

## Implementation of E-Modules in Improving Students' Competence, Interest, and Motivation in Haircutting Learning for Grade XI Graduates of SMKN Surabaya

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### Abstract

*This study aims to determine the effect of the implementation of an Android application-based e-module on improving students' learning outcomes in cognitive and psychomotor aspects, as well as on their interest and motivation in learning about hairdressing graduation techniques at SMKN Surabaya. The background of this study is based on the low learning outcomes, interest, and motivation of students in participating in hairdressing practical learning. This study uses a Pre-Experimental Design method with a One-Group Pretest-Posttest Design model. The study population includes all 105 students of grade XI Beauty Treatment at SMKN 8 Surabaya, with 33 students of grade XI KC 2 as samples determined using purposive sampling. The research instrument consists of a multiple-choice test to measure cognitive learning outcomes and a questionnaire to assess interest and motivation in learning. Data were analyzed through validity, reliability, difficulty level, discrimination power, normality test, and paired sample t-test. The results showed a significant increase in learning outcomes, with an average cognitive score of 88.9 and psychomotor score of 91.5. The t-test yielded a value of 14,446 with a significance of 0.000, which means there is a significant difference before and after the use of the e-module. In addition, students' learning interest reached 95% and learning motivation 88%, both of which are classified as very good. The conclusion is that the implementation of the Android-based e-module is effective in improving cognitive and psychomotor learning outcomes, while also being able to foster students' interest and motivation in learning. This e-module is recommended as an alternative innovative learning media that supports practical learning in vocational schools, especially in the competency of graduation technical haircutting.*

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## 1. INTRODUCTION

Vocational education plays a strategic role in preparing human resources ready for the workforce, particularly through Vocational High Schools (SMK). One of the main challenges in vocational education lies in the suboptimal implementation of practical learning. This also applies to the Hairdressing competency, where conventional learning still predominates. Limited lecture and demonstration methods often fail to meet the needs of students who require hands-on experience and supporting media for practical skills. Consistent with Prasetyo's (2022) opinion, practical activities are not sufficient if they rely

solely on observation; students also need to actively participate and be accountable for the results.

The development of digital technology is driving transformation in the world of education, including in vocational schools. Digital-generation students are more responsive to visual and interactive learning media than to textual approaches or conventional lectures. This aligns with the findings of Sitompul (2022), who argued that digital learning can create a fun learning environment and foster interest in learning. Furthermore, Sitepu (2022) stated that digital learning media encompasses various forms such as e-books, e-modules, interactive multimedia, and so on. This digital-based learning marks a new revolution in student-centered learning methods, resulting in innovation in the world of education.

One form of innovation in digital learning is e-modules, which provide an effective alternative to the limitations of conventional teaching methods. E-modules present material in a structured, engaging, and flexible manner. Nadiah (2025) argues that the advantages of e-modules lie in their interactive, navigable nature, and their ability to contain images, audio, video, animation, and formative quizzes. Therefore, they are highly suitable for application in one of the beauty vocational school skills, namely hairdressing.

In the context of hairdressing techniques, particularly the graduation model, e-modules can present both theoretical and practical learning content with an interactive visual approach. Pratiwi (2023) emphasized that aspiring hairdressers must master various basic cutting techniques, including solid, graduated, and layered styles, as a foundation for creating trendy hair designs. Hairdressing utilizes specific techniques to achieve the desired cut (Ermavianti & Susilowati, 2021). Therefore, engaging digital learning materials are essential to avoid boredom and encourage student engagement. This statement is supported by the results of research by Lastri (2023), which showed that the use of e-modules can effectively increase student interest and motivation in learning. This is due to the interactive, engaging, and easy-to-understand e-module display, which facilitates students' deeper mastery of the learning material and encourages overall learning outcomes.

Interest in learning plays a crucial role in the educational process. When students are interested in the material being studied, it encourages active engagement in learning activities. Septian (2023) states that interest in learning significantly determines student learning outcomes; students with strong interest tend to achieve better results. In the context of vocational education, interest serves as a strong foundation for successful practical learning. According to Nurfaida (2020), interest is the foundation that motivates students to participate and optimally absorb material.

Jediut (2021) stated that motivation is a crucial foundation for achieving optimal learning outcomes, which plays a role in achieving targeted competencies. Learning motivation is also influenced by the media and methods used in learning. Yanuarti (2022) added that digital media is relevant to today's students' learning styles and can increase their learning motivation. Furthermore, Pratiwi et al. (2022) demonstrated that e-modules create adaptive learning and empower students to manage their learning process independently.

Related problems were also found at SMKN Surabaya, especially in the 11th grade Hairdressing expertise competency. Observation results showed that most students had difficulty in mastering the graduation model hair cutting technique. Limited practice time and the lack of visual teaching materials were the main factors that influenced the low student competency. Therefore, this study was conducted to examine "The Implementation of E-Modules in Improving Student Competence, Interest, and Motivation in Graduation

Hair Cutting Learning for 11th Grade SMKN Surabaya". It is hoped that this research can be an innovative solution to improve the quality of the process and overall student learning outcomes.

## 2. RESEARCH METHODS

This study applies a pre-experimental design with a model *One Group Pretest-Posttest*, which aims to evaluate the extent to which there has been an increase in cognitive and psychomotor competencies, as well as changes in students' learning interests and motivation. The research subjects included class XI TKKR students at SMKN 8 Surabaya, with a total population of **105 people** spread across three classes. From this population, 33 students of class XI KC 2 were selected as research samples using purposive sampling techniques.

The research instrument used for data collection was a test and questionnaire using the ghuttman scale, which was used to collect data regarding students' learning outcomes, interests, and motivation in following the graduation model haircut lesson. The data collected was analyzed using a quantitative approach, with a normality test, followed by a test of *Paired Sample t-test*, and N-Gain calculations to determine the level of improvement in student learning outcomes after implementing the e-module. Meanwhile, questionnaire data was processed by calculating the average and presented as a percentage to illustrate the level of student interest and motivation.

## 3. RESEARCH RESULTS AND DISCUSSION

### 3.1. Research result

Learning outcomes in the knowledge domain are measured by *pre-test* And *post-test* Each consists of 20 multiple-choice questions. Students are considered to have completed the test if they reach the minimum score (KKTP) of 75, as shown in Figure 1.

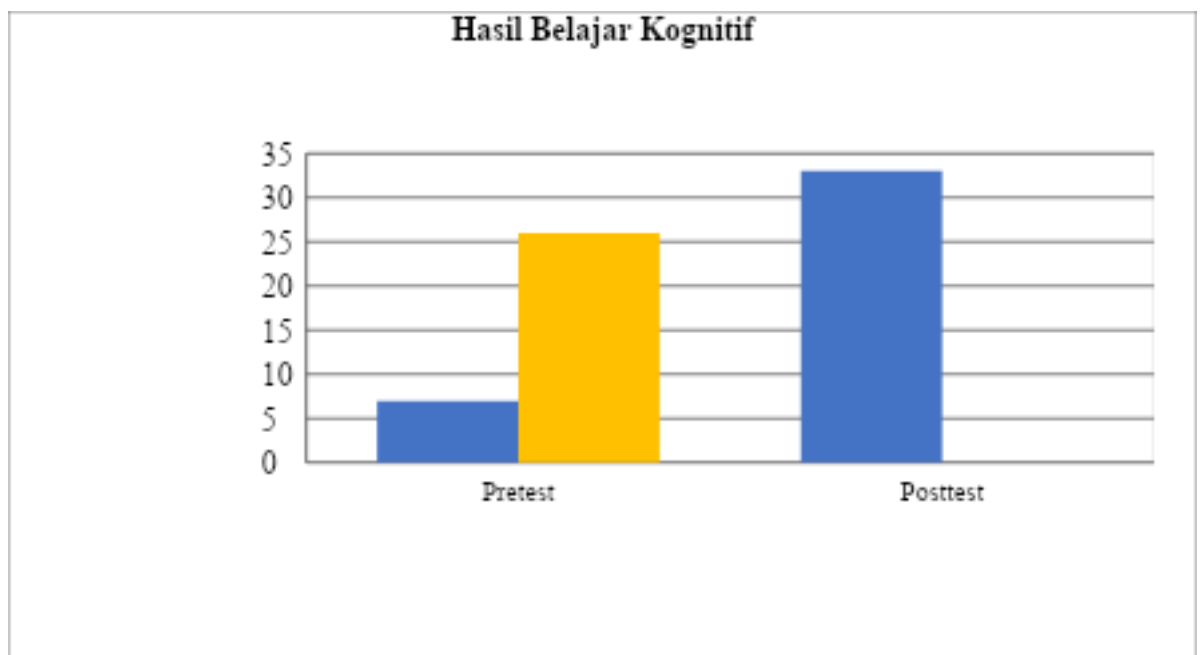


Figure 1. Cognitive Learning Outcomes

Based on Figure 1, it is known that in the pre-test stage, as many as 26 out of 33 students had not reached the KKTP, with an average score of 64.1. After the implementation of the e-module, all students successfully exceeded the KKTP. Thus, it can be concluded that 100% of students achieved learning completion in the cognitive aspect with an average score of 88.9. This increase defines the use of e-modules as effective in improving student knowledge. Furthermore, a normality test was carried out using the SPSS version 25 program to test the validity of the results, as shown in Table 1.

**Table 1. Normality Test**

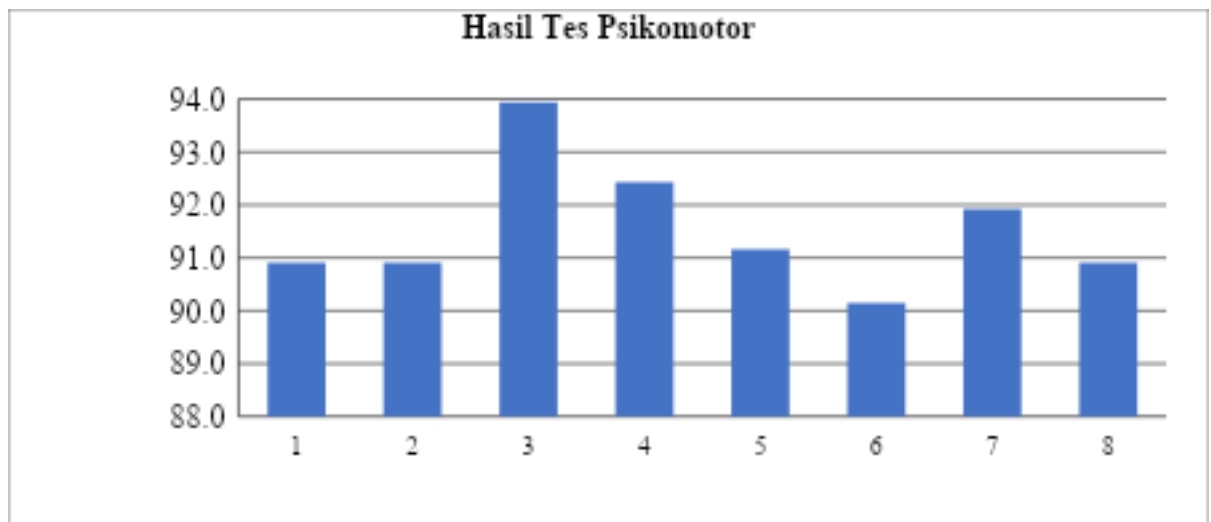
<b>Tests of Normality</b>						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Say.	Statistic	Df	Say.
Pretest	,113	33	,200*	,963	33	,323
Posttest	,157	33	,038	,941	33	,074
*. This is a lower bound of the true significance.						
A. Lilliefors Significance Correction						

The results of the normality test in table 1 show that the data of *pre-test* (0.323) and *post-test* (0.074) is normally distributed so that a paired t-test can be performed. The results of the t-test are presented in **Table 2**.

**Table 2. Uji Paired Sample t-Test**

Paired Samples Test									
		Paired Differences					T	Df	Sig. (2-tailed )
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Posttest - Pretest	24,848	9,881	1,720	21,345	28,352	14,446	32	,000

The t-test results showed a significance value of  $0.000 < 0.05$ , which means there is a significant difference between the pre-test and post-test results. Thus, it can be concluded that the implementation of the e-module has a significant effect on improving students' cognitive learning outcomes. Meanwhile, psychomotor learning outcomes were evaluated through a performance test, where students carried out graduation technique haircutting practices. Learning completion was determined if the score obtained  $\geq$  KKTP (75). The results of the analysis of students' practice scores on the graduation haircutting material are presented in Figure 2.



**Figure 2.** Cycle II Performance Test Results

Based on Figure 2, the highest score is in the personal preparation aspect, namely 93.9, followed by work area preparation, namely 92.4. Work attitude with an average of 92, then work steps are 91.2, in the time aspect getting an average of 91, then the same average in the planning and client preparation aspect is 90.9, and an average of 90.2 in the student work results aspect. So, it can be concluded that the overall psychomotor average of students is 91.5 with a very good category.

In addition to impacting learning outcomes, the implementation of e-modules also impacts students' learning interests and motivation. The results of students' learning interests after the implementation of e-modules are presented in **Figure 3**.



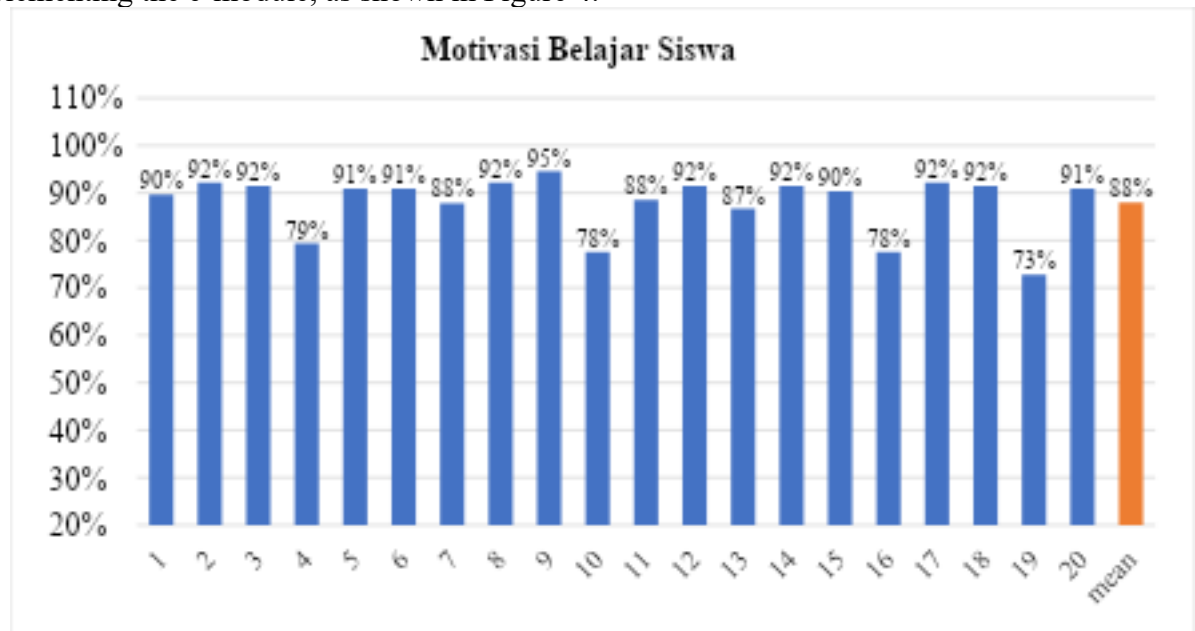
**Figure 3.** Student Learning Interest Results

Based on Figure 3, the students' interest after applying the e-module to the graduation technique hair cutting material was highest with a percentage of 100% obtained in indicators 1, 3, 4, and indicator 7, meaning that students feel happy learning graduation technique hair cutting, students have creativity and innovation in learning graduation technique hair cutting, students have positive feelings towards learning, a sense of being bound, fascinated and improving the process of understanding the graduation technique hair cutting material, students think more critically in mastering the graduation technique hair cutting material.

Student interest with a percentage of 97% was found in indicator 2, which means 32 out of 33 students developed a feeling of liking the graduation technique haircutting learning. Student interest with a percentage of 94% was found in indicators 8 and 10, which means 31 out of 33 students easily remembered the graduation technique haircutting material and students concentrated while learning the graduation technique haircutting.

Student learning interest with a percentage of 91% was obtained in indicators 6 and 9, which means that 30 out of 33 students did not feel forced to follow the graduation technique haircut learning and students were interested in learning graduation technique haircut. Student interest with a percentage of 85% was obtained in indicators 28 out of 33 students experienced an increase in learning results in graduation technique haircut learning. Thus, student learning interest after implementing the e-module in graduation technique haircut learning was obtained with an overall percentage of 95% with a very good category, which means that student interest in the learning is very high.

Learning interest and motivation are closely linked to student learning outcomes. Research by Farisi (2023) shows a strong correlation between learning interest and motivation, which also impacts students' career planning. Consistent with these findings, Yudhiarti (2020) revealed that students' vocational interests and learning potential contribute significantly to academic achievement. Furthermore, Syafitri et al. (2024) emphasize the importance of students understanding their interests and talents before choosing a major, as this can influence their future learning success. The results of this study indicate that students' learning motivation significantly increased after implementing the e-module, as shown in Figure 4.



**Figure 4.** Student Learning Motivation Results

The results of student learning motivation are arranged based on indicators of physiological needs, security needs, social needs, esteem needs, self-actualization needs, achievement needs (*Need for Achievement*), Affiliate Needs (*Need for Affiliation*), Need for Power (*Need for Power*), Motivator Factors (*Intrinsic Factors*), Hygiene Factors (*Extrinsic Factors*) the overall percentage obtained was 88% in the

very good category, so that students' learning motivation in learning hair cutting graduation techniques was very good.

### 3.2. Discussion

The results of data analysis after implementing the e-module on the graduation haircut material showed that the average student understanding was very good. This is in line with research by Efendi & Insani (2024), which found that the implementation of the e-module combined with the PBL model was able to foster student enthusiasm during the learning process, while simultaneously encouraging significant improvements in learning outcomes, as seen in the achievement of grades in *post-test* was higher than before. The application of interactive media can help teachers overcome obstacles in learning. In line with the findings of Risma and Revi (2022), interactive Android-based e-module learning media was declared valid and effective in helping overcome various obstacles during the learning process using computer hardware. Meanwhile, Dianawati and Suputra (2022) showed that the application of Android-based e-modules of *Flipbook Makeable* to support the improvement of student learning outcomes, especially in cognitive and psychomotor aspects, so that learning becomes more interesting and meaningful.

The implementation of e-modules is closely related to students' learning interests and motivation. This is in line with research by Ramdani & Simamora (2022), which found that e-modules can increase motivation to learn arts and culture. This is supported by research by Firdausia et al. (2024), which found that the implementation of e-modules *Eco print* proven effective in increasing students' motivation and creativity in learning, because its interactive presentation, attractive visuals, and easy access make students more interested and actively involved in the learning process. This aspect of creativity is very important for Beauty Vocational School students because it contains lessons that require students to be creative. The implementation of e-modules based on *flipbooks* can increase interest in learning and ease in exploring learning materials (Waliulu & Palembang, 2022).

This research was limited to one school and implemented on one learning material, namely graduation haircuts. Furthermore, the sample size used was small, namely 33 students. Despite the limitations of this research, it is hoped that the implementation of this e-module can be used as an innovation or idea to be applied to other learning elements and outcomes. The use of interactive media needs to be continuously developed in the world of education due to the demands of an increasingly advanced era. In line with research by Tamalla & Wardhani (2024), technology-based media and interactive media are two types of learning materials that can be used in the industrial revolution era. This has been proven to improve learning outcomes while fostering students' enthusiasm for learning. Therefore, teachers must create innovations and design learning according to the needs of students. The use of appropriate media not only facilitates the learning process for teachers and students but also becomes an effective strategy to achieve learning objectives optimally.

## 4. CONCLUSION

This research is based on the results of previous research, namely the implementation of the development of e-modules on graduation hairdressing materials. The implementation of e-modules showed a significant positive impact on learning graduation hairdressing. The application of this e-module has proven effective in improving student



learning outcomes, both in cognitive and psychomotor aspects. In addition, the use of e-modules also plays an important role in fostering interest and motivation in learning, as reflected in the significant increase between pre-test and post-test results, as well as from questionnaire data that shows student learning enthusiasm is in the high category. These findings open up opportunities for further research to develop e-module media on other learning elements or outcomes, so that students at the vocational high school level can experience a more interactive, meaningful learning experience, and oriented towards developing self-potential as provisions for facing the world of work after graduation.

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