



## Developing Digital Worksheet for Teaching Reading Comprehension to Grade XI Students of Automotive Department at SMKN 5 Medan

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### ABSTRACT

The aim of this study was to develop digital worksheet for teaching reading comprehension to grade XI students of Automotive Department at SMKN 5 Medan. This study was conducted using Research and Development (R&D) method from Gall, Gall, and Borg (2003) under six stages; gathering data and information, analyzing the data, media design, validating by experts, revising the media, and final product. The subject of the study was the eleventh-grade students of Automotive Department at SMKN 5 Medan, specifically in class XI TKRO 4. There were 30 students who participated in this research. The data were collected through questionnaire and documentation. The results of the study showed that Quizizz platform can be used as students' reading comprehension worksheet. In the percentage form, the average score of experts' validation in

terms of product and content aspect was 94.2%, the process aspect was 90%, the linguistic aspect was 100% and the layout aspect was 100%. The scores were categorized as "Very Good". It means the developed digital reading worksheet of Descriptive Text and Procedure Text was valid and appropriate to be used as reading worksheet for the eleventh-grade students of Automotive Department at SMKN 5 Medan.

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## **INTRODUCTION**

Automotive Department, which teaches students the fundamentals of engines as well as how to assemble, maintain, and repair it, is one major that is highly sought after by students at Vocational High Schools. In class, students are not only taught basic Automotive theory, but are also given practical training in using tools and machines. So, they need to understand the basic skills for reading manuals and technical instructions, such as instructions for using tools, safety procedures, and descriptions of machine components which are often written in English. However, in reality many students have limited comprehension of English texts in Automotive major class. This problem may be caused by students' low interest in reading, lack of material that is relevant to their needs, and ineffective learning methods (Nunan, 2003). Therefore, a more innovative approach to teaching reading skills is required, especially to improve students' comprehension of English texts related to the Automotive industry.

Based on the preliminary observation at SMKN 5 Medan, which involved interviewing an English teacher about the teaching and learning process, the teacher stated that most of the students in the Automotive Department had difficulties in comprehending English reading texts. The worksheet provided by the teacher was also only based on the existing textbook, which is just primarily designed for General High School students. As a result, the content of the worksheet was not aligned with the specific needs of the Automotive Department students. This worksheet was distributed as printed handouts to students, who were then instructed to complete the tasks and report their answers. Occasionally, the teacher also gave verbal instructions for the assignments that the students needed to complete.

In fact, in this 21<sup>st</sup> century education which relates to the technological development era, students should be exposed to more digital aspects. Therefore, teachers as facilitators are required to be more creative and innovative in developing learning materials, including worksheet. One effective way to address this issue is to transition from conventional worksheet to digital worksheet. According to Hwang et al. (2015), Digital tools not only provide interactive content but also allow personalized learning experiences that cater to

individual student needs. Research in language learning suggests that integrating digital learning tools can significantly enhance student engagement and comprehension (Ally, 2004).

One digital platform that can be used as a digital worksheet is Quizizz. Quizizz is a game-based educational tool that allows teachers to create quizzes as worksheets, fostering a more engaging learning experience (Basuki & Hidayati, 2019). Using Quizizz as a learning tool also has the potential to boost students' motivation. Students will be more motivated to learn if they use digital-based learning methods, such as Quizizz platform, because they will have a fun experience when working on questions. They will not only improve their reading comprehension skills, but they will also be helped to understand various technical terms in English that they will encounter in their future jobs. Studies have shown that integrating technology into the classroom increases students' motivation and engagement, leading to better learning outcomes (Gilakjani, 2017).

In short, the purpose of creating this Quizizz-based digital worksheet is to improve the reading comprehension skills of class XI students of Automotive Department at SMKN 5 Medan. The content presented in this worksheet is tailored to the needs and context of the Automotive industry, in accordance with the current independent curriculum taught to class XI students, which includes descriptive text and procedure text.

## **METHOD**

This study applied Research and Development (R&D) research method proposed by Gall, Gall & Borg (2003). By following the six steps of research and development such as gathering data and information, need analysis, media design, validating to experts, revision, and final product; the recommended worksheet was developed. The subject of this study was the eleventh-grade students of Automotive Department at SMKN 5 Medan, specifically in class XI TKRO 4. There were 30 students who participated in this research. In collecting the data, the researcher used the combination of these two instruments by using questionnaire and documentation.

## RESULTS

### 1. Gathering data and information

The data and information were gained from the primary observation to the eleventh-grade students of Automotive Department at SMKN 5 Medan and also from the interview with an English teacher at SMKN 5 Medan. The fact showed that at that school, teacher taught the students by using traditional way and rarely used any digital media to boost students' interest in learning English. The teacher only used the existing English textbook to deliver the material to the students and also use this book as the worksheet as well. In addition, the teacher sometimes asked the students to open their gadget and find a song or conversation video in YouTube to practice the students' English skills. Then, the teacher instructed the students to write that on their book, translate it as well from English to Indonesian, and then practice it by reading it aloud in front of the classroom. There was no attractive way when giving them the worksheet to make the students feel motivated in doing the worksheet. So that it brought up problems and difficulties for Automotive students in doing the worksheet and affected their scores. In short, students, especially in Automotive Department, need audio visual media in order to make them feel more interesting in doing their English worksheet so they can understand English well.

### 2. Need Analysis

The need analysis was conducted on April 21<sup>st</sup>, 2025 at SMKN 5 Medan. The need analysis questionnaire was distributed to thirty students of Automotive major in grade eleventh, specifically in class XI TKRO 4. The questionnaire consisted of 14 questions which covered the information about the target needs and learning needs. The detailed results of the need analysis are presented as follows.

#### 1. Target Needs

Target needs are what learners need to do in the target situation. Target needs are related to some terms such as necessities, lacks, and wants.

##### *a) Necessities*

According to Hutchinson & Waters (1987), necessities are what aspects of language do students need to be able to function effectively as targeted. In SMKN 5 Medan, the

results of necessities gained from the questionnaire were about their goal in learning English. The detailed results could be seen in the following Table.

**Table 1. Learners' Necessities in Learning English**

No	Questions	Options	N	F	Percentage (%)
1.	At this time, I need reading skills in English for....	a. Carrying out learning activities effectively in class.	30	12	40
		b. Increase English vocabulary.		3	10
		c. Understanding English reading texts.		9	30
		d. Gain new knowledge contained in the text.		6	20
2.	In the future, I will need English reading skills to...	a. To improve academic abilities.	30	6	20
		b. To get better scores in international standard tests like TOEFL, IELTS, etc.		5	16.6
		c. To make it easier to get a job.		8	26.6
		d. To be able to compete in the world of higher education.		5	16.6
		e. For purposes such as presentations, etc.		6	20
6.	My goal in participating in reading activities in an academic context is...	a. To be able to master English vocabulary to understand spoken and written texts.	30	12	40
		b. To be able to master English vocabulary and use it to communicate orally or in writing.		9	30
		c. To be able to master the use of grammar well both orally and in writing during the learning process.		7	23.3
		d. To be able to recognize and understand every type of English text.		2	6.6

As proposed in the table above, Automotive students need reading skill in English to carrying out learning activities effectively in class (40%) and to make it easier to get a job in the future (26.6%). Moreover, the students stated that their goal in learning English reading skills is because they need to be able to master English vocabulary to understand spoken and written texts (40%). In line with the interview with the English teacher, the teacher stated that Automotive students are difficult to read and comprehend English texts, starting from pronouncing words/sentences and translating them. This because Automotive students were lack of vocabulary in studying English so it makes them to think that their goal in learning English is to master English vocabulary to understand English well.

### b) Lacks

Lacks are what students have not mastered (Hutchinson & Waters, 1987). In this case, the eleventh-grade students of Automotive Department at SMKN 5 Medan had lacks in terms of their difficulty in learning English text and their ways when learning it.

**Table 2. Learners' Difficulties in Learning English Text**

No	Questions	Options	N	F	Percentage (%)
3.	So far, my general English reading ability is...	a. I can't understand the English reading text at all.	30	3	10
		b. I have a little difficulty in understanding English reading texts in various situations using various topics.		15	50
		c. I can understand reading texts in English in situations and topics that I am familiar with, although I still make many mistakes.		12	40
		d. I can understand well any text in English on various topics, fluently and acceptably.		0	0
4.	My difficulty in reading English texts is...	a. Understand every vocabulary in the reading text.	30	22	73.3
		b. Capture the meaning or main idea of the reading text.		6	20
		c. Find information contained in the text.		2	6.6
14.	Your role when carrying out reading activities in learning activities should be...	a. Listen to the teacher's explanation and take notes.	30	4	13.3
		b. Listen to the teacher's explanation and carry out the instructions given by the teacher.		9	30
		c. Actively participate in discussions and exchange ideas with teachers and other students regarding certain issues/topics.		7	23.3
		d. Practice on your own in a calm class atmosphere.		10	33.3

Based on the percentage above, half of the Automotive students lack of understanding English reading texts in various situations using various topics (50%). They also have difficulty in understanding every vocabulary in the reading text (73.3%). Moreover, it can be seen that they are not active in the classroom because they prefer practice their English reading skill on their own in a calm class atmosphere (33.3%). There is no feedback given by the students after the teacher had finished the explanation of the material.

### c) Wants

Hutchinson & Waters (1987) stated that wants are what students want to learn. The data showed that in SMKN 5 Medan, there were some learners' interest in learning English.

**Table 3. Learners' Interest in Learning English**

No	Questions	Options	N	F	Percentage (%)
5.	You want the reading material that you learn can help you in...	a. Comprehending English text.	30	14	46.6
		b. Fixing the English grammar.		9	30
		c. Increase English vocabulary.		7	23.3
7.	As a vocational high school student, what reading materials do you need to learn?	a. Topics related to everyday life experiences.	30	12	40
		b. Topics related to the world of teenagers (music, movies, sports).		0	0
		c. Topics related to the world of work according to the major taken.		17	56.6
		d. Topics related to something interesting.		1	3.3
8.	I want reading lessons that can make me...	a. Add new vocabulary.	30	1	3.3
		b. Improve the ability to comprehend a text.		19	63.3
		c. Master grammar and structure well.		9	30
		d. Find specific information precisely.		1	3.3
9.	English reading skill learning activities that you want are....	a. Read aloud with correct pronunciation and intonation.	30	2	6.6
		b. Read the text then answer the questions.		11	36.6
		c. Read and sort sentences into complete paragraphs or paragraphs into complete text.		0	0
		d. Translate each sentence in the reading into Indonesian.		6	20
		e. Discuss the contents of the text in pairs/groups.		3	10
		f. Analyze the meaning of certain vocabulary and its use based on the context in which it is read.		8	26.6

Based on the data above, from learning English reading skill, Automotive students want to comprehend English text well (46.6%) and improving the ability to comprehend English text (63.3%) by read the text then answer the questions (36.6%). Moreover, Vocational students also want English reading materials with the topics related to the world of work according to the major taken (56.6%), in this case Automotive major. So, Automotive students wanted to learn English related to the Automotive industry.

## 2. Learning Needs

Learning needs are what learners need to do to learn something. To obtain the learning needs, the researcher observed some aspects, such as reading input and preference in English reading comprehension worksheet.

**Table 4. Reading Input Preference**

No	Questions	Options	N	F	Percentage (%)
11.	The learning input that I prefer in learning English reading is...	a. Simple reading text.	30	8	26.6
		b. Reading text containing long paragraphs.		1	3.3
		c. Text accompanied by images.		17	56.6
		d. Texts that describe the context of everyday life.		4	13.3

**Table 5. Reading Activity Preference**

No	Questions	Options	N	F	Percentage (%)
10.	To study English texts (grammar) in teaching and learning activities, I prefer if...	a. Identify and correct errors in sentence structure.	30	8	26.6
		b. Write sentences based on the patterns learned.		5	16.6
		c. Complete the paragraph in proper grammatical form.		17	56.6
12.	To increase your vocabulary mastery in reading, what activities do you prefer to do?	a. Match English words or phrases with their meanings provided.	30	8	26.6
		b. Interpret sentences or paragraphs using the words provided previously.		4	13.3
		c. Interpret sentences or paragraphs in your own words.		9	30
		d. Interpreting sentences or paragraphs according to the context in which they are read without first providing the meaning.		7	23.3
		e. Identifying word groups (nouns, adjectives, verbs, etc.)		2	6.6
13.	In reading learning process, the activities provided should be...	a. Individual.	30	19	63.3
		b. Pair.		1	3.3
		c. Small groups (3-4 people).		8	26.6
		d. Large groups (5-more people).		2	6.6

In teaching and learning process, Automotive students prefer English reading text that contains images which are in line with the major they take, Automotive industry as their reading input (56.6%). So, the design of the worksheet must have Automotive related picture in every reading text to support the material. Providing images in reading text can stimulate and attract students to read and understand English texts well so that they will



not feel bored when reading the full text. And also, Images in reading text can actually help the students understand the topic of the text before reading the whole text.

In addition, Automotive students prefer complete the paragraph in proper grammatical form as their reading activities in studying English grammar (56.6%), interpret sentences or paragraphs in their own words to increase vocabulary mastery in reading (30%), and doing all of the task individually (63.3%). They prefer do task individually than in pair or groups because they want to be more focused in doing the task without being distracted by anything. In short, digital worksheet is appropriate to support their individual learning but the worksheet must fulfil with vocabulary and grammar activities.

### **3. Developed Media Design**

After conducting the needs analysis and analyzing the results, the next step was designing the worksheet by using digital media based on students' need and students' learning needs. Media that is used as the worksheet is Quizizz. In this reading worksheet, there were 60 questions in total for both descriptive text and procedure text related to the Automotive industry. Each type of text had 30 questions (30 questions for descriptive text and 30 questions for procedure text). And for each type of text, all of the 30 questions were divided into 3 phases, namely 10 questions for Fill in the blank, 10 questions for True (T) or False (F), and 10 questions for Multiple choices. Fill in the blank and True (T) or False (F) questions have the duration about 20 minutes for each phase to answer all of the questions. Meanwhile, the Multiple choices questions have the duration about 30 minutes to answer all of the question correctly. Right after answering every question, the students' score will present on the screen immediately.

### **4. Validating to Experts**

After designing first draft of media, the product was evaluated by experts in terms of the material and the media aspect. The experts gave the judgment by filling in the questionnaire which applied the five scale of Likert Scale. The scales are Very Good (5), Good (4), Fair (3), Poor (2) and Very Poor (1). Furthermore, the results of the calculation

were converted into criteria of feasibility proposed by Sugiyono (2012). If the result is more than 60%, the product is considered feasible. The criteria are as follows.

**Table 6. The Score of Each Scale**

<b>Scores</b>	<b>Categories</b>
<b>81% - 100%</b>	Very Good
<b>61% - 80%</b>	Good
<b>41% - 60%</b>	Fair
<b>21% - 40%</b>	Poor
<b>≤ 20%</b>	Very Poor

The developed worksheet has been validated by the experts and the score for the product and content aspect is 94.2%, the process aspect is 90%, the linguistic aspect is 100% and the layout aspect is 100%. The average worksheet score from both experts was 96% and it was categorized as Very Good. Therefore, the final draft of the developed digital reading worksheet of Descriptive Text and Procedure Text was valid and appropriate to be used as reading worksheet for the eleventh-grade students of Automotive Department at SMKN 5 Medan.

## **5. Revision**

After getting the validation from the experts, there were some parts that needed to be revised. The first expert gave suggestion for descriptive text to design the worksheet not only on Automotive equipment, but also about Automotive vehicles. Meanwhile, the second expert did not give any suggestion to revise the developed digital worksheet because it is already good.

## **6. Final Product**

After revising the student's digital worksheet, the final product had been completed. The student's digital worksheet was developed by using Quizizz with the topic related to Descriptive Text and Procedure Text. This digital media was already developed based on students' need and suitable to be used as their worksheet. The final product was also developed based on the suggestions and the comment of the first draft of the worksheet from the experts.

## **DISCUSSIONS**

This research covered the development of students' worksheet for reading comprehension of Descriptive Text and Procedure Text using Quizizz platform for the eleventh-grade students of Automotive Department at SMKN 5 Medan. The data were analyzed using the six stages of Research and Development (R&D) research method proposed by Gall, Gall, and Borg (2003). The first stage was gathering information and data from primary observation to the eleventh-grade students of Automotive Department at SMKN 5 Medan and also from the interview with an English teacher at SMKN 5 Medan. The digital worksheet was also developed based on the students' needs and learning needs. To know these things, the need analysis was done by giving the questionnaires to Automotive Department students which contains questions that included the necessities, lacks, wants, motivation in doing learning practices, students' interest in regard to learning through digital worksheet, and students' needs in learning reading, and also doing an interview with the English teacher. After doing the needs analysis, it was found that the students had the difficulties in comprehending English reading text starting from pronouncing words/sentences and translating them. The students could not comprehend the English reading text because they lack of vocabularies (table 2). In learning English, they prefer the topics related to the world of work according to the major they take (Table 3) so they can be easier to get a job in the future (table 1). And in learning activity or doing a task, 63.3% of them wanted to do all of the task individually rather than in pair or groups (table 5). In addition, they preferred to read the English reading text with the related picture inside (table 4). These findings aligned with Tomlinson's (2011) theory that effective language materials should be learner-centered, contextualized, and relevant to learners' interests and goals. And also, in line with the students' preference for digital worksheets that include visuals supports, Paivio (1990) stated that combining verbal or visual input enhances comprehension and retention.

The researcher designed a digital worksheet that meets the specific needs of Automotive Department students. The content of the digital worksheet was tailored to the students' vocational background, which supports the concept of ESP (English for Specific Purposes), emphasizing that English materials should be relevant to learners' disciplines and future careers. The worksheet contains of texts and variation of questions (Fill in the

blank, True or False, and Multiple Choice) that highlight the materials of Descriptive Text and Procedure Text.

After completing the design and realizing it digitally through Quizizz, the worksheet went through evaluation and validation from the experts. In validating the worksheet, evaluation rubric was made covered the aspects of product and content, process, linguistic and layout. The developed worksheet has been validated by the experts and the average score from both experts was 96% and it was categorized as Very Good. Therefore, the final draft of the developed digital reading worksheet of Descriptive Text and Procedure Text was valid and appropriate to be used as reading worksheet for the eleventh-grade students of Automotive Department at SMKN 5 Medan.

## **CONCLUSIONS**

After gaining the data and analyzing its components, it was concluded that the worksheet used by the English teacher at SMKN 5 Medan was conventional paper-based worksheet derived directly from the existing textbook, which was primarily designed for General High School students. As a result, the content of the worksheet was not aligned with the specific needs of the Automotive Department students. Students also face problems in comprehending English reading text because they lack of vocabularies. They actually need an attractive worksheet which can stimulate their motivation in learning English. An innovative worksheet is needed to be developed based on their needs.

By following the R&D cycle proposed by Gall, Gall and Borg (2003), this study aimed to develop student's digital worksheet for teaching reading comprehension to the eleventh-grade students of Automotive Department at SMKN 5 Medan using Quizizz. By following the six steps of research and development such as gathering data and information, need analysis, media design, validating to experts, revision, and final product; the recommended worksheet was developed for teaching reading Descriptive Text and Procedure Text. The average score of validation in terms of product and content aspect was 94.2%, the process aspect was 90%, the linguistic aspect was 100% and the layout aspect was 100%. The average worksheet score from both experts was 96% and it was categorized as Very Good. Based on this percentage, it can be concluded that the developed digital reading worksheet of Descriptive Text and Procedure Text was valid and appropriate to be used as reading

worksheet for the eleventh-grade students of Automotive Department at SMKN 5 Medan. For further research, it is recommended to use this study as reference in developing other types of worksheets for all language skills (listening, reading, speaking and writing).

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