

CREATION OF GOOGLE SITES-BASED E-MODULES FOR DIGITAL DOCUMENT ELEMENTS AT HIGH VOCATIONAL SCHOOLS

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ABSTRACT

This research aims to evaluate the feasibility and practicality of developing an e-module based on Google Sites for digital document elements. The study was conducted at SMK Negeri 40 Jakarta in class X Office Management with 36 participating students. The method used is Research and Development (R&D) with the ADDIE development model (Analyze, Design, Development, Implementation, and Evaluation). The research subjects consisted of 9 validators (three subject matter experts, three instructional design experts, and three media experts) and 36 class X MP students. The data analysis techniques included validation tests and practicality tests. The validation test was conducted by subject matter experts with a result of 88%, categorized as highly feasible; instructional design experts with a result of 97%, categorized as highly feasible; and media experts with a result of 90%, categorized as feasible. The practicality test was conducted by 36 class X MP students through three stages of trials: one-to-one evaluation with a result of 93%, considered highly practical; small group trials with a result of 92%, considered highly practical; and large group trials with a result of 91%, considered highly practical. The results of the research and development indicate that the e-module based on Google Sites for digital document elements at SMK Negeri 40 Jakarta is deemed highly feasible and highly practical for use in learning activities.

Keywords: E-Modules, Google sites, Digital-based document elements

ABSTRAK

Penelitian ini bertujuan untuk mengevaluasi kelayakan dan kepraktisan pengembangan e-modul berbasis Google Sites pada elemen dokumen digital. Penelitian ini dilaksanakan di SMK Negeri 40 Jakarta di kelas X Manajemen Perkantoran dengan jumlah peserta 36 siswa. Metode yang digunakan adalah Penelitian dan Pengembangan (R&D) dengan model pengembangan ADDIE (Analyze, Design, Development, Implementation, dan Evaluation). Subjek penelitian terdiri dari 9 validator (tiga ahli materi, tiga ahli desain pembelajaran, dan tiga ahli media) serta 36 siswa kelas X MP. Teknik analisis data meliputi uji validasi dan uji praktikalitas. Uji validasi dilakukan oleh ahli materi dengan hasil 88% yang dikategorikan sangat layak, ahli desain pembelajaran dengan hasil 97% yang dikategorikan sangat layak, dan ahli media dengan hasil 90% yang dikategorikan layak. Uji praktikalitas dilakukan oleh 36 siswa kelas X MP melalui tiga tahap uji coba: one to one evaluation dengan hasil 93% yang dianggap sangat praktis, uji coba kelompok kecil dengan hasil 92% yang dianggap sangat praktis, dan uji coba kelompok besar dengan hasil 91% yang dianggap sangat praktis. Hasil penelitian menunjukkan bahwa e-

modul berbasis Google Sites pada elemen dokumen digital di SMK Negeri 40 Jakarta sangat layak dan sangat praktis untuk digunakan dalam kegiatan pembelajaran.

Kata kunci: E-Modul, Google sites, Elemen dokumen berbasis digital

INTRODUCTION

Today's technological developments can be said to be very rapid, this is proven by the many new innovations being made. In this era, technology is very important, because technology also supports the progress of human life. Nowadays, technology using the internet can be used in almost all aspects of life, including education. Education is basically a deliberate and responsible activity by adults towards children, aimed at creating interactions so that children reach the expected maturity. The teacher's role is key in realizing this goal, and the assessment of educational success can be seen from the quality of the teaching activities carried out by the teacher. If teaching activities go well, then educational goals have a chance to be achieved. And conversely, if not, educational goals will be difficult to achieve (Ernawati, 2022)

According to Leni et al. (2023) one of the problems in the learning process is the inappropriate application of learning methods and media by teachers and less than optimal management of learning activities. Not appropriate in terms of conformity with current developments. Changing environmental conditions in society certainly require changes in the learning that is applied. This means that a teacher must be able to develop learning methods and media creatively in the implementation of learning. As stated by Wulandari (2023), the key to the success of an education system, one of which, lies in the important role of teachers in choosing appropriate methods, teaching materials and media, with the needs of students, so that the learning process runs positively. Guided by these things, teachers as intermediaries in providing knowledge have the opportunity to change and develop the way of presenting learning material with today's sophisticated infrastructure, one method is to change printed modules into digital format modules, known as electronic modules or e-module. According to Ratnawati and Khaharsyah (2022) e-modules are created with the intervention of technology and are designed to be as attractive as possible by including elements such as animations, images or learning video links. According to Firmandari et al. (2022) e-modules are more practical than printed modules, because they can be accessed anytime and anywhere just by using an electronic device such as a gadget or laptop. Moreover, most students today use gadgets more often for learning activities than printed books.

According to Sartika et al. (2020) not only teaching materials, media in learning is also an important thing used by teachers to attract interest and foster students' motivation in learning. Teaching materials and learning media have an interrelated relationship with each other. There is a relationship between teaching materials and learning media because both are tools used in the teaching and learning process. According to Abdi et al. (2022) one of the learning media that can be developed is the Google web sites. Learning in the Google Site web aims to provide knowledge to students about the uses and benefits that can be obtained by studying the Google Site web. Web Google Sites is an online application launched by Google for creating class, school or other websites using Google services a structured one that allows easy website creation.

According to Danin and Kamaludin (2023) highlight the superiority of Google Sites in terms of ease of use, which makes it more accessible to teachers and students without significant technical barriers. Google sites provide flexibility in the presentation of content with the possibility to embed various types of media, such as text, images, audio and video. This service offers a high level of accessibility and flexibility, allowing users to access learning content from various devices, such as computers, tablets and smartphones, thereby providing flexibility in learning without device limitations. As said Rosiyana (2021) Google Sites is worthy of being used as a learning medium because of its ease of use, integration with

productivity tools, flexibility in presenting content, accessibility, collaboration capabilities, and high information security. These advantages make Google Sites a comprehensive choice for supporting interactive and independent learning. This research aims to evaluate the feasibility and practicality of developing an e-module based on Google Sites for digital document elements.

LITERATURE REVIEW

Teaching Materials

Teaching materials (learning materials) are a set of learning materials or substances that are arranged coherently and systematically and display a complete figure of the competencies that students will master in learning activities. Teaching materials enable students to learn a competency in a coherent and systematic manner so that they are accumulatively able to master all competencies in an integrated manner (Pedro et al., 2019). According to Lena et al. (2020), the function of teaching materials in the learning process is: (1) as a guide for educators and students, namely educators have guidelines for learning activities and competencies that will be taught to students; (2) serve as guidelines and meaning for the skills that an educator must master; and (3) as an assessment tool for the entire process of learning achievement activities. Meanwhile, according to Mukhlis et al. (2020) teaching materials can be divided into two, namely: (1) Completely designed teaching materials, for example: learning modules, learning audio, learning videos, computer-based learning, web or internet-based learning; (2) The teaching materials designed are incomplete, for example: teaching aids, maps, globes, human skeleton models, and so on.

E-Module

Electronic modules (e-modules) are a form of independent learning material that is arranged systematically, displayed in electronic format, audio, animation and navigation (Firmindari et al. (2022)). According to Azizah and Syarifah (2021) e-modules are teaching materials that are systematically designed based on a curriculum that is packaged in certain time units and displayed using electronic devices such as computers. From this definition, e-modules can be interpreted as teaching materials in the form of electronic-based modules, which are arranged systematically in a more interesting way and can make it easier for teachers and students in the learning process because they can be used anywhere and at any time.

Table 1. Difference between E-Modules and Printed Modules

E-Module	Module Print
Form digital/ soft files (in the form of doc. orfiles)	Form print/ hard files (paper)
For use it requireddevice electronic And power electricity (like laptops, PC, gadgets, internet)	No need to use a device special Because form gathering paper printed (book)
It lasts longer because it won't rot over time	Power stand paper limited by time
More practical For brought Because shaped soft fil e	Needed room For putand took him
Equipped with images, audio and video in its presentation	Only includes pictures

Source: (Rahman et al., 2023)

According to Yuniar et al. (2021) the characteristics of e-modules are as follows: (1) Self instructional, a module must load instructions which clearly, so that students are able to learn independently and No depends on party other; (2) Self Contained, that is, all learning material presented must be complete from one competency or sub-competency unit, so that students can study the material completely; (3) Stand alone, that is, the learning module must stand alone depends on material teach other or media other in its use; (4) Adaptive, namely the module must have high adaptive capacity or can adapt to development science and technology; and (5) User friendly, namely the learning module should be friendly with usage, including

convenience user in respond and access in accordance with the desire. Judging from the advantages and disadvantages of e-modules, we can compare the advantages and disadvantages of e-modules with printed modules. For the differences between e-modules and printed modules, can be seen in Table 1.

Instructional Media

Media comes from the Latin word "medius" which literally means middle, intermediary, or introduction. This implies that the media functions as an introduction or intermediary to convey messages from the sender to the recipient of the message. So, in summary, media is a tool to convey the message that the source wants to convey to the recipient of the message. The messages conveyed are usually instructional in nature, with the ultimate goal being to achieve the learning process Daniyati et al. (2023). Learning itself is a deliberate effort by the teacher or teacher to help students learn according to their needs and interests. In other words, learning involves careful planning to manipulate learning resources so that the learning process can occur within students. In this context, students act as subjects who learn, while teachers are subjects who teach. Teaching, basically, is the process of helping individuals or groups carry out learning activities so that the learning process takes place effectively (Daniyati et al., 2023).

Learning media in general are tools to help the teaching and learning process. Apart from that, learning media is anything that can be used to stimulate the thoughts, feelings, attention and abilities or skills of the student so that it can encourage the learning process. According to Junaidi (2019) the function of learning media, namely: (1) consideration work, visual media is the center, specifically pulling in and coordinating students' consideration to concentrate on lesson substance related to the visual meaning shown or going with the fabric content lesson; (2) Full of feeling work, visual media can be seen from the level of delight of understudies when learning or perusing content with pictures. Pictures or images can stir students' feelings and states of mind, for case data relating to social or racial issues; (3) Cognitive work, visual media can be seen from investigate discoveries which uncover that visuals or pictures encourage the accomplishment of the objective of understanding and recollecting the data or message contained within the picture; (4) The compensatory work of learning media can be seen from the inquire about comes about that visual media which give setting for understanding writings makes a difference understudies who are powerless in reading to organize data within the content and review it.

Google Sites Web

Google Sites is a tool developed by Google for creating websites. It is user-friendly and particularly beneficial for educational purposes, allowing users to leverage features like Google Docs, Sheets, Forms, Calendar, Awesome Tables, and more to enhance the learning experience Ismawati et al. (2021). According to Wiguna and Zamhari (2023) The use of Google Sites-based learning media can increase efficiency in delivering material, giving assignments and managing information. According to Rosiyana (2021) using Google Sites for learning offers several benefits for both students and teachers. The advantages of Google Sites include: (1) making learning more engaging and enjoyable for students; (2) providing downloadable learning materials that students can access anytime and anywhere; (3) making it easier to find materials; (4) ensuring that learning materials are not easily lost, as content uploaded to Google Sites remains secure and is not affected by viruses or other issues; (5) allowing students to easily obtain learning information.

METHOD

Research and Development (R&D) is a type of research used to produce a product. The model applied in this research is the ADDIE development model, which stands for analyze, design, development, implement, and evaluate Salahuddin et al. (2021). The ADDIE model is used in developing learning tools. This research uses qualitative and quantitative data. The data collection techniques used were observation and questionnaires. The subjects of this research consisted of nine validators (3 material experts, 3 learning design experts, and 3 media experts) and 36 class X Office Management students. Technique analysis data Which done that is test validation expert And test practicality. Data from student assessments and validator questionnaire scores are used to determine the suitability and practicality of the media through practicality and validity tests. To obtain this information, a Likert-based questionnaire was delivered with five evaluation ratings. The scores listed on the questionnaire sheet will be analyzed and use an index formula. Furthermore, the results of these percentages can be interpreted to test the practicality and feasibility into categories based on Table 2.

Table 2. Practicality and Feasibility Criteria

Results	Category
81% - 100 %	Very Feasible/Practical
61% – 80 %	Feasible/Practical
41% – 60 %	Enough Feasible/Practical
21% – 40 %	No Feasible/Practical
0% – 20%	Very No Feasible/Practical

Source: (Noveridha, 2022)

RESULTS AND DISCUSSION

Results

Analyze

At this stage, the analysis activities carried out are analyzing the needs of students in learning activities by examining aspects of learning problems. This analysis was carried out using a questionnaire involving class X MP (Office Management) students to obtain information regarding the use of learning resources, as well as limitations and problems in learning activities.

Results from analysis which has done, that source study which used only textbook, and not all students have the textbook because students have to buy it independently. So, knowledge obtained by student which have book package and student who don't have a different textbook. In addition, nowadays there are more students choose to use gadgets to look for learning resources rather than reading printed books. Moreover, digital-based document material is very important for students to apply in the world of work, the importance of learning digital-based document elements in the world of work cannot be ignored. This is because most communication and information exchange in today's workplace is done digitally. A good understanding of digital-based document management helps individuals to adapt to the modern work environment which is increasingly dependent on digital technology. Therefore, students need electronic-based teaching materials and more varied like e-module. Furthermore, obtained information that almost all student Already knowing the Google Sites website, and from the results of observations of the development of e-modules based on Google Sites, it is known that student interest is very high, so that it can be used as a reference for developing e-modules based on Google Sites.

Design

After carrying out the analysis, the researcher began to enter the design stage of the e-module that will be used. At this stage, researchers begin to design e-modules which will be

developed according to the results of the analysis. Next, the researchers created a flow that would make the process of creating a website easier, by creating a flowchart as shown in Figure 1.

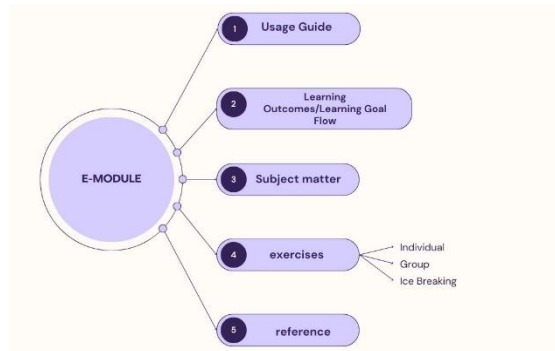






Figure 1. Flowchart for Making E-Modules

Development

After designing the e-module, the next stage is development. In this process, development is carried out by creating an entire e-module, researchers begin designing e-module Which will developed ie formulate material And determine design product by choosing colors, backgrounds, fonts, themes and other things that support the creation of e-modules. Furthermore, the researcher also linked images, videos and evaluation questions that had been created via Google Form into the e-module. Furthermore, e-module developed with method copy link e-modules on the Google Sites website so that students can access them online. The following (Table 3) is a display of the e-module at the development stage:

Table 3. E-Module View

No.	Information	Appearance	No.	Information	Appearance
1.	Home page display		3.	Page view Learning Outcomes/Learning Goal Flow (CP/ATP)	
2.	User guide display		4.	Concept maps	

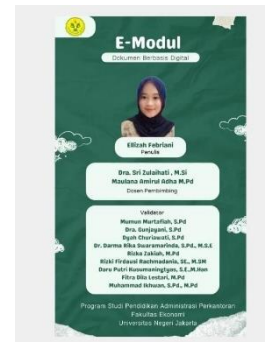
No. Information Appearance

5. Display of material sub-chapter pages



No. Information Appearance

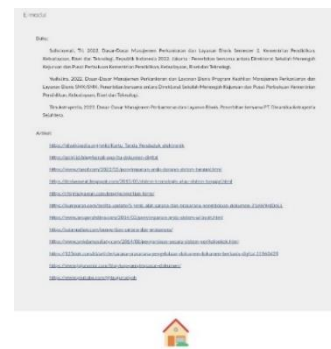
8. Display of the researcher's profile page



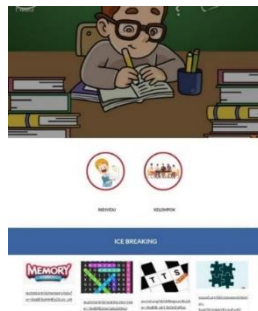
6. Contents of the material



9. Display reference page



7. Display of practice questions and ice breaking education pages



After the media has been successfully created and developed, the next stage is a validation process to test the suitability of the product. This validation stage was carried out by 9 validators, namely 3 material experts from teachers at SMKN 40 Jakarta, 3 learning design experts and 3 media experts from Jakarta State University lecturers. Expert validation tests are carried out to assess the suitability of materials, learning designs and media Which has arranged in e-module based google sites. Based on the Table, 4, Table 5, and Table 6, assessments from material experts, learning design experts, and media experts, the Google Sites-based e-module on digital document elements can be declared very feasible and can be tested on class X MP students. However, before being tested on students, the step that must be taken is to revise the e-module according to the improvement suggestions provided by the validators.

Table 4. Material Expert Validation Test Results

Expert	Score	Score Max	Percentage	Category
Material 1	92	100	92%	Very Worthy
Material 2	76	100	76%	Worthy
Material 3	97	100	97%	Very Worthy
Amount	265	300	88%	Very Worth It

Table 5. Design Expert Validation Test Results

Expert	Score	Score Max	Percentage	Category
Design 1	94	100	94%	Very Worthy
Design 2	96	100	96%	Very Worthy
Design 3	100	100	100%	Very Worthy
Amount	290	300	97%	Very Worth It

Table 6. Media Expert Validation Test Results

Expert	Score	Score Max	Percentage	Category
Medium 1	81	85	95%	Very Worthy
Media 2	64	85	75%	Worthy
Media 3	85	85	100%	Very Worthy
Amount	230	255	90%	Very Worth It

Implementation

The implementation phase is a continuation of the development phase, specifically the electronic module has been developed and tested for feasibility and through a review process will be deployed and tested to determine the level of feasibility. This test was conducted with 36 students of class X MP. The steps taken to test the practicality of this electronic module are as shown in Table 7, Table 8, and Table 9.

Table 7. Results of One to One Evaluation Data Analysis

Respondent	Score	Score Max	Percentage	Category
Student 1	48	50	96%	Very Practical
Student 2	46	50	92%	Very Practical
Student 3	45	50	90%	Very Practical
Amount	139	150	93%	Very Practical

Table 8. Results of Small Group Trial Data Analysis

Respondent	Score	Score Max	Percentage	Category
Student 1	82	85	96%	Very Practical
Student 2	72	85	85%	Very Practical
Student 3	82	85	96%	Very Practical
Student 4	81	85	95%	Very Practical
Student 5	83	85	98%	Very Practical
Student 6	75	85	88%	Very Practical
Student 7	78	85	92%	Very Practical
Student 8	74	85	87%	Very Practical
Student 9	78	85	92%	Very Practical
Student 10	82	85	96%	Very Practical
Amount	787	850	92%	Very Practical

Table 9. Results of Large Group Test Data Analysis

Respondent	Score	Score Max	Percentage	Category
Student 1	82	85	96%	Very Practical
Student 2	75	85	88%	Very Practical
Student 3	84	85	99%	Very Practical
Student 4	72	85	85%	Very Practical
Student 5	82	85	96%	Very Practical
Student 6	83	85	98%	Very Practical
Student 7	73	85	86%	Very Practical
Student 8	73	85	86%	Very Practical
Student 9	73	85	86%	Very Practical
Student 10	76	85	89%	Very Practical
Student 11	84	85	99%	Very Practical

Respondent	Score	Score Max	Percentage	Category
Student 12	74	85	87%	Very Practical
Student 13	77	85	91%	Very Practical
Student 14	76	85	89%	Very Practical
Student 15	75	85	88%	Very Practical
Student 16	75	85	88%	Very Practical
Student 17	78	85	92%	Very Practical
Student 18	73	85	86%	Very Practical
Student 19	79	85	93%	Very Practical
Student 20	74	85	87%	Very Practical
Student 21	77	85	91%	Very Practical
Student 22	79	85	93%	Very Practical
Student 23	77	85	91%	Very Practical
Amount	1771	85	91%	Very Practical

Based on the results of Small Group Trial Data Analysis of Table 7, an average of 93% is obtained which is included in the "very practical" category. Referring the results of Large Group Test Data Analysis in Table 8, an average of 92% is obtained which is included in the "very practical" category. As can be seen the results of Large Group Test Data Analysis in Table 9, an average of 91% is obtained which is included in the "very practical" category.

Evaluation

Following test validation to ascertain suitability and practicalization test to ascertain practicality from the generated e-module, stage assessment is conducted. This stage determines the end outcomes of the research's creation and production of instructional materials. Based on the validator test results and the class X MP student trials, it can be concluded that the e-module has already been established and is "very worthy" and "very practical" for use in action learning. Researchers have made improvements to the e-module despite multiple iterations, making it more relevant and useful than when it was first designed. Thus, the ultimate outcome of this phase is to acquire Google Sites e-modules based on digital document components that are workable and useful.

Link E-Module: <https://sites.google.com/view/documentbasisdigital/home>

Discussion

E-module Development

This development process was carried out using the ADDIE development model, namely (Analysis, Design, Development, Implementation, Evaluation), (1) During the analysis phase, it was discovered that the source study only used a textbook, and that not all students had access to it since they had to purchase it separately. This led to the construction of an e-module on digital-based document elements using Google Sites. Hence, the information acquired by students who possess a textbook package and those who do not. Additionally, rather than reading traditional books, more students these days prefer to use gadgets to hunt out learning resources. Additionally, it can be used as a guide for creating e-modules based on Google Sites because the results of observations of the development of e-modules based on Google Sites indicate that student interest is quite high. (2) In this design phase, researchers will begin creating an electronic module that will be developed based on the analysis results. Subsequently, the researchers created a flowchart that will simplify the website creation process; (3) During the development stage, the product is tested by media experts, learning design experts, and material experts. The product is then revised by the researcher based on feedback from the validator and tested in small and large groups as well as one-on-one settings; (4) During the fourth stage, known as implementation, the researcher tests the product's viability on small and big groups as well as one-on-one evaluation test groups; (5) Stage This

determine the final results of the development of teaching materials created and developed by researcher. From results test validation from validator Andtrials carried out on class X MP students, can be stated that e-module Which developed Already very worthy And very practical For used, as well as can used For activity learning (Rustandi & Rismayanti, 2021) . Therefore, the final result of this stage is to obtain E- Google Sites Based Module on Digital Document Elements which is feasible and practical to use.

Appropriateness E-Module

E-module Which developed said worthy If Already through validation tests from several experts. E-module based on Google Sites developed by researchers is good or suitable for use, this is in accordance with the results of validation analyzes that have been assessed by several expert that is expert material with percentage 88% category very worthy, expert learning design with percentage 97% very worthy, And expert media 90% category is very feasible. From the validator results, a percentage value can be taken an average of 92% with a very feasible category, namely that e- This module is very suitable to be used and tested. Although There are still several revisions that need to be corrected by researchers The e-module developed is in accordance with the assessment in terms of material, design, And media.

Matter the Also supported with theory And study previous ones done by Wiguna and Zamhari (2023) entitled "Development of Google Sites-based Multiple Representations Learning Media on Benzene and Its Derivatives Topic" states that this development research uses the ADDIE (analysis, design, development, implementation, evaluation) model. Validation results show that the learning media is valid with scores of 95.8% and 92.5% respectively in the "very feasible" category. Meanwhile, according to Mufidah (2023) , the results of data analysis from validation by media experts were 95% with a very valid category, the results of data analysis from validation by language experts were 96.67% with a very valid category. The results of the validation test show that the Google Sites-based E-Module to increase student motivation is very valid and therefore suitable for use in the learning process. In accordance with the opinion Rhaska and Mawardi (2020) that an E-Module that has been declared valid means the E-Module is very good and suitable for use in the learning process.

Practicality of E-Modules

E-module Which developed said practical If Already through test practicalization Which done by student. Researcher do test practicalization to student class X MP SMKN 40 Jakarta with a total of 36 students. The practicalization test was carried out in three stages, namely the one to one evaluation stage carried out by three students who obtained a percentage of 93%, small group trials carried out by 10 students with a percentage of 92%, and large group trials carried out by 23 students with a percentage of 91%. From the three test stages, a percentage value can be taken average as big as 92% Which categorized as very practical, ie The e-module is very practical to use and can be used for activities learning.

Matter the Also supported with theory And study previous ones conducted by Hardianti and Alyani (2023) with the title "Development of an E-Module Based on Google Sites on Human Skeleton Material for Class V Elementary Schools." That the practicality of the media was obtained through student questionnaires with results of 97% and 98% with very good criteria. The research Nuryasana and Desiningrum (2020) their research is to Development of a Google Sites-Based Digital Module for Class overall score of 3.85 out of a maximum score of 4.00, in the "very good" category. This is in line with previous research by Ende et al. (2022), that the use of e-modules can be used as a learning alternative.

CONCLUSION AND RECOMMENDATION

Based on the results of the development of the Google Sites-Based E-Module in Digital-Based Document Elements Phase E in SMKN 40 Jakarta, so can concluded as follows: (1) The development of a Google Sites-based e-module on phase E digital-based document elements at SMK Negeri 40 Jakarta succeeded in obtaining an e-module that is feasible and practical to use. With the ADDIE model development process, namely (Analysis, Design, Development, Implementation, Evaluation); (2) Based on validation test results from several experts, namely material experts, experts learning design, And expert media, that e-module based google sites developed obtained an average percentage of 92% with very worthy category. Thus, e-module based Google sites on phase E digital-based document elements at SMKN 40 Jakarta very worth using and testing; (3) Based on results test practicalization by 36 student class X MP, Which through the one to one evaluation stage, small group trials, and testing try group big, that e-module based google sites Which developed obtained an average percentage of 92% with very practical category. Thus, e-module based Google sites on Phase E digital document elements at SMKN 40 Jakarta very practical to use for learning activities.

Based on the research results, recommendations or advice from researchers for the next researchers are as follows: (1) Can deepen and expand the scope of research because in this research only limited practicality testing is carried out by 36 students; (2) Can develop e-modules for the subject matter more broad and comprehensive for learning activities.

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