



## Improving Learning Outcomes and Self-Regulated Learning Through the Development of Web-Based Learning Media with Canva Platform

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### **Abstract**

The utilization of technology has become widespread, including in the field of education. The effectiveness of education relies on the competence of educators in managing learning processes. Hence, this research aims to develop a website-based learning media assisted by the Canva platform. The feasibility of the media was assessed through validation by material experts, media experts, and users. The developed product aimed to enhance learning outcomes and self-regulated learning abilities. The Borg and Grall method, modified by the researcher, was employed and tested on students in XII grade of OTKP at SMKN 1 Pasuruan. The analysis involved descriptive percentage and independent sample t-test techniques. The validation trial results indicate that the developed outcome aligns with learning objectives, is user-friendly, and effectively supports learning activities. Notably, the unique aspect of the resulting outcome lies in its visually appealing combination of images and animations. Overall, web-based learning media proves to be a feasible and effective tool for improving learning outcomes in the subjects of Automated Management of Facilities and Infrastructure, as well as fostering self-regulated learning abilities.

**Keywords:** *Canva; Learning Media; Self Regulated Learning; Website*

### **Introduction**

The increasingly widespread advancement of technology in all fields is one of the reasons why everyone is required to have skills in the use of technology (Puspita et al., 2020). The use of technology has also spread to the education sector. The emergence of new breakthroughs in the world of education provides positive benefits to human life (Budiharto et al., 2019). The era of educational transformation requires educators to be more creative and innovative in maximizing learning technology (Nastiti et al., 2020). Several main factors contribute to success in learning activities, including teaching materials or learning media. Putra et al., (2017) explained that there has been an increase in the use of information technology that extends to the organizational system and the learning process in the classroom. The use of appropriate learning tools in a lesson is considered to support learning success. With the adjustment of learning technology, it can improve students' self-regulated learning ability, enabling them to motivate themselves to think about how, what, and why they learn (metacognition) (van Alten et al., 2020).

Learning outcomes, which are the values or results achieved after gaining understanding and learning experience, can be enhanced through effective learning experiences (Susanto et al., 2020). These experiences have the potential to foster self-regulated learning abilities, which involve learners organizing their own learning using strategies they develop (Yot-domínguez & Marcelo, 2017). Previous research by Sofia (2014) demonstrated that website development as a learning tool improved self-regulated learning skills. Similarly, Hapsari & Zulherman (2021) found that animated video learning media, supported by the Canva platform, effectively motivated students and improved learning outcomes. The effectiveness of web-based learning in enhancing self-regulated learning abilities was further confirmed by Ferdiansyah & Irfan (2021) and Sulyanah et al. (2021). Based on these findings, the researchers of this study employed a website-based learning media, utilizing the Canva platform.

At SMKN 1 Pasuruan, learning is currently conducted using conventional methods, relying on package books as the primary teaching materials and teacher-centered approaches. The limited use of learning media, such as PowerPoint for materials and Google Forms for questions, along with the monotonous nature of these resources, has hindered students' self-regulated learning abilities (Sofia, 2014). Consequently, student learning outcomes have fallen below the passing grade threshold, leading to decreased interest and participation in learning activities. Recognizing this challenge, this innovative work aims to develop a website-based learning media, tailored to the needs of students in XII grade at SMK N 1 Pasuruan, with the objective of enhancing self-regulated learning abilities and improving learning outcomes.

The proposed approach utilizes website-based learning media assisted by the Canva platform (Firmansyah & Saidah, 2016). The website, designed as a learning tool, distinguishes itself from typical websites by combining attractive images and animations while offering user-friendly features. Embedded with Google Forms, Google Drive, and YouTube, the website provides practice questions and materials that students can access without navigating to new pages. The availability of a free Wi-Fi network in the school supports the use of the website as an innovative learning media. This media offers ease of use for both students and educators, as it can be accessed online anytime and from anywhere. Furthermore, the website provides menu features on each page, allowing users to freely select materials and questions.

This research is significant as an alternative learning media, aiming to enhance students' interest and motivation to learn. The objective is to develop web-based learning media with the assistance of the Canva platform, validated for feasibility by material experts, media experts, and users. The website-based learning tool serves as an independent learning resource and an additional learning option for students and educators. Moreover, this research and development endeavor can be further enhanced through future studies, serving as a reference and basis for subsequent research to improve its effectiveness, quality, and broader applicability.

## ***Literature Review***

Research related to learning media conducted by previous researchers is essential as supporting data. The literature review will discuss various components found in research on improving learning media in the form of a website, including: (1) Learning Media, (2) Website, (3) Canva, (4) Learning Outcomes, and (5) Self-Regulated Learning.

According to Tafonao, (2018), learning media refers to anything that can be utilized to provide sender messages to recipients in order to increase understanding and interest in learning. The development of technology in the field of education has led to various innovations in the use of interactive and innovative learning media (Lestari, 2018). Sahronih et al., (2019) explained that interactive learning devices effectively convey the messages educators want to deliver to students, thereby facilitating the learning process. One innovative approach to learning media is the utilization of websites.

Previous research on websites, as presented by Yuhefizar (2013) in Prayitno & Safitri (2013), indicates that websites encompass web pages originating from a specific domain that contain information. Web-based learning is a form of learning that necessitates technological devices, particularly those related to information technology, such as internet access and computers (Surjono & Herman, 2020). When creating website-based learning media, several supporting elements are required to make the website visually appealing and unique (Firmansyah & Saidah, 2016). Canva is one of the platforms that can assist in the creation of these elements.

Canva is an online design platform that enables users to quickly create and design creative designs (Supradaka, 2022). Its integration into the field of education represents a combination of education and technological advancements (Yana, 2019). The platform offers a variety of design templates that users can easily utilize, while also providing tools and elements for independent design creation. Previous research on Canva, as presented by Rahmatullah et al. (2020), highlights its potential in enhancing learning media and introducing new learning models. The use of Canva in educational settings aims to assist students in improving their learning outcomes (Hapsari & Zulherman, 2021).

One of the indicators of successful learning can be assessed through the learning outcomes achieved by students (Nurhasanah & Sobandi, 2016). As noted by Susanto et al. (2020), learning outcomes represent what students should know and understand, demonstrating their abilities and results after gaining knowledge and learning experiences (Syafitri et al., 2021). Learning outcomes can be observed and measured through individuals' behaviors in specific situations (Oguguo et al., 2020). Various factors contribute to achieving significant learning outcomes, including students' ability to independently find learning resources or teaching materials (Rijal & Bachtiar, 2015), which is commonly referred to as Self-Regulated Learning.

The concept of Self-Regulated Learning involves learners' ability to control and organize their own learning using strategies they develop to support successful learning (Yot-domínguez & Marcelo, 2017). Learners with self-regulated learning skills possess motivation to reflect on what, how, and why they are learning (metacognition), allowing them to regulate their actions and learning process (van Alten et al., 2020). Thus, learners with strong self-regulated learning abilities demonstrate efforts to organize their own learning and achieve desired outcomes (Mulyana et al., 2015).

## Method

This research utilizes the Research and Development (R&D) approach, employing the Borg and Gall model consisting of 10 stages. However, the model has been modified by the researchers to align with field conditions and time constraints.

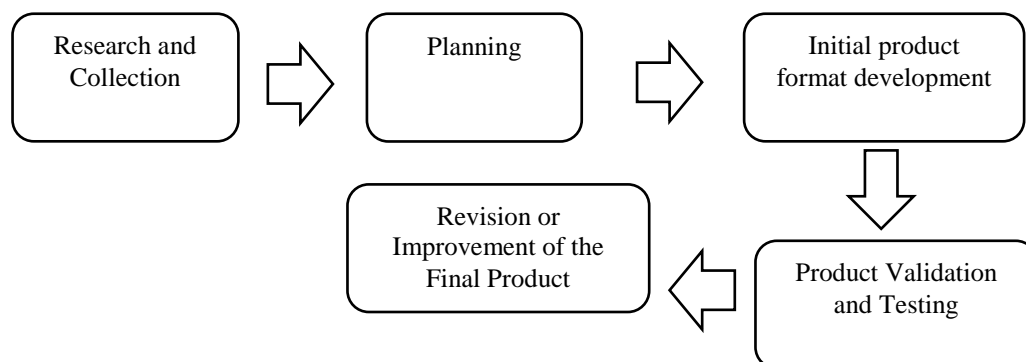


Figure 1. Steps for Using the Research and Development (R&D) Method  
Source: Borg and Gall modified by researchers 2021

The objective of this research was to develop website-based learning media that was both feasible and effective (Haryati, 2012). The developed media was a website-based learning platform assisted by the Canva platform. Its feasibility was assessed through validation by material experts, media experts, and users. The product was tested with a small group of 6 students and later with a larger group to evaluate learning outcomes and self-regulated learning abilities. The assessment of self-regulated learning ability was based on indicators such as learning strategies, learning time, place of learning, assessing learning activities, overcoming difficulties in understanding teaching materials, measuring learning ability, choosing appropriate learning resources, appropriate teaching materials, and interaction with teaching materials (Tahar, 2019).

The research subjects for this trial were students from the twelfth grade of OTKP 1 at SMKN 1 Pasuruan, who served as the experimental class, and students from the twelfth grade of OTKP 2 at SMKN 1 Pasuruan, who served as the control class. The research data consisted of both qualitative and quantitative data. Qualitative data was obtained from input and suggestions provided by validators and small group users. Quantitative data was collected through validation by material experts, media experts, small group users, and large group students. The assessment results from validators and small groups were analyzed using a descriptive percentage technique to determine the outcome's feasibility. Data on learning outcomes and students' self-regulated learning abilities were analyzed using the independent sample t-test to compare students who used the developed product with those who did not use the website-based learning outcome.

## ***Results and Discussion***

### **Results**

#### **1. Outcomes Produced**

The outcomes produced were web-based learning products assisted by the Canva platform. The website-based learning media was prepared in alignment with the learning materials and was thoroughly drafted and compiled. The developed product covered the material scope for infrastructure elimination and document creation for facilities and infrastructure elimination. The product was accessible online through the following link: <https://bit.ly/3M5UCHo>.



Figure 2. Homepage display of web-based learning media

The figure depicts the homepage of the website-based learning media. Each product page features a menu that includes the following sections: 1) Home, 2) Instructions, 3) Basic Competencies, 4) Materials, 5) Exercises, and 6) Developer..



Figure 1. Display on the Training Menu

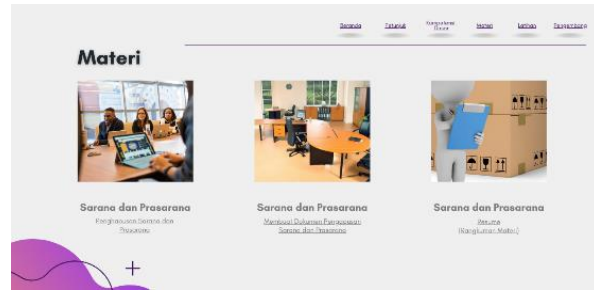


Figure 2. Display on the Material Menu

The Figures above illustrates the homepage of the web-based learning media. Each product page features a menu that consists of the following sections: 1) Home, 2) Instructions, 3) Basic Competencies, 4) Materials, 5) Exercises, and 6) Developer.



Figure 3. Display in the Material Menu



Figure 4. Material list view

The homepage displays the material menu that focuses on the elimination of facilities and infrastructure. Additionally, there is a menu dedicated to material discussions organized according to Basic Competencies. Within the material menu, various materials are presented in the form of descriptive texts, images, and videos.



Figure 5. Display of Material Discussion Grouping

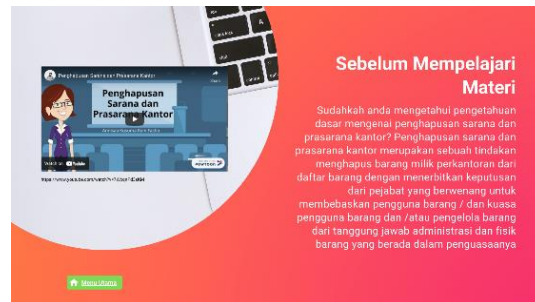


Figure 6. Embeds Youtube Videos into Learning Websites

The Figures depicts the presentation of materials arranged in groups, allowing students the freedom to choose the specific materials they wish to learn. The developed learning media is also embedded with YouTube functionality, enabling the playback of videos directly within the learning platform without requiring the separate YouTube application to be opened.

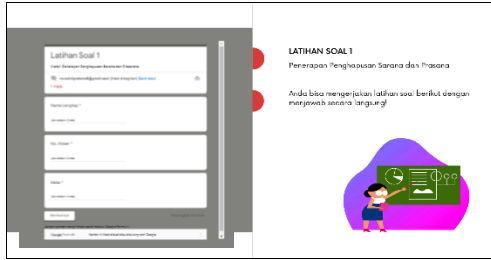


Figure 7. Cognitive Problem Page Display

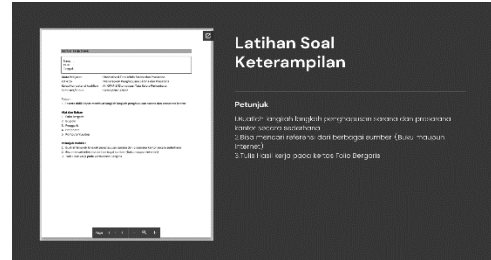


Figure 8. Display of Psychomotor Question Pages

The exercise section is divided into two categories: cognitive question exercises and psychomotor question exercises. The cognitive questions in the exercise menu can be accessed using Google Form without the need to open a new page, while the psychomotor questions can be viewed directly with Google Drive. Additionally, the website-based learning media includes a summary menu that provides an overview of all the materials covered in the learning media using the website.

## 2. Validation Results

The developed media can be assessed for feasibility through design validation. In this study, validation was conducted by material specialists and media specialists.

Table 1. Material Expert Validation Results

No	Rated aspect	Number of Questions	$\sum x$	$\sum xi$
1	Technical Quality	7	35	35
2	Serving Equipment	3	15	15
3	Exercise	4	19	20
4	Interactivity	2	10	10
	Total		79	80
	Average		98.75	

Source: processed by researchers (2023)

Based on the analysis of Table 1, the material expert validation results indicate a percentage of 98.75%. Therefore, it can be concluded that the materials included in the web-based learning products are highly valid and feasible to use.

Table 2. Media Expert Validation

No	Rated aspect	Number of Questions	$\sum x$	$\sum xi$
1	Technical Quality	5	23	25
2	Material Presentation	3	15	15
3	Language	3	15	15
4	Activeness	3	15	15
	Total		68	70
	Average		97.14	

Source: processed by researchers (2023)

Based on the analysis of Table 2, the media expert validation results indicate a percentage of 97.75%. Therefore, it can be concluded that the website-based learning media products are highly valid and feasible to use.

Table 3. Small Group Trial Results

No	Rated aspect	Number of Questions	$\sum x$	$\sum xi$
1	Attitudes/Indicators	5	135	150
2	Language Eligibility	4	110	120
	Total		245	270
	Average		90.74	

Source: processed by researchers (2023)

Based on the analysis of Table 3, the results obtained from the small group test indicate a percentage of 90.74%. Thus, it can be concluded that the website-based learning media product is highly valid and feasible to use.

### 3. Results of Data Analysis

The developed media was subsequently tested on a large group of students using both the Normality Test and the Independent Sample t-test.

Table 4. Analysis of the ability of Self Regulated Learning

No	Rated aspect	$\sum x$	$\sum xi$	$\sum x$	$\sum xi$
		Experiment Class		Control Class	
1	Responsibility	940	1020	807	990
2	Use of Learning Resources	457	510	382	495
	Total	1397	1530	1397	1485
	Average	91.31		80.07	

Source: processed by researchers (2023)

Table 4 presents the difference in questionnaire scores for self-regulated learning ability between the experimental class that utilized the product and the control class that did not use it. According to Table 4, the average score for self-regulated learning ability in the Experimental class is 91.31%, while in the Control class, it is 80.07%.

Table 5. Average Learning Outcomes

No	Learning Outcomes	Cognitive	Psychomot or	Cognitive	Psychomot or
		Experiment Class		Control Class	
1	Implementing the Elimination of Facilities and Infrastructure	83.09	84,62	74,70	77,73

Source: processed by researchers (2023)

Table 5 displays the results of the differences in the average achievement of learning outcomes in both cognitive and psychomotor aspects between the experimental classes that utilized the products and the control classes that did not use the products.

Table 6. Shapiro Wilk Test Normality Test

	<b>Statistics</b>	<b>df</b>	<b>Sig.</b>
Experimental Class Cognitive Results	0.938	34	0.054
Control Class Cognitive Results	0.949	33	0.123
Experiment Class Psychomotor Results	0.959	34	0.235
Control Class Psychomotor Results	0.948	33	0.120
Experimental Class Self Regulated Learning	0.952	34	0.131
Control Class Self Regulated Learning	0.943	33	0.082

Source: processed by researchers (2023)

Based on the analysis of the Shapiro-Wilk test for normality, the obtained p-values for both the experimental class and control class, in both cognitive and psychomotor aspects, as well as the self-regulated learning ability, were  $\geq 0.05$ . Therefore, it can be concluded that the data was normally distributed. The subsequent step is to conduct an independent sample t-test.

Table 7. Independent Test (t-test)

	<b>t</b>	<b>df</b>	<b>Sig, (2-Tailed)</b>
Experimental Class Cognitive Results	6,845	65	0.000
Control Class Cognitive Results	6,822	58,492	0.000
Experiment Class Psychomotor Results	6,828	65	0.000
Control Class Psychomotor Results	6,850	62,822	0.000
Experimental Class Regulated Learning	6,238	65	0.000
Control Class Regulated Learning	6,187	49,253	0.000

Source: processed by researchers (2023)

Based on the analysis of the independent sample t-test, the significance (2-tailed) for both learning outcomes and self-regulated learning ability is  $\leq 0.05$ . This indicates that there are significant differences in the self-regulated learning ability and learning outcomes between the experimental and control classes..

## **Discussion**

The product produced from this research is a website-based learning media assisted by the Canva platform. The website-based learning media presents material information in the form of text, images, and videos, enabling students to organize their learning strategies and find the appropriate learning resources (Sari, 2019). The use of websites as innovative learning media incorporating technology facilitates students and educators in achieving their learning goals (Ferdiansyah & Irfan, 2021). In education, technology and communication play an important role (Mahnun, 2012). Web-based learning media offers a variety of features that can enhance user experience, such as well-designed menus on each page, easy access to materials and questions, and appealing animations that make the website visually attractive. The embedded feature in the developed product allows users to access external links without the need to open additional applications. This media is created using the Canva platform, providing the advantage of easy accessibility (Supradaka, 2022). However, a drawback of this website-based learning media is that it requires an internet connection for access.

The developed media underwent a rigorous validation process and demonstrated high validity, making it suitable for use. Priyatno (2014) in Fernando (2018) emphasizes the importance of validation in measuring the intended objectives. The material expert validation involved the assessment of various aspects, including Technical Quality, Completeness of Presentation, Exercise Questions, and Interactivity. The technical quality of the developed product received the highest assessment, indicating good alignment, completeness of material, and appropriate use of language. Necessary improvements and revisions were made after receiving feedback from material and media validators regarding several



components (Silmi & Rachmadyanti, 2018). The media expert validation assessed aspects such as Technical Quality, Presentation of Material, Language, and Interactivity. The assessment of language received positive feedback, indicating that the language used was clear and effective. Furthermore, the feasibility of the small group test users was assessed based on aspects related to attitude and language. Based on these assessment aspects, the data analysis revealed a 98.75% validation result for material expert validation and 97.14% for media expert validation. The developed product was also tested on a small group of six students, resulting in an average score of 90.74, further confirming the high validity and feasibility of the research outcome.

Learning media using websites has been proven to be effective in promoting the achievement of learning outcomes (Hapsari & Zulherman, 2021). Learning outcomes are assessed as observable and measurable behaviors of individuals in specific situations (Oguguo et al., 2020). The improvement in learning outcomes can be observed through a comparison of the cognitive scores of the explorative class, which utilizes website media, and the control class, which does not. In the explorative class, the average cognitive score was 83.09, while in the control class, it was 74.70, indicating a significant difference in the achievement of learning outcomes between the two groups. Similarly, in terms of psychomotor scores, the explorative class scored an average of 84.62, compared to 77.73 in the control class, providing further evidence that website-based learning media can enhance psychomotor learning outcomes (Pujiastutik, 2017).

Data analysis also confirms a significant difference in the self-regulated learning abilities of students who use website media (91.31%) compared to those who do not (80.07%). Among the various aspects of self-regulated learning, the aspect of using learning resources obtained the highest score, suggesting that students are more enthusiastic and actively engaged in learning when using interesting and innovative learning media. Tahar (2019) stated that differences in self-regulated learning abilities among students can be assessed based on their ability to independently find sources and teaching materials. With the presence of website-based learning media, students are empowered to choose and access teaching materials independently, thereby improving their self-regulated learning abilities (Hidayat et al., 2020).

## **Conclusion**

The outcome of this research is the development of a website-based learning media product assisted by the Canva platform, aimed at enhancing student learning outcomes and self-regulated learning abilities. The developed product includes materials related to the elimination of infrastructure facilities and the creation of documents pertaining to this topic. Through expert validation, media expert evaluation, and user feedback, the developed product has demonstrated its validity and feasibility for use. The outcome has been proven effective in improving student learning outcomes and self-regulated learning abilities, as indicated by the results of product trials analyzed using the independent sample t-test.

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