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DEVELOPMENT OF GOOGLE SITES-BASED TEACHING MATERIALS FOR MATHEMATICS SUBJECTS WITH ADDIE MODEL

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ABSTRACT

The purpose of this development is to produce Google sites-Based Teaching Materials on Mathematics subjects in the form of E-Books. As a learning support medium, this E-Book is equipped with the Google Sites platform which is expected to improve the quality of the learning process where there is an increase in learning motivation in Mathematics subjects and will ultimately improve student learning outcomes. The development model used in the development of interactive learning multimedia is the ADDIE model. The ADDIE model stands for five stages of the development process, namely Analysis, Design, Develop, Implement, & Evaluate. The development process involves subject content experts, learning design experts and learning media experts to provide feedback and input on improvement. In addition, mathematics teachers. The result of this development research is that this Google sites-Based Teaching Material Product has a level of material feasibility, learning design feasibility, and learning media feasibility. Meanwhile, the level of small group trials and field trials with qualifications is very feasible and does not need to be revised.

KEYWORDS *Teaching Materials Based on Google sites, Mathematics, ADDIE Model*

INTRODUCTION

The role of schools in the 21st century is an important part of the education system and society. One of the components of schools that has a role as the spearhead of education, namely teachers. Teachers in the 21st century need to be prepared to improve the quality of their competence supported by technology, so that there is an improvement in the quality of education. This is because at the beginning of the 21st century there was a change in the industrial revolution to the industrial revolution 4.0. (Putu Agus Primandana et al., 2023; Rasdana et al., 2023; Saputra et al., 2023) explained that the rapid development of technology has an

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influence on education because there is a need for education to constantly improve the efficiency and effectiveness of learning and the management of the education system. In the 21st century, there are demands faced by teachers that are getting bigger and stronger, so there is no other solution except that educational institutions must prepare and provide human resources, namely reliable teachers.

In fact, even though there are very rapid changes, these changes still cannot be followed immediately. Technology and the internet have not been fully utilized. This can be seen from some teachers who are still not fluent in operating laptops or computers, as well as ordinary users of smartphones and the internet according to the results of observations in the research (Damayanti et al., 2023; Maulida Hafizh & Wicaksono Pribadi, 2023).

The solution needed to deal with these problems, teachers can take advantage of technology by using e-learning in learning. The concept of learning services that received a touch of information and communication technology was then known as web-based learning. In addition, it is stated that web-based learning is a learning process that uses the potential of a global network or the internet for easy access to learning (Rafiadzkay et al., 2023; Reskiyati et al., 2023).

Content creation (Lutfiah, 2023; Ratnadewati et al., 2023) It has a feature that can manage various learning materials, so that learning materials can be accessed from any time with devices connected to the internet. The content can be in the form of web pages, audio media, videos, images, interactive multimedia, files, and so on. In addition, web e-learning can be used as a Learning Management System (LMS). It was also conveyed that teaching materials placed in the Learning Management System program can be made with a web-based program to create a distance learning environment (Ulinuha & Parnawati, 2023; Umar & Yuyun, 2023). The web can be designed to create teaching materials. Teaching materials are a set of learning materials/tools used by teachers and are systematically arranged in teaching and learning activities. (Hidayat et al., 2023; Suryati et al., 2023) conveyed that teaching materials have components related to the elements that must exist, these components are learning instructions, competencies to be achieved, supporting information, exercises (student worksheets), worksheet instructions and evaluations.

The implementation of this research uses non-printed teaching materials as a realization of the use of technology in learning. The teaching materials in question are web-based teaching materials using one of the platforms, namely google sites.The google sites platform can be used to create or design web-based teaching materials which of course can make learning interesting and can be used by students through smartphones or other devices anytime and anywhere. This is in line with what was conveyed that with the development in the ICT field, this is an opportunity for the world of education, namely providing online teaching materials that can be accessed anywhere and anytime.

The development of the world paradigm about the educational process that is currently underway, namely education is faced with a number of increasingly difficult challenges, because it is hoped that human resources will be more focused on thinking and communication competencies known as 21st century competencies. With various developments in education, of course, Indonesia is also always

innovating by developing and realizing a curriculum that is appropriate and expected in the 21st century competencies.

The curriculum that is currently running in Indonesia is the Independent Learning Curriculum. The independent learning curriculum at the high school level carries out online learning, One of the subjects contained in the independent learning curriculum is mathematics at the VIII grade level. Of course, this subject consists of several lesson contents according to the meaning of the learning. The content of the lesson generally contains the main material presented, namely getting to know about mathematics subjects.

In this regard, there are obstacles found in providing an understanding of learning materials, namely introducing mathematics subjects that are not found in the environment around students. First of all, it is also necessary to understand that students at the high school level are still at the cognitive stage of concrete operations and need to learn things contextually, so that students can more easily accept the knowledge provided and learning becomes meaningful for them. This is in accordance with what Jean Piaget said that at the concrete operational stage, the way children learn is to group objects to find out their similarities and differences, to understand the causes of changes in objects and behaviors and to form estimates about these objects and events (Triani & Pratiwi, 2023; UTAMI, 2023). In addition, it was also conveyed that teachers are required to present learning materials contained in teaching materials according to the context of life around students (Isjoni et al., 2023; Suryana et al., 2023). Therefore, it is necessary to innovate the development of teaching materials with mathematics subjects. These teaching materials can certainly present images, sounds, and videos that can motivate students in various activities to use them. Currently, teachers must have the ability to produce quality teaching materials assisted by the use of technology in the form of Google sites to support the learning process. Furthermore, in fact, researchers have also found problems after observing teachers' skills and receiving information from teachers about the learning process and the achievement of student learning outcomes.

Many factors cause learning to be less interesting so that the expected learning outcomes have not been achieved, such as the need for teachers' experience in integrating information technology in the production of teaching materials, the use of teaching materials that are still and only focused on the use of teaching materials in the form of printed books and limited to providing learning videos that are separate from printed book teaching materials so that they display learning that is less systematic and interesting for students and student learning outcomes in learning are still low. Then, there has been no use of web-based teaching materials so far, even though there are computer laboratories in schools and at home each student is able to have a computer, laptop or other device personally and there is an internet connection that can support the learning process on the network. But in general, this does not only happen at SMPN 6 Bangkalan, but also still happens in several other schools.

Another research finding entitled Development of Web-Based Online Physics Module on Business and Energy Materials is found in SMA Negeri 2 Metro which sometimes uses online platforms and blogs because the school facilities are good

(Luluk Makrifatul Madhani & Mohamad Joko Susilo, 2023; Nur Alimah & Sumardi, 2023).

Currently, almost all activities are switching through virtual face-to-face in cyberspace, so learning activities need to be designed with technology and information that is applicable and fun and it is expected that students tend to be interested and show higher interest in learning. This is strengthened by empirical evidence from the results of the research entitled Development of Web-Based Foodstuffs Chemistry Teaching Materials, which is web-based foodstuffs chemistry teaching materials in the form of decent learning websites (Firmansyah et al., 2023; Muliana Pubian et al., 2023; Putra et al., 2023).

Based on this description, there is a solution that is able to harmonize theories, principles, and concepts with applications in life so that they can facilitate students in learning by developing Google sites-based teaching materials that are suitable for use as learning supplements. Therefore, it is necessary to conduct a research entitled "Development of Google sites-Based Teaching Materials in Mathematics Subject in Grade VIII Students at SMPN 6 Bangkalan".

RESEARCH METHODS

This research is a type of development research (research and development), aiming to develop a new product. According to (Suggestion, 2017) Research and development is a research method used to produce a certain product, as well as test the effectiveness of the product. This research is used to produce a certain product and test the feasibility, practicality, and effectiveness of a product, which aims to be able to produce learning media products, so as to use research that is needs analysis and use the effectiveness of the product so that it can be useful for Grade VIII students at SMPN 6 Bangkalan.

Research and development of Google sites-Based Teaching Materials in Grade VIII Mathematics at SMPN 6 Bangkalan is known through validation by material experts, validation by media experts, validation by teachers or peers and trial use by students. In the research and development of Google sites-Based Teaching Materials in this Mathematics subject, the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model is used. This model is arranged programmatically with systematic activities in an effort to solve learning problems related to learning media that are in accordance with the needs and characteristics of student learning. The ADDIE development model consists of five stages that include analysis (analysis)design (design)development (Development)implementation (implementation)Evaluation (evaluation) (Suggestion, 2017)

The research steps for the development of ADDIE in this study are presented in the following figure:

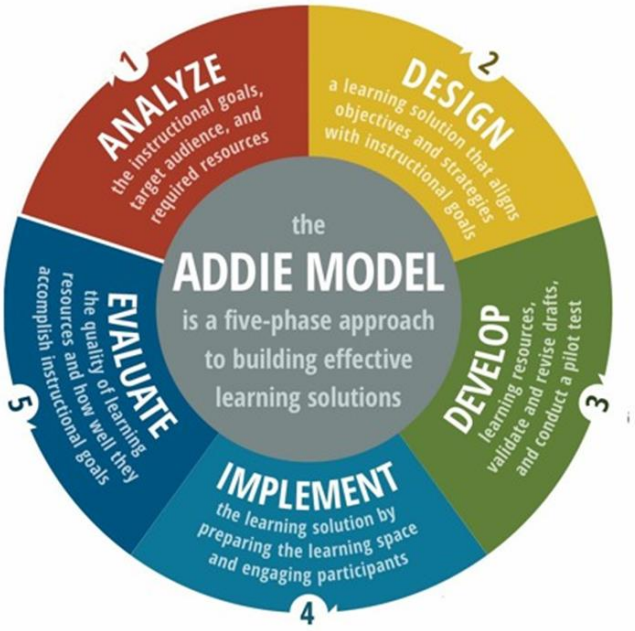

Figure 1 Steps of the ADDIE development model
(Suggestion, 2017)

The data that has been collected is analyzed using data analysis which is categorized as follows:

a. The data obtained from the Learning Design Expert was analyzed by descriptive analysis according to the results obtained directly from the source.
b. Data obtained from subject content experts, and from peer subject teachers are analyzed by descriptive analysis by presenting data obtained from questionnaires in the form of descriptions according to the results obtained directly from the source.
c. The data obtained from students is in the form of scale values that can be inferred. The data obtained from the respondents' answers were processed through scoring with certain criteria and analyzed using a percentage descriptive analysis technique because there was no hypothesis testing. Descriptive percentage is intended to be described according to the percentage of respondents to each question/answer to each aspect asked.

The percentage (quantitative) descriptive formula is as follows:

$$DP = \frac{n}{N} \text{x } 100\%$$

With: DP = Descriptive Percentage
n = score Empirical (score obtained)
N = ideal score

In this study, data analysis is used to determine the category or type of descriptive percentage obtained by each indicator in a variable, from the descriptive

calculation of the percentage can then be interpreted in the form of sentences. The classification of tier categories in percentage form is as follows:

Table 1. The classification of tier categories in percentage form

It	Range	Information
1	76% - 100%	Excellent
2	51 % - 75 %	Good
3	26 % - 50%	Not Good
4	0% - 25%	Bad

RESULT AND DISCUSSION

Data Presentation

The development of Google sites-based teaching materials in Mathematics subjects for Grade VIII students at SMPN 6 Bangkalan has been tested and assessed for feasibility using the principle of triangulation. The principle where the test uses input from three elements to determine the feasibility of a product. These elements are: (1) expert validation test consisting of: material experts, media experts and design experts, (2) individual trials, small group trials and field trials involving 33 Grade VIII students at SMPN 6 Bangkalan, and (3) peer tests which in this case involve a teacher from SMPN 6 Bangkalan.

In the three stages of the trial that have been carried out, a closed questionnaire and an open questionnaire were launched with the aim of gathering input from research subjects. From the questionnaire, both quantitative data will be obtained which will later be processed using a percentage formula and descriptive data which will also be used for product improvement or revision. The presentation of data and data analysis from the test questionnaire carried out, as well as what revisions have been made for product improvement will be explained further. The following will present data that will be input for product development from each stage of the trial. The data are as follows:

1. Material Expert Data

A material expert is an expert who understands the material that he wants to give to students, the requirements for a material expert are as follows: (a) experience in the field of Mathematics subjects, (b) experience as a lecturer for at least three years, and (c) at least S3 education majoring in Mathematics. The material experts in the development of Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII Students at SMPN 6 Bangkalan are: Dr. Sunyoto Hadi, M.Pd. as a lecturer in Mathematics at PGRI Adi Buana University Surabaya. The data of the material expert test, presented in the following table 2.

Table *2.* Material Expert Trial Data

It	Description	Score	Criterion
	Contents/Materials		
1	Coverage of materials with curriculum	5	Excellent
2	Coverage of indicators with competencies	5	Excellent
3	Arouse students' curiosity	4	Good

4	Motivating students	4	Good
5	Language Facilities	4	Good
6	Match the material to the grade level	4	Good
7	Discussion up-to-date	4	Good
8	Material Density	5	Excellent
9	Continuity of Material Presentation	4	Good
10	Material Grouping	4	Good
11	Competency Coverage	4	Good
12	Coverage of Special Competencies	4	Good
13	Indicator Compatibility with KD	4	Good
14	Adaptation of Learning Strategies	5	Excellent
15	Suitability of the Use of Learning Media	5	Excellent
16	Accuracy of Evaluation and Competency Objectives	5	Excellent
	Attractiveness of the Presentation Material		
17	Gaining Traction	4	Good
18	Clarity of instructions	5	Excellent
19	Attractiveness of the image display	5	Excellent
20	Ease of understanding	5	Excellent
	Total Score	**89**	
	Percentage	**89.00%**	

As for suggestions or comments from material experts, they are as follows: (a) the use of the word ananda should be yours, (2) there are some images that need to be adjusted and (3) there is writing that needs to be adjusted.

2. Media Member Data

A media expert is an expert who understands how to compose a media, especially a good learning media that can be used by certain groups who are the target or subject of providing information. The requirements for media experts who will provide this validation are as follows: (a) experienced in the field of Educational Technology, (b) experienced in making or compiling media, especially learning, and (c) educated at least S3. The media experts in the development of this package are: Dr. Wawan Gunawan, M.Pd as a Lecturer at PGRI Adi Buana University Surabaya Graduate School of Educational Technology. In this study, media revisions have been carried out based on input from media experts. The final data from the media expert trial will be presented in the following table 3.

Table 3. Media Expert Trial Data

It	Description	Score	Criterion
	Contents/Materials		
1	Coverage of materials with curriculum	5	Excellent
2	Coverage of indicators with competencies	5	Excellent
3	Arouse students' curiosity	5	Excellent
4	Motivating students	4	Good
5	Language Facilities	4	Good
6	Match the material to the grade level	5	Excellent
7	Discussion up-to-date	4	Good

8	Clarity of instructions	5	Excellent
9	Continuity of Material Presentation	5	Excellent
10	Adaptation of Learning Strategies	4	Good
11	Suitability of the Use of Learning Media	4	Good
12	Accuracy of Evaluation and Competency Objectives	4	Good
	Highlights		
14	Gaining Traction	5	Excellent
15	Attractiveness of the image display	4	Good
16	Ease of understanding	5	Excellent
	Image Display Color	4	Good
17	Font and Image Display Compatibility	4	Good
18	Arousing Student Learning Motivation	5	Excellent
	Total Score	**81**	
	percentage	90%	

As for suggestions or comments from media experts, they are as follows: (a) The color of the writing on the cover or cover of the book needs to be improved so that it can be seen or read more and attract attention, (b) For the instructions for the use of media, it must be clarified again so that anyone who will use this media will not experience difficulties, (c) In principle, the designed media is feasible (slightly improved) to be used in the trial and implementation of data collection in research.

3. Design Expert Data

A Design Expert is an expert who understands how to structure a media using a good and correct Design expert. The requirements for the intended design expert are: (a) working as a lecturer in the field of Educational Technology, (b) having experience to be a lecturer for at least three years and (c) having a minimum of S3 education majoring in Educational Technology. The design experts in the development of Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII students at SMPN 6 Bangkalan are: Dr. Ahmad Noor Fatirul, M.Pd as a lecturer in the Department of Educational Technology. The data of the Design expert trial is presented in the following table 4.

Table 3 Design Expert Trial Data

It	Description	Score	Criterion
	Presentation Materials		
1	Cover Design	5	Excellent
2	Presentation and Layout	5	Excellent
3	Updating Materials	5	Excellent
4	Arousing Curiosity	5	Excellent
5	Developing Life *Skills*	4	Good
6	Ease of Languages Used	4	Good
7	Suitability with Student Development	5	Excellent
8	Book Interactivity	4	Good
9	Updating the Bibliography	5	Excellent
10	Suitability of Material Indicators with the Curriculum	5	Excellent
11	Clarity and Conciseness of Material Presentation	4	Good

12	Adaptation of Learning Strategies	4	Good
13	Suitability of Learning Media	5	Excellent
	Highlights		
1	Appeal to Serve	4	Good
2	Fonts and Fonts	4	Good
3	The use of language is easy to understand	5	Excellent
4	Motivating Students to Learn	5	Excellent
5	Clarity of Directions	5	Excellent
	Total Score	**83**	
	Percentage	**92.2%**	

As for suggestions or comments from media experts, they are as follows: try to make the letters and fonts diverse to increase reading interest.

4. Student Trial Data

This Individual Trial is intended to see if the development of Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII Students at SMPN 6 Bangkalan can be understood and understood by students in terms of appearance and language used. This Individual Trial involved three Grade VIII students at SMPN 6 Bangkalan who were male and female at random, while for the small group trial were taken from nine Grade VIII students at SMPN 6 Bangkalan and for the field trial were taken from twenty-one Grade VIII students at SMPN 6 Bangkalan. Individual Trial Data will be presented in the following table 5

Table *5*. Individual Trial

No.	Deskripsi	Responden			Jumlah	Persentase	Kriteria
		1	2	3			
	Aspek Isi Materi Pembelajaran						
1	Apakah materi mudah dipahami?	4	4	4	12	80%	Sangat Baik
2	Apakah isi dapat dipahami anda dengan baik?	4	5	5	14	93%	Sangat Baik
3	Apakah materi sajian dapat memotivasi anda?	3	4	4	11	73%	Sangat Baik
4	Apakah materi sesuai dengan keinginan anda?	5	5	5	15	100%	Sangat Baik
5	Apakah materi yang disajikan sesuai dengan keadaan nyata di lapangan?	5	5	4	14	93%	Sangat Baik
6	Apakah materi guru diulas tuntas?	4	5	4	13	87%	Sangat Baik
7	Apakah guru dalam menyajikan materi menyenangkan anda?	4	4	5	13	87%	Sangat Baik
8	Apakah guru setiap mengajar memberi petunjuk yang jelas?	4	4	4	12	80%	Sangat Baik
9	Apakah materi yang disajikan diikuti dengan media gambar?	5	5	4	14	93%	Sangat Baik
10	Apakah secara keseluruhan isi dapat mendorong anda mudah dalam mengerjakan?	5	4	4	13	87%	Sangat Baik
	Aspek Kemenarikan						
11	Apakah strategi mengajar guru membuat anda lebih aktif?	5	4	5	14	93%	Sangat Baik
12	Apakah cara mengajar guru membuat anda dapat termotivasi untuk belajar?	4	4	5	13	87%	Sangat Baik
13	Apakah saat guru mengajar anda sering melakukan diskusi?	4	5	4	13	87%	Sangat Baik
14	Apakah anda selalu bertanya saat anda ada yang belum jelas?	5	4	5	14	93%	Sangat Baik
15	Apakah anda senang saat guru memberi tugas berkelompok?	4	4	4	12	80%	Sangat Baik
16	Apakah anda selalu mengerjakan tugas dengan senang hati?	5	5	4	14	93%	Sangat Baik
17.	Apakah materi yang dijelaskan guru disertai contoh-contoh yang menyenangkan anda?	4	5	5	14	93%	Sangat Baik
18.	Apakah cara mengajar guru sering memberikan humor dengan anda?	4	5	5	14	93%	Sangat Baik
19.	Apakah guru selalu memberi tugas pada akhir pelajaran?	4	4	5	13	87%	Sangat Baik
20.	Apakah sajian guru secara keseluruhan membuat anda puas?	5	4	5	14	93%	Sangat Baik
					Total	**89%**	**Sangat Baik**

Small group trial data taken from nine Grade VIII students at SMPN 6 Bangkalan will be presented in the following table 6.

Table *6.* Small Group Trial Data

No.	Deskripsi	Responden									Jumlah	Persentase	Kriteria
		1	2	3	4	5	6	7	8	9			
	Aspek Isi Materi Pembelajaran												
1		4	5	5	4	5	5	4	4	4	40	89%	Sangat Baik
2		4	5	5	4	5	5	4	4	4	40	89%	Sangat Baik
3		4	5	5	5	4	5	5	5	5	43	96%	Sangat Baik
4		4	4	4	4	5	5	5	5	4	40	89%	Sangat Baik
5		5	5	5	4	5	5	5	4	4	42	93%	Sangat Baik
6		4	5	5	4	5	5	5	4	5	42	93%	Sangat Baik
7		5	4	4	4	5	5	4	4	4	39	87%	Sangat Baik
8		4	4	5	5	4	4	5	4	4	39	87%	Sangat Baik
9		4	5	5	4	5	5	5	5	5	43	96%	Sangat Baik
10		4	4	5	4	4	5	5	5	4	40	89%	Sangat Baik
	Aspek Kemenarikan												
11		4	5	5	5	5	5	4	4	5	42	93%	Sangat Baik
12		4	5	5	4	4	5	5	5	5	42	93%	Sangat Baik
13		5	4	4	5	5	4	4	5	4	40	89%	Sangat Baik
14		5	5	5	4	3	4	5	5	4	40	89%	Sangat Baik
15		4	5	4	4	5	5	5	4	4	40	89%	Sangat Baik
16		5	5	4	4	5	5	5	5	4	42	93%	Sangat Baik
17.		5	4	5	4	5	4	3	4	4	38	84%	Sangat Baik
18.		4	4	5	4	5	4	4	4	4	38	84%	Sangat Baik
19.		5	5	5	4	5	4	4	4	4	40	89%	Sangat Baik
20.		5	5	5	5	4	4	5	5	4	42	93%	Sangat Baik
											Total	**90%**	**Sangat Baik**

As for student suggestions or comments for the sake of improvement or revision, there is none. Students feel quite satisfied with the Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII students at SMPN 6 Bangkalan that exists.

Data from three students used in the field trial taken from twenty-one Grade VIII students at SMPN 6 Bangkalan will be presented in the following table 7.

Tablen *7.* Field Trial Data

No.	Deskripsi	Responden																				Jumlah	Persentase	Kriteria
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21			
	Aspek Isi Materi Pembelajaran																								
1		4	4	4	5	4	4	5	5	4	5	4	4	5	5	4	4	5	4	5	5	5	94	90%	Sangat Baik
2		5	5	5	4	5	5	4	5	5	5	5	5	4	4	5	5	5	4	5	5	5	100	95%	Sangat Baik
3		4	4	5	5	4	5	5	4	5	5	4	5	5	5	4	4	5	5	4	5	5	97	92%	Sangat Baik
4		5	5	4	4	5	5	5	4	4	4	5	5	5	5	4	4	4	4	5	5	5	96	91%	Sangat Baik
5		4	5	5	4	5	5	5	5	5	4	5	5	5	4	4	5	5	4	5	4	5	98	93%	Sangat Baik
6		4	5	4	4	5	5	5	5	5	4	5	5	5	4	4	5	5	4	4	5	5	97	92%	Sangat Baik
7		5	4	4	4	5	5	4	4	4	4	5	5	4	4	5	4	4	4	5	5	4	92	88%	Sangat Baik
8		5	4	5	5	4	4	5	4	5	5	4	4	5	4	4	5	5	4	4	5	5	94	90%	Sangat Baik
9		4	5	5	4	5	5	5	5	5	4	5	5	5	5	4	5	5	4	5	4	5	99	94%	Sangat Baik
10		5	4	5	4	4	5	5	4	5	4	4	5	5	5	5	4	5	4	4	5	5	96	91%	Sangat Baik
11		5	4	5	5	5	5	4	4	5	5	5	5	4	4	4	4	5	5	5	5	4	97	92%	Sangat Baik
12		4	4	5	4	4	5	5	4	5	4	4	5	5	5	4	4	5	4	4	5	5	94	90%	Sangat Baik
13		5	5	4	5	5	4	4	5	4	5	5	4	4	5	5	5	4	5	5	4	4	96	91%	Sangat Baik
14		4	4	5	4	3	4	5	4	5	4	3	4	5	5	5	4	5	4	3	4	5	89	85%	Sangat Baik
15		5	4	4	4	5	5	5	4	4	4	5	5	5	4	5	4	4	4	5	5	5	95	90%	Sangat Baik
16		5	4	4	4	5	5	5	4	4	4	5	5	5	5	4	4	4	4	5	4	5	94	90%	Sangat Baik
17.		4	5	5	4	5	4	3	5	5	4	5	4	3	4	5	5	5	4	5	4	3	91	87%	Sangat Baik
18.		4	5	5	4	5	4	4	5	5	4	5	4	4	4	5	5	5	4	5	4	4	94	90%	Sangat Baik
19.		4	4	5	4	5	4	4	4	5	4	5	4	5	4	5	4	5	4	5	4	5	93	89%	Sangat Baik
20.		5	4	4	5	4	5	5	4	5	5	4	4	5	5	5	4	5	5	4	4	4	95	90%	Sangat Baik
																						Total	95	91%	Sangat Baik

As for student suggestions or comments for the sake of improvement or revision, there is none. Students feel quite satisfied with the Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII students at SMPN 6 Bangkalan that exists.

5. Peer Data

The colleagues in question are fellow Mathematics teachers. The subject of this stage of the trial is Mathematics subject teachers. Peer trial data is presented in the following table 8.

Table *8.* Peer Trial

No	Deskripsi	Skor	Kriteria
	Isi/Materi		
1	Kecakupan materi dengan kurikulum	5	Sangat Baik
2	Kecakupan indikator dengan kompetensi	5	Sangat Baik
3	Membangkitkan Keingintahuan siswa	5	Sangat Baik
4	Membangkitkan motivasi siswa	5	Sangat Baik
5	Kemudahan Bahasa	4	Baik
6	Kecocokan materi dengan tingkat kelas	5	Sangat Baik
7	Kemutakhiran bahasan	5	Sangat Baik
8	Kepadatan Materi	5	Sangat Baik
9	Keruntutan Sajian Materi	5	Sangat Baik
10	Pengelompokan Materi	5	Sangat Baik
11	Kecakupan Kompetensi	5	Sangat Baik
12	Kecakupan Kompetensi Khusus	5	Sangat Baik
13	Kesesuaian Indikator dengan KD	5	Sangat Baik
14	Kesuaian Strategi Pembelajaran	5	Sangat Baik
15	Kesesuaian Penggunaan Media Pembelajaran	5	Sangat Baik
16	Ketepatan Evaluasi dan Tujuan Kompetensi	5	Sangat Baik
	Kemenarikan Materi Sajian		
17	Menimbulkan Daya Tarik	4	Baik
18	Kejelasan petunjuk	4	Baik
19	Kemenarikan tampilan gambar	5	Sangat Baik
20	Kemudahan pemahaman	5	Sangat Baik
	Jumlah Skor	**97**	
	Persentase	**97%**	

As for suggestions or comments from peers, they are as follows: ease of language and clarity of instructions to be added so that they can attract students.

B. Data Analysis

The data collected from expert questionnaires, student questionnaires and peer questionnaires have been presented in the previous discussion. From these data, it is then analyzed using the percentage formula as listed in Chapter III. After obtaining the percentage, it is translated into criteria, so that for the trial data for the development of adolescent health information packages, the following results are obtained:

Table *9.* Product Trial Data Analysis

It	Subject	Score	Maximum Score	Average Percentage Score	Criterion
1	Material Expert	89	100	89%	Very good
2	Media Members	81	90	90%	Very good

3	Design Expert	83	90	92,2%	Very good
4	Individual Trial	89	100	89%	Very good
5	Small Group Trial	90	100	90%	Very good
6	Field Trial	91	100	91%	Very good
7	Peers	97	100	97%	Very good

By looking at the results of the percentages and existing criteria of each subject, it can be concluded that the product of developing Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII Students at SMPN 6 Bangkalan is necessary. The results of the closed questionnaire trial analysis of the development of this package are in the range of values between 89% - 97% and are included in the criteria are very good and do not need to be revised. The results of the open questionnaire trial in the form of suggestions and expert opinions have several notes from each test subject and are the basis for revision. To see the results of this trial more clearly, the results of the analysis will be presented in the form of a diagram showing the achievements of the trial results and the minimum requirements for holding or not holding revisions. The following diagram is as follows:

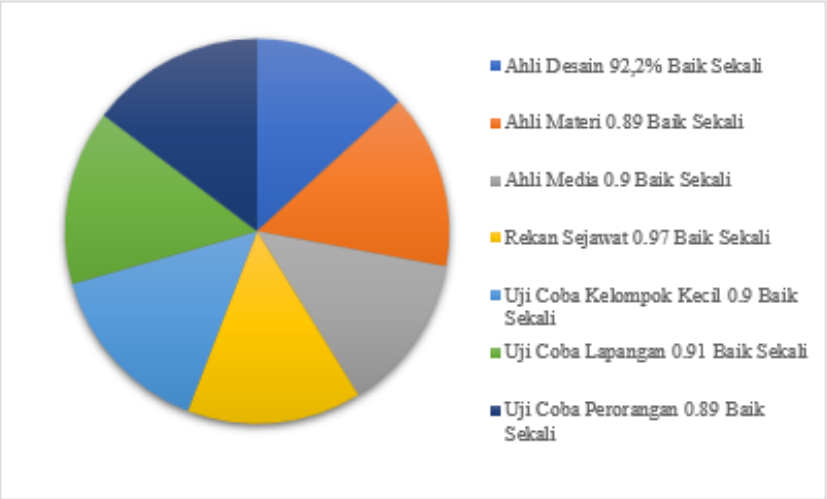

Figure *2* Diagram of Product Trial Analysis Results

The product produced in this development is a Google sites-Based Teaching Material on Mathematics subject for Grade VIII Students at SMPN 6 Bangkalan. This Google Sites Based Teaching Materials can be used with computers or laptops and also Android-based mobile phones, the materials contained in Google sites Based Teaching Materials are equipped with images, and links to help you understand the material more easily. These Google sites-Based Teaching Materials are also independent and interactive which aims to make learning more accessible anywhere and anytime in line with the opinion of Suryadie (2014) in Herawati (2018), namely Google sites-Based Teaching Materials consisting of text, images, or both that contain electronic materials accompanied by simulations that can and should be used in learning.

The lack of use of Google sites-Based Teaching Materials makes the learning process more boring for students. Daryanto (2020) explained that the use of Google sites-Based Teaching Materials itself has benefits in the learning process, (1) making it easier to deliver messages, (2) mobile or can be carried anywhere, and (3) increasing learning motivation.

According to Brown (1983), the learning of each Google site-based teaching material has a different role, in order to improve the good learning process. The role of Google sites-based teaching materials in learning activities is as a substitute for teachers but cannot replace their role as a whole. Google sites-based teaching materials can make the learning process more efficient and effective in achieving learning goals, therefore the function of learning media is very important, especially in the current era of technology which is developing rapidly, the existence of learning media can accelerate learners' understanding of what students are learning. The teaching and learning process will be optimal if it utilizes learning media effectively.

Smartphone users are now felt to have become part of a person's life. Children and adults have depended on the lifestyle of this technology. Not a few uses of smartphones are used in the educational shutter. Moreover, it is only used to make money or to play games. Therefore, smartphones can be used, especially in the educational shutter with the appropriate age. If used at a low age, it is not uncommon for students who still do not understand. So it is recommended for students who have entered junior high school equivalent.

Google sites-based teaching materials are an innovation in the field of learning, which allows the learning process to be more flexible (Alsop et al: 2020). There is also a growing understanding of "Potential Phone" to support learning (Attewell & Savill-Smith: 2020), and about cultural and social behavioural changes with mobile phone use (Plant: 2021).

The term Google sites-based teaching materials includes personalized, connected and interactive use in the classroom and outside the classroom (Perry: 2021), (O'Malley & Stanton: 2022). In the context of learning, learning with a device phone plays a role as a learning system, learning media or a source of learning materials.

Teaching Materials Based on Google sites as a media and learning resource, using various application programs, both paid and non-paid applications, that can be accessed by everyone, including students. One of the mobile operating system platforms that is easily accessible and has been widely developed in the development of learning media programs, namely Android-based programs. Huang, Wang & Hsieh (2022), explained that the use of Google sites-based teaching materials is expected to facilitate and solve the problem of learning difficulties for students, not even add to the problem due to the limitations of the devices that will be used later. To develop a product to overcome learning problems, developers must look at the background, characteristics, and problems that occur in the learning environment so that it is necessary to develop a media to support learning objectives (Molenda and Januszewski: 2018).

The research developed has the advantage of being able to be used in media such as personal computers or smartphones. Supriyono (2014) explained that the

tools used in learning such as mobile android-based applications will facilitate the learning process, especially independently or independently depending on the teacher because applications that have been given material on smartphones can be carried everywhere and the material has been summarized in such a way unlike carrying printed books in general.

Maulana (2017) stated that the development of Google sites-based teaching materials must be made as interesting and interactive as possible in order to increase learning motivation in students. The use of smartphones is the latest innovation in today's era. If not used wisely, smartphones also have a negative side, so there needs to be supervision from parents and teachers. Media is a means to convey interesting messages for students in a learning process (Surahman & Surjono: 2017).

Surahman (2019) argues that the advantage of Google sites-Based Teaching Materials is that it is a path to knowledge and technology that focuses on speed, convenience, and attractiveness without reducing the principles of learning. It can be concluded that learning using Google sites-based teaching materials is used without any pressure during learning in learners.

According to Ally (2014), Google sites-based teaching materials facilitate equal opportunities for everyone by enabling learning that can be accessed across all time zones, so that it can make the location and distance close to students. Google sites-based teaching materials can be said to be a dynamic and systematic learning environment through the use of mobile technology, especially in the field of education (Keengwe & Bhargava: 2014). Google sites-based teaching materials can be used during learning in addition to using computer devices.

The results that have been tested show that Google sites-based teaching materials are effective when used in mathematics subjects. If students only use books as a reference for learning, it is considered lacking. Therefore, when tested in Class VIII at SMPN 6 Bangkalan, it has been proven that after using the media it is valid and effective. The students are helped by the media.

Google sites-Based Teaching Materials are a learning method that utilizes gadgets that have been specifically designed to help the learning process. The development of teaching materials based on Google sites is able to provide an environment that motivates, fun, and increases creativity. The approach in the form of Google sites-Based Teaching Materials is able to stimulate children's intellectual, emotional, and psychomotor. Google sites-based teaching materials can help solve various learning difficulties in students and make classroom learning more interactive.

Based on the independent curriculum, schools are obliged to apply a scientific approach, whether elementary or high school. The independent curriculum itself is considered a little burdensome for students, because there are several components that must be achieved in one learning process. With the use of media, it is hoped that it can help students in the learning process in the independent curriculum. Where students are required to be more critical and scientific in solving a problem.

In a scientific approach, the use of Google sites-Based Teaching Materials is an innovation in the world of education. On the other hand, this media is also very helpful for learners in delivering material in class and making students more motivated and enthusiastic in learning as found during research in the field.

This Google Sites Based Teaching Material is the result of development in the field of education to foster students' interest in Mathematics subjects which are considered very difficult because they are related to those that may not have been known so far. Google sites-based teaching materials as a means of finding knowledge and skills well are in accordance with (Iskandar, 2014), namely development is an educational effort both formal and non-formal that is carried out consciously, planned, directed, regular, and responsible in order to introduce, grow, guide, develop a balanced, intact, harmonious, knowledge, and skill basis in accordance with talents, desires and abilities as provisions for their own initiative to add, improve, and develop themselves towards the achievement of optimal human dignity, quality and abilities and independent individuals.

From the product development planned by the researcher, the validation test carried out by the validation of media experts obtained very significant assessment and feasibility results, namely 90% and the suggestion given is that the instrument from the questionnaire in this clarification is carried out by the researcher to revise it. Furthermore, the validation of material experts also obtained the conclusion that the product developed can be applied to individual trials. In the validation of material experts obtained a percentage result of 89%, this very significant assessment determined that the product could be carried out on individual trials. Tests from peers obtained a percentage of 89%, this also indicates that the product developed is very feasible to be implemented in the next trial. In an individual trial called initial validation to find out the students' response to 3 students, the percentage was 89%. This trial is needed to initially determine the feasibility of the developed material that is tested on different groups of research subjects in small group trials and field trials.

In a small group trial conducted on 9 students, students have received student responses with a total percentage of 90%, this indicates progress from the feasibility test of 3 students who got a percentage of 89% to 90%. This indicates that the product can be tested in the Field. In the field trial, a total percentage of 91% was obtained. This trial was carried out in a large class, namely in the class that was used as the subject of the trial which amounted to 21 students. The progress from the individual trial from the percentage of 89% to 90% in the Field trial is quite significant progress. So that this product can be produced, socialized, and disseminated to be used by teachers and other students in the same subject as a reference in the learning process.

Thus, the researcher concluded that the product that has been developed has been tested for validity and the product can be used in the implementation of the product design of Teaching Materials Based on Google sites. Due to the limitations of time and cost in carrying out this research, the researcher did not conduct this research within the scope of field trials. Field trials involve schools other than individual test sites, small group trials and field trials. Field trials involving schools in school environments in sub-districts, districts, cities or provinces require very large funds. Because in this study, it is only enough to carry out in the form of a field. However, the results of this research can be held accountable because all validation results show very significant results, so that this product can be

multiplied to be used by teachers, students or other schools to become a guideline in developing the learning process.

The results of the research that have been carried out have supported the results of research on the development of Google sites-Based Teaching Materials and this media can be used and disseminated to teachers and students, as well as schools in the same subject to be used as guidelines and guidance in carrying out the learning process.

CONCLUSION

Based on the results of the research on the Development of Google sites-Based Teaching Materials in Mathematics subjects for Grade VIII Students at SMPN 6 Bangkalan, it can be concluded as follows: (1) The development of Google sites-Based Teaching Materials was developed based on the analysis of the needs of teachers and students through a needs questionnaire provided by the developer, (2) The results of the validation of material experts, media experts, and design experts on the development of Teaching Materials Based on Google sites with very feasible criteria to be developed, and (3) Based on the results of research on the development of Google sites-Based Teaching Materials, it can be concluded that Google sites-Based Teaching Materials are used in developing the ability to design creative, innovative and interesting learning.

REFERENCES

Damayanti, A. M., Daryono, & Dwitanto, M. F. (2023). The "Google Sites" As A Model Learning Start With A Question (Lsq) For The Students' Questioning In Civics Department. In Proceedings Of The International Conference On Language, Education, And Social Science (Icless 2022). Https://Doi.Org/10.2991/978-2-494069-15-2_13

Firmansyah, Y., Sudarman, S., & Partha, M. N. (2023). Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Mata Pelajaran Ekonomi. Jurnal Prospek: Pendidikan Ilmu Sosial Dan Ekonomi, 5(1). Https://Doi.Org/10.30872/Prospek.V5i1.2415

Hidayat, H., Hidayat, O. S., & Widiasih, W. (2023). Development Of Google Sites-Based Learning Resources To Improve Mastery Of Concepts And Process Skills In Electrical Circuit Materials. Jurnal Penelitian Pendidikan Ipa, 9(6). Https://Doi.Org/10.29303/Jppipa.V9i6.3612

Isjoni, M. Y. R., Hermita, N., Putra, R. A., & Aryani, N. (2023). Pelatihan Pembuatan Portofolio Digital Menggunakan Aplikasi Google Site Sebagai Implementasi Dari Kurikulum Merdeka Di Desa Langkan, Kecamatan Langgam Kabupaten Pelalawan. Journal Of Community Engagement Research For Sustainability, 3(3). Https://Doi.Org/10.31258/Cers.3.3.164-170

Luluk Makrifatul Madhani, & Mohamad Joko Susilo. (2023). Implementation Of Online Learning Using Google Sites In Increasing Student's Interest In Learning In Islamic Education. At-Thullab : Jurnal Mahasiswa Studi Islam, 5(2). Https://Doi.Org/10.20885/Tullab.Vol5.Iss2.Art16

Lutfiah, D. (2023). Penggunaan Aplikasi Google Sites Sebagai Media Pembelajaran Inovatif Untuk Meningkatkan Pemahaman Pembelajaran Ipas Kelas 4 Sdn Ngaglik 01 Batu. Jurnal Pendidikan Taman Widya Humaniora (Jptwh), 2(1).

Maulida Hafizh, M., & Wicaksono Pribadi, U. P. (2023). Pengaruh Google Sites "Ketoprak" Terhadap Tingkat Pemahaman Dan Capaian Kepatuhan Fasilitas Kesehatan Mitra Bpjs Kesehatan Kc Purwokerto. Jurnal Jaminan Kesehatan Nasional, 3(1). Https://Doi.Org/10.53756/Jjkn.V3i1.132

Muliana Pubian, Y., Yulianti, D., Fitirawan, H., Nurwahidin, M., & Riswandi, R. (2023). Pengembangan Model Blended Learning Berbasis Google Site Untuk Meningkatkan Efektivitas Pembelajaran Siswa. Jurnal Teknologi Pendidikan : Jurnal Penelitian Dan Pengembangan Pembelajaran, 8(2). Https://Doi.Org/10.33394/Jtp.V8i2.6604

Nur Alimah, F., & Sumardi, A. (2023). Pengembangan Bahan Ajar Menulis Cerpen Berbasis Nilai-Nilai Akhlak Berbantuan Google Sites. Imajeri: Jurnal Pendidikan Bahasa Dan Sastra Indonesia, 5(2). Https://Doi.Org/10.22236/Imajeri.V5i2.11275

Putra, A. I., Budiono, H., & Chan, F. (2023). Pengembangan Media Pembelajaran Interaktif Berbasis Website Menggunakan Google Sites Pada Muatan Ipa Kelas V Subtema Memelihara Kesehatan Organ Pernapasan Manusia Di Sekolah Dasar. Jurnal Pendidikan Dasar Flobamorata, 4(1). Https://Doi.Org/10.51494/Jpdf.V4i1.843

Putu Agus Primandana, I Wayan Santyasa, & I Kadek Suartama. (2023). Pengaruh Model Pembelajaran Peer-Instruction Flipped Classroom Berbantuan Google Sites Dan Grammarly Terhadap Keterampilan Menulis Bahasa Inggris Dan Efikasi Diri Siswa Kelas Viii Smp. Jurnal Onoma: Pendidikan, Bahasa, Dan Sastra, 9(1). Https://Doi.Org/10.30605/Onoma.V9i1.2309

Rafiadzkay, M., Matematika, A. A.-… N., & 2023, Undefined. (2023). Telaah Model Project Based Learning Berbantuan Google Sites Terhadap Kemampuan Literasi Matematika Siswa. Journal.Unnes.Ac.Id, 6.

Rasdana, I. W. B., Rizal, M., & Astuti, W. (2023). Penerapan Media Video Animasi Dan Google Sites Untuk Meningkatkan Hasil Belajar Polinomial Kelas Xi Mipa 2 Sma Negeri 1 Palu. Inspiramatika, 9(1). Https://Doi.Org/10.52166/Inspiramatika.V9i1.4259

Ratnadewati, H., Himawan, R., & Hermanto. (2023). Pengembangan Media Pembelajaran Dengan Menggunakan Google Sites Dalam Pembelajaran Teks Biografi Kelas X Sma. Jurnal Lingkar Mutu Pendidikan, 20(1). Https://Doi.Org/10.54124/Jlmp.V20i1.92

Reskiyati, Abdjul, T., & Supartin. (2023). Development Of Google Sites Assisted Learning Media On Vibration, Waves And Sound Material. E3s Web Of Conferences, 400. Https://Doi.Org/10.1051/E3sconf/202340001017

Saputra, R., Diandita, Y. N., & Zulfiati, H. M. (2023). Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Pembelajaran Ips Sekolah Dasar. Didaktik : Jurnal Ilmiah Pgsd Stkip Subang, 9(2). Https://Doi.Org/10.36989/Didaktik.V9i2.962

Sugiyono. (2017). Metode Penelitian Kuantitatif Kualitatif Dan R&D (25th Ed.). Alfabeta.

Suryana, E., Prahasti, Iskandar, A. P., & Fransisca, Y. (2023). Pemanfaatan Google Site Sebagai Media Pembelajaran Siswa Pada Smkn 3 Kota Bengkulu. Jurnal Dehasen Untuk Negeri, 2(1).

Suryati, I., Hadiwijaya, S., & Septiana, T. (2023). Development Of Google Sites-Based Blended Learning Media On Linier Program Material Mathematics Subjects. Aip Conference Proceedings, 2727. Https://Doi.Org/10.1063/5.0141439

Triani, W., & Pratiwi, V. (2023). Pengembangan Multimedia Interaktif Diaksy (Digital Akuntansi Syariah) Berbasis Google Sites Pada Mata Pelajaran Akuntansi Perbankan Syariah. Jurnal Pendidikan Dan Kebudayaan, 3(2).

Ulinuha, A., & Parnawati, T. A. (2023). Students' Perspective On The Use Of Google Sites In General English Class At Higher Education. Ideas: Journal On English Language Teaching And Learning, Linguistics And Literature, 10(2). Https://Doi.Org/10.24256/Ideas.V10i2.3224

Umar, N., & Yuyun, Y. (2023). Peningkatan Kompetensi Guru Melalui Pelatihan Pembuatan Modul Pembelajaran Menggunakan Aplikasi Google Sites Pada Guru Man 3 Makassar. Jurnal Pengamas, 6(1). Https://Doi.Org/10.33387/Pengamas.V6i1.4220

Utami, R. P. (2023). Pemanfaatan Media Pembelajaran Berbasis Google Sites Dalam Pembelajaran Ipa Di Sekolah Dasar. Sentri: Jurnal Riset Ilmiah, 2(2). Https://Doi.Org/10.55681/Sentri.V2i2.400