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Development of Google Site-Based Interactive Learning Media using H5P on Global Warming Material

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Abstract: This research aims to produce google site-based interactive learning media using H5P on Global Warming Material that valid and verify the practicality. The type of research used is Research and Development (R&D) research with the ADDIE model. Google site-based interactive learning media developed through validation stages and practicality tests. The data was collected through a validation assessment sheet that was assessed by the validator. The results of validation of Google site-based interactive learning media are obtained on average >0.75 so that they can be declared valid. Furthermore, the Google site-based interactive learning media is tested for practicality. Data collection at the practicality test stage was obtained from a practicality questionnaire for the Google site-based interactive learning media consisting of 20 students as practitioners. The average score of practicality test results according to students was at a score of >85%. So that the google site-based interactive learning media using H5P on Global Warming Materialis declared practical.
Keywords: Google Site-Based, H5P, Validity Test, Practicallity Test

1. Introduction

Information and Communication Technology (ICT) now has a big role in the development of the world of education in an effort to improve the quality of education itself. The use of technology becomes a catalyst in the development of education and makes it easier to achieve the goals of learning. In line with the National Education System Law Number 20 of 2003 which states that education is a conscious and planned effort in creating a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by himself, society, nation and state [1][2].

Physics is the science that discusses natural phenomena and how they can occur. Physics was born from the process of observing, formulating problems, submitting hypotheses, proving by conducting experiments, making conclusions and finding theories and concepts. In fact the learning that is applied now still uses books, there are no other variations with the dominance of the teacher using the lecture method only so that students are not actively involved in discovering physics. Physics is considered difficult by students because the concept is considered abstract and the depiction is not appropriate and only capitalizes on books [3][4].

Google site is a platform developed by Google that functions as an information portal. Google site is a free platform and can be easily accessed by many people. Google sites can be developed into learning media, teachers can upload learning videos including for abstract material, can integrate virtual labs and H5P and can be developed into a Learning Management System (LMS) [5].

HTML 5 Package (H5P) is free and opensource software with recognition from the Massachusetts Institute of Technology (MIT) that can help everyone create, share and use interactive HTML 5 content [6]. H5P has advantages in terms of its use in learning media compared to other applications, namely various interactive features in H5P such as interactive videos, interactive quizzes, interactive presentations, and other interactive learning media.

The concept of global warming requires students to be able to analyze the symptoms and impacts of global warming on students' lives so that students can submit ideas or ideas as a solution to the problem. The results of interviews with Alatas and Fauziah [7] show that students' lack of knowledge and understanding of the concept of global warming results in the goal of studying global warming in schools not being maximized.

The results of Mufti and Sumadi's research [8] found that the learning outcomes of students who used learning media were in the high category, while those who did not use powerpoint learning media were in the medium category. Supported by research results Bonitalia, et al [9] which states that there are differences in physics learning outcomes, students who use learning media make students more active in learning and skilled in working on questions, this does not happen to classes whose learning does not use learning media.

2. Method

The development research of this google site-based learning media uses an ADDIE research and development model there is 5 steps: analyze, design, development, implementation and evaluation. This research is conducted on Laboratorium PMIPA, FKIP, Riau University.

Instrument in validity test used a validation assessment sheet. The validation assessment sheet used is in the form of a checklist and uses 5 levels of assessment. The aspect of the instrument is Design, Pedagogic, Content and technique. The validation assessment sheet is used to obtain quantitative data from the validator's assessment.

Tabel 1. Category of Validity Assessment Sheet

Category	Score
Strongly Agree	5
Agree	4
Neither Agree or Disagree	3
Disagree	2
Strongly Disagree	1

[10]

Table 1 is a category table for the validity assessment sheet which consists of 5 categories, starting from the Strongly agree to strongly disagree category. The category starts from a score of 5 to 1. This category of validity assessment sheets is used in this research. Furthermore, the assessment scores were analyzed using Aiken'sV formulas with descriptive analysis.

Aiken's V Formulas:

$$V = \frac{\sum s}{n(c-1)}$$

Explanation:
S = r-Lo
V = Aiken Validity index
Lo = Lowest score of validity
c = Highest score of validity
r = score by validator
n = amount of validator

Google site-based learning media is valid if score of validity Aiken's V > 0,4 on all aspects [11]

Table 2. Interpretation score of Aiken's V

No	Score	Category
1	0,80 < V ≤ 1,00	Excellent
2	0,60 < V ≤ 0,80	Good
3	0,40 < V ≤ 0,60	Enough
4	0,20 < V ≤ 0,40	Poor
5	0,00 < V ≤ 0,10	Bad

[12]

Table 2 is the validity interval which is the reference for the validity of google site-based learning media.

After the validation assessment process, the developed google site-based learning media were revised based on suggestions from the validator. If the assessment score from the validator on each google site-basedlearning media assessment item is less than 3 (scale 1-5), then the items are corrected according to the suggestions and then returned to the validator to be assessed. This process is carried out until all validators give a score > 3. Then the average score of each assessment item is calculated. If the average score obtained is between 0,40 and 1,00, it can be concluded that the google site-based learning media is valid.

After the product is valid, a practical test is carried out. This practical test was conducted at SMAN 9 Pekanbaru. The time of the practical test began on 24th November 2022. The data for this research were obtained from a questionnaire given to 20 students in grade XII and equivalent where students act as users.

Table 3. Category of Practicallity Assessment Sheet

Category	Score
Strongly Agree	5
Agree	4
Neither Agree or Disagree	3
Disagree	2
Strongly Disagree	1

[10]

Table 3 is a category table for the validity assessment sheet which consists of 5 categories, starting from the Strongly agree to strongly disagree category. The category starts from a score of 5 to 1. This category of validity assessment sheets is used in this research. Furthermore, the assessment scores of practicallitywere analyzed using formulas below.

$$Practicallity\ Value = \frac{the\ total\ score\ obtained}{total\ all\ score}$$

Table 4. Interpretation of Practicallity Value

No	Practicallity Value	Category
1	86% - 100%	Strongly Practical
2	76% - 85%	Practical
3	60% - 75%	Practical Enough
4	<60%	Not Practical

[13]

3. Result

The validation result of google site-based learning media shown below.

Table 5. The Result of The Validation Assessment of Google Site-Based Design Aspect

No	Aspect	V	Category
1	Interesting learning media design	0,92	Excellent
2	The letters used are appropriate or easy to read	1	Excellent
3	Videos in media according to content	1	Excellent
4	The illustrations in the media match the contents	1	Excellent
5	The video used helps students' understanding	0,92	Excellent
6	The illustrations used help students understand	0,92	Excellent
7	Buttons or signs used are easy to recognize	1	Excellent
8	The position of text, images or signs is consistent	1	Excellent

Table 5 above shown the result of the assessment with Aiken's V Formulas in Design aspects. Every indicator score is more than 0,75 its mean every indicator already valid with an excellent category. The result of the assessment with Aiken's V Formulas in pedagogic aspects is shown below.

Table 6. The Result of The Validation Assessment of Google Site-Based Pedagogic Aspect

No	Aspect	V	Category
1	Teaching competencies are written clearly	1	Excellent
2	Learning media helps achieve competency	1	Excellent
3	Topics according to competence	1	Excellent
4	Submission of topics attracts students' attention	0,92	Excellent
5	The information conveyed is easy to understand	0,83	Excellent
6	Submission of material is organized and easy to follow	0,83	Excellent
7	The questions given are in accordance with the material	0,92	Excellent

Table 6 above shown the result of the assessment with Aiken's V Formulas in pedagogic aspects. Every indicator score is more than 0,75 its mean every indicator already valid with an excellent category. The result of the assessment with Aiken's V Formulas in content aspects is shown below.

Table 7. The Result of The Validation Assessment of Google Site-Based Content Aspect

No	Aspect	V	Category
1	The study material is in accordance with the Merdeka curriculum	0,92	Excellent
2	Subject matter according to competence	0,92	Excellent
3	Study material according to the formula	0,92	Excellent
4	Learning materials contain educational values	0,92	Excellent
5	The study material is accompanied by exercises	1	Excellent
6	Exercise according to the topic of the lesson	1	Excellent
7	Learning media is accompanied by evaluation questions	1	Excellent
8	Media can be used individually without the help of others	1	Excellent

Table 7 above shown the result of the assessment with Aiken's V Formulas in content aspects. Every indicator score is more than 0,75 its mean every indicator already valid with an excellent category. The result of the assessment with Aiken's V Formulas in technique aspects is shown below.

Table 8. The Result of TheValidation Assessment of Google Site-Based Technique Aspect

No	Aspect	V	Category
1	Users can be assisted in controlling the learning process	0,92	Excellent
2	Media has many branches to other parts	1	Excellent
3	Users are not stuck when using the media	0,92	Excellent
4	The use of media in conveying material is easy to follow	0,83	Excellent
5	There is more than one acquisition of information	0,92	Excellent
6	Users can easily find the information they need	0,83	Excellent
7	Users can easily exit the media	1	Excellent
8	Media can be used individually without the help of others	0,92	Excellent
9	Media can be used anywhere	0,92	Excellent

Table 8 above shown the result of the assessment with Aiken's V Formulas in technique aspects. Every indicator score is more than 0,75 its mean every indicator already valid with an excellent category. Therefore, it can be concluded that the developed google site-based learning media are valid.

The practicallity result of google site-based learning media shown below.

Table 9. The Result of The Practicallity Assessment of Google Site-Based Ease of Use and Design Aspect

No	Aspect	V	Category
1	The learning web is easy to use	86	Strongly Practical
2	Through the Web learning a lot of additional information	91	Strongly Practical
3	The material presented is easy to understand and clear	90	Strongly Practical
4	The material is in accordance with teaching materials at school	91	Strongly Practical
5	Images and those used are easy to understand	92	Strongly Practical
6	The sound of delivery of the material is correct	91	Strongly Practical
7	Buttons/symbols in the use of web learning are easy to use	88	Strongly Practical
8	Text, images, and other supporting videos are suitable	92	Strongly Practical
9	The language used is appropriate	92	Strongly Practical
10	Exercises can be done easily	89	Strongly Practical

Table 9 above shown the result of the practicallity assessment with Aiken's V Formulas in Ease of Use and Design aspects. Every indicator score is on range 86%-100% its mean every indicator already practical with an strongly practical category. The result of the practicallity assessment with Aiken's V Formulas in satisfaction aspects is shown below.

Table 10. The Result of The Practicallity Assessment of Google Site-Based Satisfaction Aspect

No	Aspect	V	Category
1	Web learning feels good	88	Strongly Practical
2	Can be used on android itself	92	Strongly Practical
3	Reading the writing on the screen is very easy	89	Strongly Practical
4	The color composition is perfect	93	Strongly Practical

5	The images shown are interesting	91	Strongly Practical
6	Buttons/symbols are understandable	88	Strongly Practical
7	Can help understand the subject matter	90	Strongly Practical
8	The language used is understandable	92	Strongly Practical
9	Every question can be answered	89	Strongly Practical
10	Can increase knowledge about global warming material	91	Strongly Practical
11	Web learning can be used for other materials	88	Strongly Practical
12	Web learning can measure learning ability	92	Strongly Practical
13	Can study independently	90	Strongly Practical

Table 10 above shown the result of the practicallity assessment with Aiken's V Formulas in Satisfaction aspects. Every indicator score is on range 86%-100% its mean every indicator already practical with an strongly practical category. The result of the practicallity assessment with Aiken's V Formulas in efficiency aspects is shown below.

Table 11. The Result of The Practicallity Assessment of Google Site-Based Efficiency Aspect

No	Aspect	V	Category
1	Can save time in understanding the material	88	Strongly Practical
2	Can be reused anytime and anywhere	95	Strongly Practical
3	Subject matter can be completed according to the schedule	90	Strongly Practical
4	Can be more active in learning activities	94	Strongly Practical
5	Easily conclude learning activities directly	90	Strongly Practical

Table 11 above shown the result of the practicallity assessment with Aiken's V Formulas in efficiency aspects. Every indicator score is on range 86%-100% its mean every indicator already practical with an strongly practical category.

The validation and practicality results obtained have met each of the indicators. Therefore, it can be concluded that the Google Site-Based Interactive Learning Media using H5P on Global Warming Material is declared valid and practical to be used as a learning media in high school.

4. Conclusion

Based on the results of research and development that have been carried out, it can be concluded that the Google Site-Based Interactive Learning Media using H5P on Global Warming Material are valid and stated practically in all indicators. Thus, the learning media can be used by the teacher as flexible learning media. As a recommendation, the researcher recommends the next researcher to continue research on the effectiveness of Google Site-Based Interactive Learning Media using H5P on Global Warming Material.

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