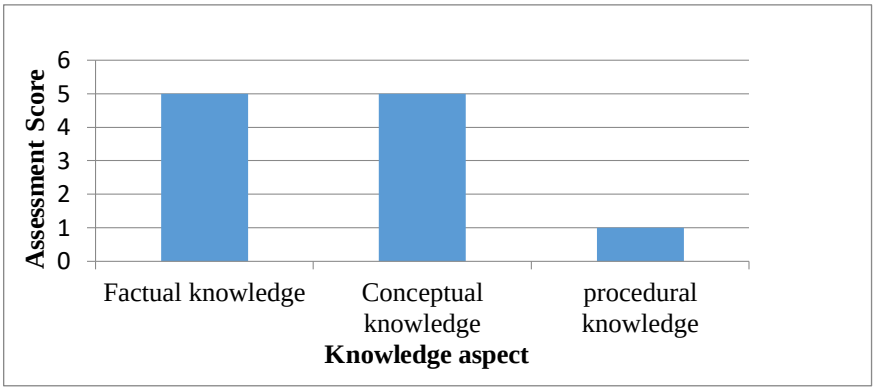

Figure 4. The analysis results of physics subject suitability of energy source subject in the Sarasah Kajai waterfall physics edupark e-book with the independent high school / MA physics book curriculum.

Based on Figure 4. The results obtained that factual knowledge and conceptual knowledge on energy source material in the Sarasah Kajai waterfall physics edupark e-book get a score of 5, with a category that is very suitable for energy source material in the physics book SMA/MA independent curriculum. As for procedural known, get a value of 1 with a category not suitable because there is no procedural knowledge on energy source material in the Sarasah Kajai Waterfall Physics Edupark E-book. Energy sources are anything that can produce energy to be used for various purposes, such as to drive a machine, heat a house, or provide electricity. Sarasah Kajai waterfall has many applications of factual and conceptual knowledge, one of which is a waterfall used for hydropower that can produce electrical energy [25]. So that the material in the Sarasah Kajai waterfall physics edupark e-book based on factual and conceptual knowledge is categorized as very suitable but on procedural knowledge it is not suitable because there are no certain procedures described in the material that are in related with SMA / MA physics books.

After describing the score from analysis of the physics subject suitability in each aspect of knowledge, namely factual known, conceptual and procedural with the highest value of 5 and the lowest value is 1. Then the criteria for the suitability level of each physics subject in the edupark e-book of level from Sarasah Kajai waterfall with the physics book of SMA/MA independent curriculum are obtained. These results shown in Table 4.

Table 4. Percentage of conformity of physics subject in the edupark e-book of physics from Sarasah Kajai waterfall with the physics book of SMA/MA independent curriculum.

Physics Material	Percentage	Suitability Criteria
Work and energy	80,00%	Suitable
Static fluid	86,67%	Very suitable
Dynamic fluid	86,67%	Very suitable
Energy sources	66,67%	Appropriate

The analysis results of the physics subject suitability in the Sarasah Kajai waterfall edupark e-book of physics with the independent SMA/MA curriculum physics book based on the aspects of factual knowledge, conceptual and procedural obtained the results that the suitability level of subjet on effort and energy material is categorized as appropriate with a percentage of 80, 00%, the level of suitability of material on static fluid material is categorized as appropriate with a percentage of 86.67%, the suitability level of dynamic fluid subjecy is categorized as very suitable with a percentage of 86.67% and the suitability level of subject on energy source is categorized as appropriate with a percentage of 66.67%. High school physics subject is quite suitable to be inserted with subject on disasters such as earthquakes assessed from several aspects of knowledge, known as factual, conceptual and procedural. The range of values for the suitability level of the subject is 40-60% and is categorized as quite suitable for high school physics material [26].

According on the overall analysis results of physics material in the Sarasah Kajai waterfall physics edupark e-book, it is found that the suitability level of physics subject in the Sarasah Kajai waterfall physics edupark e-book is categorized in related with the book of physics in the independent SMA/MA curriculum with a percentage of 80%. Thus, the physics material in the Sarasah Kajai waterfall physics edupark e-book is in related with the book of physics of the independent curriculum SMA/MA.

IV. CONCLUSION

The suitability of physics materials is reviewed from three dimensions of knowledge, known as factual, conceptual and procedural. There are four materials analyzed, namely effort and energy, static fluid, dynamic fluid, and energy sources. The suitability level of physics subject on effort and energy is categorized as appropriate, the suitability level of physics subject on static fluid material is categorized as very appropriate, for the suitability level of physics subject on dynamic fluid material is categorized as very appropriate, and the level of suitability of physics subject on energy source material is categorized as appropriate. Thus, it can be concluded that the conformity level of physics subject in the physics edupark e-book of Sarasah Kajai waterfall with the physics book of SMA/MA independent curriculum is categorized as in accordance with the independent curriculum and can be used in physics learning.

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