

Developing Digital Worksheet for Ten Graders' Reading Comprehension Using Google Site

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Abstract - Students at a High School in Kota Jambi encounter challenges in acquiring reading comprehension skills, manifesting difficulties in grasping contextual meanings and exhibiting a limited vocabulary. Consequently, these impediments hinder their ability to comprehend reading materials effectively. To help students' comprehension, a digital worksheet had been developed as an intervention strategy. Thus, this research was intended to develop a digital worksheet for reading comprehension using the Google Site platform, specifically catering to Grade 10 students at SMAN 11 Kota Jambi. The research methodology employed the ADDIE framework, a systematic instructional design model comprising five iterative stages: analyze, design, develop, implement, and evaluate. To gather comprehensive data, questionnaires were administered and subsequently analyzed through a combination of qualitative and quantitative methods. The findings of this research culminated in the creation of a digital worksheet designed to facilitate an engaging and interactive approach to learning reading comprehension. The validation process involved assessment by media and material experts, affirming the worksheet's validity and suitability for implementation in an educational context. According to the students' responses to the questionnaire, 53% of participants reported an enhanced understanding of the materials, highlighting the digital worksheet's efficacy in rendering the learning process enjoyable and interactive.

Keywords: digital worksheet, high school, learning reading comprehension, Google Site.

1. Introduction

Reading is one of the basic skills in learning English. The purpose of reading is to understand textual materials and get the idea from the materials. Fauziati (2010) stated that reading skill is an ability to relate the textual material to one's own knowledge by comprehending the text. In reading textual materials, the readers are not just moving their eyes along the sentences, instead the readers' mind needs to work to get the idea from the textual materials. It is called Reading Comprehension.

According to OECD (2023), an assessment report on the international students' abilities, known as the Programme for International Student Assessment (PISA) 2022 stated that the reading abilities of Indonesian students are classified as low on the ASEAN scale, with a score of 359 points, significantly below the average scores of OECD member countries, which range from 472 to 480 points. Based on the data from the National Library (Perpustakaan Nasional), the overall reading interest rate (TGM) of the Indonesian population was 63.9 points in 2022. This score reflects a 7.4% increase compared to the previous year, which was 59.52 points. This data showed that Indonesian people that have low interest in reading.

According to Widyaningrum (2022), external factors causing low students' interest in reading include an unsupportive school environment, suboptimal library roles, and the influence of mobile phone usage. Sari (2018) had similar statement regarding external factor of low interest in reading of Indonesia students. Sari stated that external factors causing low students' interest in reading include an unsupportive school environment, suboptimal library roles, limitations in books/reading materials, lack of family support, and the influence of watching television and using mobile phones. Two statements above showed that mobile phone was one of the external factors that caused low students' interest in reading.

Two statements above showed that mobile phone was one of the external factors that caused low students' interest in reading. Thus, researcher planned to develop a digital reading media that could be operated on mobile phone. The researcher expected that students will be more interested when using mobile phone as a learning reading media. A study by Kabali et al. (2015), published in the journal "Pediatrics," indicated that the use of interactive digital books can enhance children's interest in reading and promoted positive social interaction. Digital books could create a more engaging and participatory reading experience. Ainsworth (2008) emphasized that various media in digital books can enhance readers' motivation and engagement. The use of images, animations, and interactive elements can make learning more interesting and motivate learners to actively participate. Dobler (2016) also had positive view about the uses of digital media in learning. Dobler argued that interactive digital books can provide better support for diverse learning styles. The use of multimedia allows students to choose how they understand and present information. Since the students often used printed worksheets in the class, thus the researcher will develop an interactive digital worksheet that could be accessed through a smartphone. The product of this research was expected to increase students' interest in reading.

In conclusion, while both printed and digital worksheets serve the same purpose of providing practice and reinforcement of concepts, they have distinct advantages and disadvantages. Printed worksheets may be preferred by some students for their tactile experience, while digital worksheets offer greater interactivity, feedback, and customization options. Ultimately, the choice between printed and digital worksheets depends on the specific needs and preferences of students and teachers.

The researcher conducted a preliminary informal interview with an English teacher in SMAN 11 Kota Jambi at 20 November 2022. The teacher stated that digital media is rarely used in the learning process, especially in learning English. This is caused by the teachers who are not really competent enough to operate gadget for learning purpose. The teachers admit that gadget can contribute positively to learning process, but at the same time they do not understand how to use it. The students of SMAN 11 Kota Jambi will enjoy the English learning process. The researcher plans to develop a digital worksheet containing quizzes, games and basic style questions using Google Forms. In the interview, the English teacher agrees that the product will be applied in the learning process.

2. Method

The research design that was used in this research was Research and Development. Sugiyono (2013) defines "research and development as a research method to make a product and test the effectiveness of the product". This research used research and development as the design because this research is focused on the process of developing the product. ADDIE is an acronym for Analysis, Design, Development, Implementation, and Evaluation and it is a product development concept.

Branch (2009) stated that “using the ADDIE process to create products is still one of the most effective tools available today. ADDIE is simply a process that serves as a reference framework for complex situations, thus helping develop educational products and other learning resources”.

Analyzing Phase

In this phase, the researcher made a questionnaire that was given to the target user. This questionnaire was aimed to ask about students’ style in learning for a learning worksheet on reading comprehension. The questionnaire was about their habit while in the learning process. The results of the questionnaire were used to design and develop the worksheet.

Designing Phase

Stepping forward to this phase, the worksheet was designed based on the need analysis in the first phase. Starting from the design of the user interface of the worksheet, the contents and the material. Because the worksheet would be in a digital form, the researcher determined the website design that would be used in the worksheet so the digital worksheet would be in accordance with the results of the need analysis.

Developing Phase

In this phase, the researcher started the developing process on making the digital worksheet. The designed layout was applied in this process. The researcher also gathered the materials for the content of the worksheet. Beside the materials, other media such as games, quizzes, picture and video were included to the digital worksheet. Because the worksheet was in the digital form, the students would surely be able to interact with the contents of the worksheet. After the worksheet was done, it was validated by two experts. One was a materials expert and the second one was a media expert.

Implementing Phase

Implementing phase was a phase where the researcher applied the product to the target users. In this research, the product was a digital worksheet and the target users were SMAN 11 Kota Jambi students grade 10. The digital worksheet was applied for the learning process.

Evaluating Phase

This was the last phase of the research. This phase contained the process where the product was evaluated. The researcher made a conclusion if the product was appropriate or not for the learning process. Determining the appropriateness was done based on the “Students’ Response Questionnaire” that was given to the students after they tried the Digital Worksheet. The advantages and the disadvantages of the worksheet during the implementation were also explained in this phase.

To collect the data for this research, the researcher used questionnaires. There were four questionnaires that were used to collect the data in this research.

NO.	TYPE OF QUESTIONNAIRE	TARGET
1	Learning Style Analysis Questionnaire	Grade 10 Students
2	Media Validation Questionnaire	Media Validator
3	Material Validation Questionnaire	Material Validator
4	Students’ Response Questionnaire	Grade 10 Students

The questionnaires were designed based on this Likert table:

CRITERIA	SCORE	
	Positive (+)	Negative (-)
Sangat Layak	5	1
Layak	4	2
Cukup Layak	3	3
Tidak Layak	2	4
Sangat Tidak Layak	1	5

Data analyzing technique that was used in this research was descriptive quantitative based on the conducted developing procedure. According to Sugiyono (2008) descriptive studies are conducted to determine the value of an independent variable, either one or more (independent) variables, without comparison or association with other variables. Research data were gathered from students’ need analysis, validation of material and media experts and opinion from the students to the developed digital worksheet.

The researcher conducted a learning style analysis questionnaire using google form. After the students filled the questionnaire, the data were instantly displayed as diagram. The collected data was calculated on average for each criterion assessed by the formula:

$$\bar{X} = \frac{\sum x}{N}$$

Description:

\bar{X} = average score,

$\sum x$ = total score,

N = number of indicators.

(Source: Sukardjo, 2012: 98)

The media that had been developed was then assessed by experts. The assessment carried out aimed to validate the media used in the research.

$$P = \frac{\text{Total score obtained}}{\text{Total criterion scores}} \times 100$$

Description:

P = Media eligibility percentage

Criterion scores can be obtained by using following formula:

Criterion Score = The highest score for each item x the number of items x the number of respondents

The results of the questionnaires in the form of numbers were given an assessment score with the following conditions:

Score	Range	Classification
5	81% - 100%	Sangat Layak
4	61% - 80%	Layak
3	41% - 60%	Cukup Layak
2	21% - 40%	Tidak Layak
1	≤ 20%	Sangat Tidak Layak

3. Results and Discussion

This chapter is discussing about the process of the research. This chapter will explain the step by step of developing the digital worksheet. The step by step of the research will be explained systematically based on ADDIE (analyze, design, develop, implement and evaluate) method. After explaining the method in previous chapter, the process of the research will be explained each phase in this chapter.

Analyzing Phase

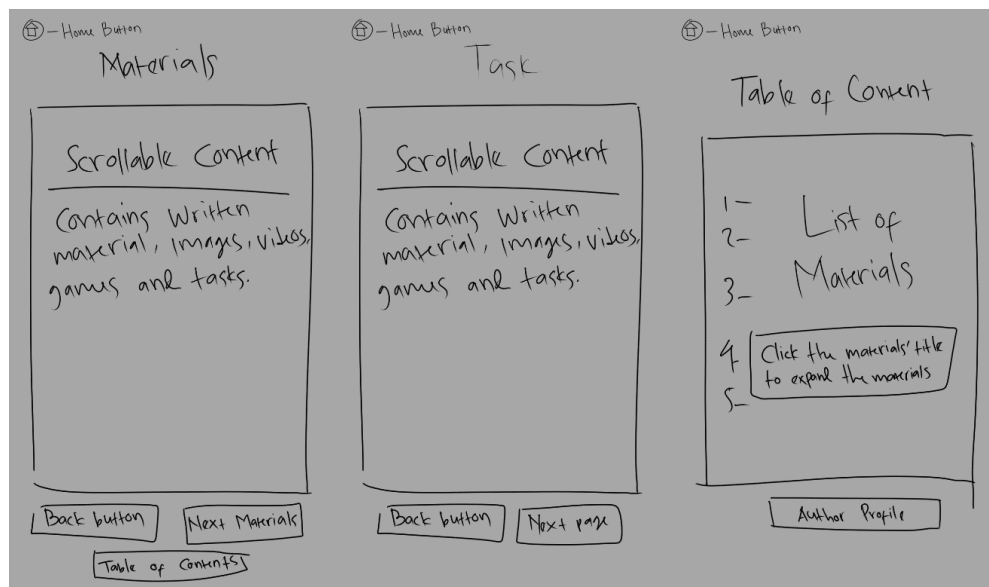
In this phase, a Learning Style Analysis Questioner were given to class 10.E students in SMAN 11 Kota Jambi. The researcher also did a quick interview with an English teacher about the curriculum that is used by grade 10 students. After the learning style analysis process was done, the data that were collected from the questionnaire were analyzed.

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The researcher collected the data from questionnaire that showed 36% of students in 10.E had visual learning style, 32% of them had auditory and 32% tactile learning style. Based on the quick interview done with an English teacher, the curriculum used by grade 10 was “Kurikulum Merdeka”.

Designing Phase

This phase was where the researcher started designing the user interface and the contents of the worksheet. Designing phase was very helpful because the result could be used to arrange the contents and the visual of the worksheet before developing the worksheet. There were two elements that needed to be designed for the worksheet, layout and materials. The designed layout for the worksheet is shown below:



Creating a framework in designing digital worksheet was very important because it helped to create a structured, intuitive and effective user experience. According to Norman (2013), “A good framework helps plan layout, organize content, and guide interactions with users, creating an experience that is easier to understand and use”.

The materials were designed based on Kurikulum Merdeka. Some adjustments were done for the materials of the worksheet. Jambi Tourist Destination was the chosen topic for the worksheet. The reason of choosing this topic was because the researcher wants to introduce the Jambi tourist destinations to the students. The result of Learning Style Analysis Questioner showed that 36% of students in 10.E had visual learning style, 32% of them had auditory and 32% tactile learning style. Based on the result, the researcher arranged 5 materials which contain 3 visual materials, one auditory material and one tactile material. Each material will be contained by reading material, videos, pictures and games.

Developing Phase

In this phase, the researcher started to develop the worksheet based on the designed layout, materials and media. There were two elements that were developed by the researcher, they are; the website and the contents of the worksheet. This phase was also contained the process of validating the worksheet. This validating process were done when the worksheet was established.

As Glover (2013) and Aucard (2008) stated that “to make a website using Google site does not need coding skill. As long as the users can operate Microsoft Word, they can manage to create a sharing website”, it just took some times to build the Google Site website. The researcher simply just chose a template and set up some pages needed for the worksheet. Edform (2023) stated that the criteria for the worksheet template are appeal visual design, good colour harmony, readable font.

The researcher developed the materials and contents after the website was established so the website could be arranged easily. In developing materials, the materials were gathered from internet. The criteria for the materials are related to the topic, possible to be made as a task, relevant to the readers and develop students’ reading skill.

After the worksheet is finished in the developing phase, the researcher validated it by asking to material and media expert. The validating process is very important to make sure that the worksheet is ready to be released to the students.

- **Material Validation**

$$P = \frac{61}{65} \times 100 = 93,8 \text{ (94\%)}$$

Based on the *Media eligibility percentage* table, 94% indicated that the worksheet is very proper to be released.

- **Media Validation**

$$P = \frac{70}{90} \times 100 = 77,7 \text{ (78\%)}$$

Based on the *Media eligibility percentage* table, 78% indicated that the worksheet is proper to be released.

Implementing Phase

Implementing the worksheet to the students is the next step after the worksheet was validated. In this phase, the researcher came to school to meet the target audience which was SMAN 11 Kota Jambi students grade 10. The worksheet was introduced to the students. After that, the tutorial of how to operate the worksheet were explained to the students. After the students understood how to use it, they were asked to try the worksheet.

In the implementing process, some students were still confused to use the worksheet. They still did not fully understand how to operate the worksheet. Because of the natural phenomenon (smog), the learning time in the class was shorten from 90 minutes to 60 minutes. The implementation process was not as planned before. Because the implementation process was limited by time, the students could not read the guide because of the time. The researcher needed to re explain for several time so the students understood the assignment. They also were asked to continue to try the worksheet at home.

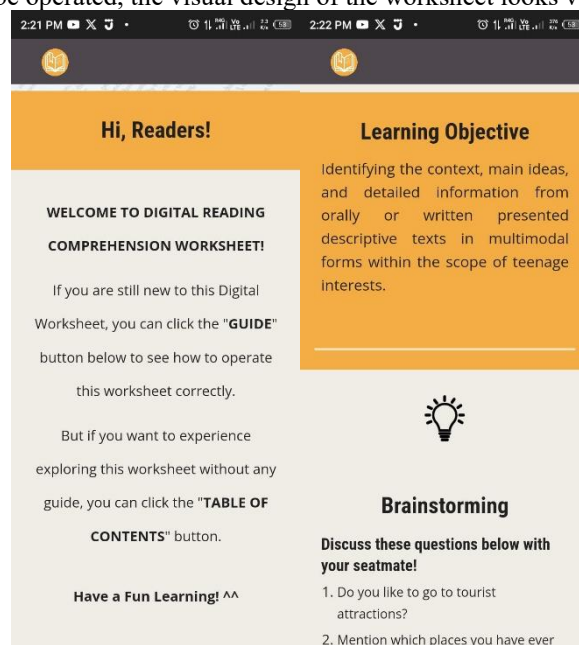
After the implementation process was done, the students were given a “Questionnaire of Students’ Response to The Digital Worksheet”. This questionnaire was aimed to ask students opinion about the worksheet.

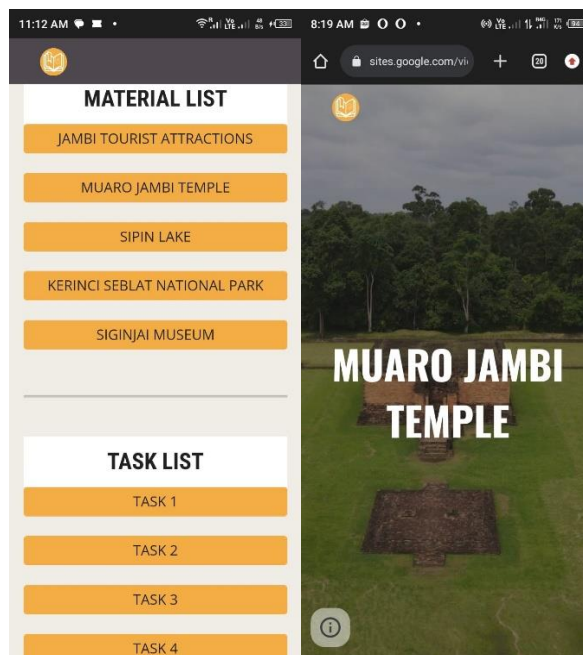
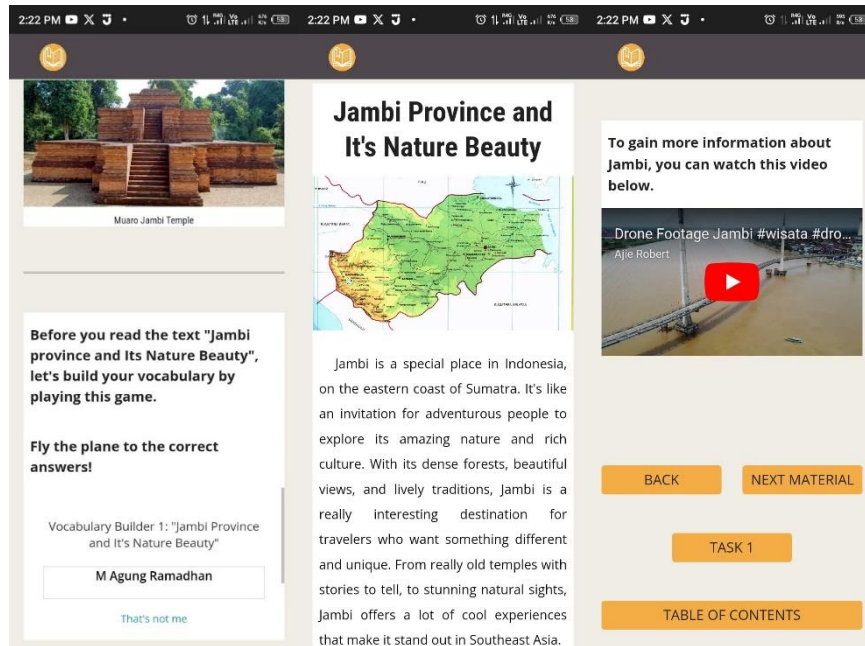
Evaluating Phase

The product that was developed is a reading comprehension worksheet. Based on the implementing phase, the students responded the worksheet positively. They are enjoying the contents and the worksheet.

The students and the researcher experienced several problems during the implementation process. The implementation process was limited by the time because the learning time was shortened due to smog and needed to re explain the assignments to the students because they never used similar worksheet before. For the students, they had difficulty understanding the reading materials in English so they needed to use translator to understand the material which consumed more time. Because the worksheet is a web-based worksheet, it needs internet access to be operated. There were 30% of the students did not have internet access while the implementing process. These problems made the implementing process did not run efficiently.

Another disadvantage of the product is because it was developed using Google Site, the feature available is very limited. The worksheet has very simple visual design. Although the worksheet is easy to be operated, the visual design of the worksheet looks very simple.





4. Conclusion and Suggestion

The product that was developed is a reading comprehension digital worksheet. The worksheet was developed using Google Site. Developing the worksheet does not require coding skill. As long as the users are able to operate basic skill of Microsoft Word, they can build a website such as digital worksheet using Google Site. This research is conducted by using ADDIE (Analyze, Design, Develop, Implement, and Evaluate) method. This method helped the development process of the worksheet systematically. The worksheet is proper to be released and valid according to the validator with 94% percentage from material validator and 78% percentage from media validator

The users responded positively to the worksheet. The worksheet helped the students to learn reading comprehension more fun. The students were very excited reading the materials and playing the games. Based on the students' respond questionnaire, 53% students agree that the materials of the worksheet are easy to be understood. The students found out that the worksheet is fun for learning reading media.

The worksheet that was developed by the researcher is using Google Site. The users need to be online to operate the worksheet. In the implementing process, around 30% of the students did not have internet access. To solve this problem, the students were asked to tether with their seat mate or borrow their seat mate's phone. This made the implementing process took much time. As for suggestion, the researchers who want to do similar research, they can make the worksheet that can be accessed offline. Other researchers can also try different websites to build a digital worksheet which may have better feature than Google Site.

This research is using RnD method. Thereonly focuses on developing process. For further research, the other researchers can use this worksheet to know the effectivity of this worksheet (<https://sites.google.com/view/reading-comprehension-site/home-page>) in the learning process using appropriate research methods.

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