Jurnal Pendidikan Vokasi
Volume 13, No. 2, 2023 (158-168)
Online: https://journal.uny.ac.id/index.php/jpv

The effectiveness of flipbook-based e-modules in increasing student creativity in nail art subject in higher education

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ARTICLE INFO

Article History
Received:
4 November 2022;
Revised:
30 May 2023;
Accepted:
24 June 2023;
Available online:
30 August 2023

Keywords
Creativity;
E-module;
Effectiveness;
Flipbook;
Nail art

ABSTRACT

Incorporating technology into the learning process has resulted in the development of various new media for lecturers to use in delivering subject matter. Furthermore, the material presented is intended to enable students to develop creative and innovative ideas in higher education vocational majors in makeup and beauty. The purpose of this study is to determine how effective the flipbook-based module is in increasing student creativity in nail art subject at the Department of Beauty and Cosmetology at Universitas Negeri Padang. This study employs a quantitative and experimental approach (One Group Pretest-Posttest Design). Data were collected from thirty respondents using a Likert scale questionnaire and a pretest and posttest of nail art practice skills. All respondents are students in the Department of Cosmetology and Beauty, Faculty of Tourism and Hospitality, for the 2021/2022 academic year. All data were then analyzed descriptively and correlated using SPSS 23 software. Overall, the analysis results showed that using flip book-based e-modules could increase students' creativity in nail art subjects. These results can be proven by the effectiveness test of students' creativity, with an average value of 71.9%. Furthermore, the correlation analysis revealed a significant value of 0.05 and a t-score of 7.083 > t-table of 2.045. The results of this study imply that it can provide references for education in choosing learning media and strategies for delivering learning materials that are effective in increasing creativity. Furthermore, this can be used as a basis for further development to produce effective media and learning approaches.

How to cite:
Rahmiati, R., Putri, M., Engkizar, E., & Mokhtar, M. M. (2023). The effectiveness of flipbook-based e-modules in increasing student creativity in nail art subject in higher education. *Jurnal Pendidikan Vokasi*, *13*(2), 158-168. https://doi.org/10.21831/jpv.v13i2.54330

INTRODUCTION

Currently, nail art is an activity that has a positive impact on beauty trends. The development of beauty trends is always identical to updates from time to time. Fashion development requires constant innovation to produce new works (Bae & Kang, 2016; Banga & Patel, 2014). Also, a person's fashion or appearance can reveal a lot about him. This great demand sparked the notion of incorporating some fashion features, such as an interest in nail art (H.-S. Cho & Rhee, 2019; Leny et al., 2021).

Nail art necessitates ingenuity in using many techniques to create stunning works of art (Fadilah et al., 2021). Nail art fashion trends have been around for a long time, but the 1920s saw the

emergence of fashions depending on how to dress (M. J. Cho, 2017). In 1932, the cosmetic business Revlon introduced unique nail paints. It is inspired by glossy automotive paint and is similarly long-lasting. Maxwell Lappe invented artificial nails in 1934 for clients who frequently bit their nails (Yang & Kang, 2017; Yun & Kang, 2017). Creativity in nail art might use several techniques that are put together to produce their work as their trademark. The high creativity produced in a work or nail art product can produce a high selling value, given the current high consumer demand for nail art (Yusnita et al., 2018). Nail art for women today is a plus for women's beauty, especially for career women who do much social interaction (Putri et al., 2022; Yun & Kang, 2017).

Creativity is a creative thought that produces originality, purity, and value. Creativity is described as the ability to create or generate something new, original, unique, and useful, and it is related to the ability to create and imagine (Mulyadi et al., 2016). Creativity can generate new things in the form of ideas, insights, new products, or adaptations (innovation) and address issues (Oronce & Manalo, 2021). Rhodes found that creativity is often described as personal, process, press, and product. Creativity as a person is a unique manifestation of the full person as an individual interaction, feelings, attitudes, and behavior; creativity as a product is the output of a creative process (Putri et al., 2022).

Nevertheless, some of these indications still need to be owned by students; in terms of creativity and student skills, practice is the most important factor in mastering teachings (Ridwan & Lutfiati, 2020). So, the creative attitude that emerges from students when practicing will impact the sharpening of these skills. Lecturers are expected to invite students to interact when offering direction regarding the subjects being conducted following the work steps followed. It will issue students' creative ideas by constructing learning activities as innovations through media, ensuring that learning flows smoothly (H.-S. Cho & Mun, 2021).

According to Engkizar et al. (2018), Yusnita et al. (2018), and Syafril et al. (2021), creativity can develop critical thinking, and critical thinking can nurture creativity. Many educators use electronic-based learning media in connection with the development of the global era. However, the problem that often arises in learning is that learning media could be more appealing, so it is necessary to renew learning media to encourage student creativity in learning, particularly nail art (S.-E. Jeong & Kim, 2015; Saprudin et al., 2021).

The ideal conditions and the importance of the role of student creativity are, in fact, outside of existing reality. Several studies have raised the same problem related to low creativity. A study describes that students' creative thinking skills still need to improve due to difficulties in understanding concepts and a lack of teaching materials that demand students' creative thinking skills (Sari et al., 2020). This low creativity is also illustrated in learning activities that involve designing activities or activities that require new ideas (Mustika & Ain, 2020).

On the other hand, low creativity can also be observed in students who emphasize memorization methods of material and are not based on thinking new things that can solve problems (Sholeh & Fahrurozi, 2021). Furthermore, indicators of low student creativity can also be observed from several still low indicators, such as curiosity, expressing ideas, asking constructive questions, and answering questions (Saleh, 2016). The problem of creativity is an important thing to solve, considering that creativity is one of the benchmarks for the quality of education (Harfiani & Fanreza, 2019).

The condition of low student creativity is also in line with the results of preliminary studies conducted by researchers. The picture of student creativity in nail art class is still relatively low. This can be observed from several indicators, such as the lack of students who have new ideas and designs related to nail art. This can be known because students are only adrift and follow the design pattern the lecturer exemplifies. The second indicator is that student initiative in overcoming problems related to nail art still needs to be higher. This is observed from the attitude of students who rely more on asking lecturers than trying to find alternative ways of solving independently. These conditions are a description of the current student's creativity profile.

In reality, learning prioritizes mastery of the material alone without emphasizing the element of increasing creativity. Creativity should ideally be prioritized because creativity can foster critical thinking and vice versa. Critical thinking can foster creative thinking (Engkizar et al., 2018; Syafril et al., 2021; Yusnita et al., 2018). Therefore, educators are responsible for fostering creativity through

learning design and the media used. However, the learning media used is less attractive to students, so it cannot increase creativity (S.-E. Jeong & Kim, 2015; Saprudin et al., 2021).

Learning media's primary function is as a teaching tool that updates circumstances, achievements, and the learning environment. Educators create learning media to help students study more effectively (Kusumawati et al., 2022). One of the forms of some electronic learning media in the form of e-modules (electronic modules) is the production of teaching resources that can boost student interest in learning (Hidayah et al., 2020). E-modules are learning aids that incorporate information, work stages, evaluation, and material conclusions produced systematically to attract students and motivate them to reach learning objectives (Wibowo, 2018).

An e-module based on a flipbook maker is a gadget developed in the form of a digital book that contains images, sounds, and movies that can stimulate students (Boo, 2015). This study utilized the exe format to create flipbook maker-based e-module learning media. According to Maharcika et al. (2021), exe is a web-based design software developed to make it easier for educators to plan, develop, and present subjects. This application program is also simple for people who need help understanding computer languages.

Flipbook maker-based e-modules offer compelling learning utilizing e-modules since video and audio may be integrated into them to create a unique learning impression. Since this e-module teaching material is used instead of the printed module without compromising its usefulness as a source of knowledge, it allows students to study material or theory outside of the classroom and practice without the supervision of a lecturer (Fonda & Sumargiyani, 2018). According to Ko's (2020) research, the use of flipbook maker-based e-modules boosted student creativity in learning, making it acceptable for use in the learning process. According to Hidayah et al. (2020), video can enhance learning creativity since video medium has a tremendous potential to help convey information and increase creativity. Creativity capacity can be assessed through fluency of thinking and flexibility of thinking.

The preceding explanation demonstrates how flipbook maker-based e-modules as learning materials can boost student creativity and use videos as a draw for learning (H.-L. Jeong et al., 2018). This product creation of teaching materials is also predicted to determine the extent to which students can think creatively in problem-solving and can enhance the educational process, increasing student learning outcomes (J. Kim & Jeong, 2014). This research aimed to assess the effectiveness of flipbook maker-based e-modules in increasing student creativity, as demonstrated through creative product results and students' creative personalities in studying nail art (Park et al., 2019).

RESEARCH METHOD

The type of research used is Research and Development, which is a research method used to produce certain products as well as to test the effectiveness of these products. To test the effectiveness of the products, this study used an experimental research design (one group pretest-posttest design). According to Ross and Morrison (2004), Hastjarjo (2019), and Ledyard (2020), an experimental research design is ideal if the researcher wants to examine the results or assessment of a product after it has been tested in a study.

The sampling of this study used a random sampling technique. The subject of this study was a student of the Department of Cosmetology and Beauty, Faculty of Tourism and Hospitality, Universitas Negeri Padang. Students involved in this research are members of the Nail Art course, with a total population of 80 students. Then, 30 students were taken as a sample from the population. This total sample was taken because considering the limitations of researchers. However, this sample still meets the criteria for the minimum number of research samples and the minimum sample limit for statistical tests of research data, which is as many as 30 students (Cohen et al., 2017).

The instrument for collecting the data used in this study was a questionnaire and test. The instrument contains statements/questions about personal creativity, and the test contains several indicators to measure students' creativity in the product. The research instrument grids are presented in Table 1.

Table 1. Personal Creativity Validation Instrument Grid

Variable	Indicators	Item Number
Personal Creativity	Have curiosity	1, 2, 3, 4
	Capable of spontaneously expressing ideas without feeling embarrassed	5, 6, 7, 8
	possessing and appreciating beauty	9, 10, 11, 12
	Have a vivid imagination.	13, 14, 15, 16
	Able to work solely	17, 18, 19, 20
	Total	20

Research instruments are validated using an expert validation approach (judgement experts). This aims to determine the level of validity and reliability of the instrument. Valid and reliable instruments can determine the accuracy of research results. After the instrument is declared valid and reliable, it is distributed throughout the data collection response.

After collecting the data, research continued at the data analysis stage. Data analysis begins with prerequisite analysis, namely normality and homogeneity tests. After the prerequisite analysis is met, a quantitative descriptive data analysis will be carried out that describes students' level of personal creativity. Furthermore, the analysis continues to test the research hypothesis using a paired sample t-test. This analysis aims to measure the difference between the results of measuring creativity before and after students take part in learning with flip book-based e-modules. Through this analysis, the researcher can prove whether the hypothesis is accepted or rejected. The hypotheses in this study are as follows:

H0: Flip book-based e-modules did not significantly increase student creativity in nail art subjects.
H1: Flip book-based e-modules have contributed significantly to increasing student creativity in nail art subjects.

FINDINGS AND DISCUSSION

The result of this study is the nail art flipbook maker-based e-modules. E module is produced through several stages of research and development. Researchers designed this E module to meet learning needs and increase student creativity. The design designed in this module is adapted to the characteristics of current students who are more interested in digital designs and following the times.

The resulting e-module design is designed to be more interactive and has several features that help students learn this e-module. Some of the advantages of this e-module include being accessible using a smartphone or laptop, can be accessed anytime and anywhere, learning materials are equipped with supporting images, there is a test feature that functions to measure student understanding independently, and there is a glossary that makes it easier for students to understand the special terms contained in this e module. E module can be accessed online or offline. Online access can be done with the help of internet access, while offline access can be used by installing this e-module application on smartphones and laptops. The description of the results of the nail art flipbook maker-based e-module development can be seen in Figure 1, Figure 2, and Figure 3.

Figure 1. Cover Display of Nail Art Flipbook Maker Based E-module

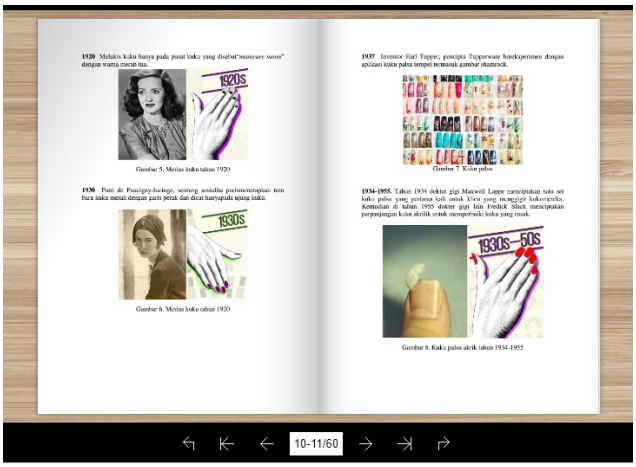

Figure 2. Display of E-module Content

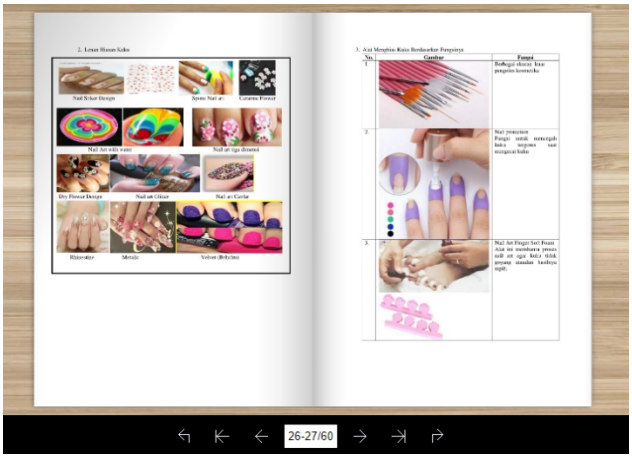

Figure 3. Display of E-module Learning Material

After describing the result of the module, researchers will discuss all research findings linked to students' creative personal evaluation stages and examine the usefulness of flipbook maker-based e-module learning media in learning. Researchers administered a questionnaire to thirty students to analyze students' creative personal stages. The questionnaire intends to examine students prior to learning utilizing modules designed to improve e-module-based learning. Table 2 shows the results of the statistical analysis of the questionnaire results.

Table 2. Results of Creative Personal Assessment

No.	Aspect of Evaluation	Percentage	Category
1.	Have curiosity	76.83%	Creative
2.	Capable of spontaneously expressing ideas without feeling embarrassed	61.5%	Quite creative
3.	possessing and appreciating beauty	68.4%	Quite creative
4.	Have a vivid imagination.	71.3%	Quite creative
5.	Able to work solely	81.7%	Creative
	Total	71.9%	Quite creative

Based on Table 2, the results of the creative personal assessment by 30 students on creative personal instruments in the aspect of having curiosity have an average value of 76.83% in the creative category. In the category of Creative Enough, the aspect of being able to voice opinions spontaneously and not being embarrassed has an average score of 61.5%. The feature of having and appreciating beauty gets an average score of 68.4%, with the category quite Creative. In the creative

category, possessing a strong imagination has an approximate value of 71.3%. The ability to work independently has an overall average of 81.7%, with an adequate category and a total score of 71.9%, indicating that the overall score is quite creative.

Thus, the practicality assessment tool employed in this study was distinctive from all elements of the assessment. There are two panelists from hand, foot, and nail treatment courses and one from industry. In the evaluation of creative works, three criteria are used: (1) originality, (2) resolution, and (3) detail. The pretest and posttest assessment results of the nail art course are described in Table 3.

Table 3. Basic Statistics of Creative Products on Pretest and Posttest

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	30	11.67	21.67	15.744	2.054
Posttest	30	15.00	26.00	19.355	3.109
Valid N (listwise)			30		

According to Table 3, students earn an average creative product result of 15.74 in the pretest and 19.35 in the post-test for creative products. Figure 4 portrays a histogram with more information.

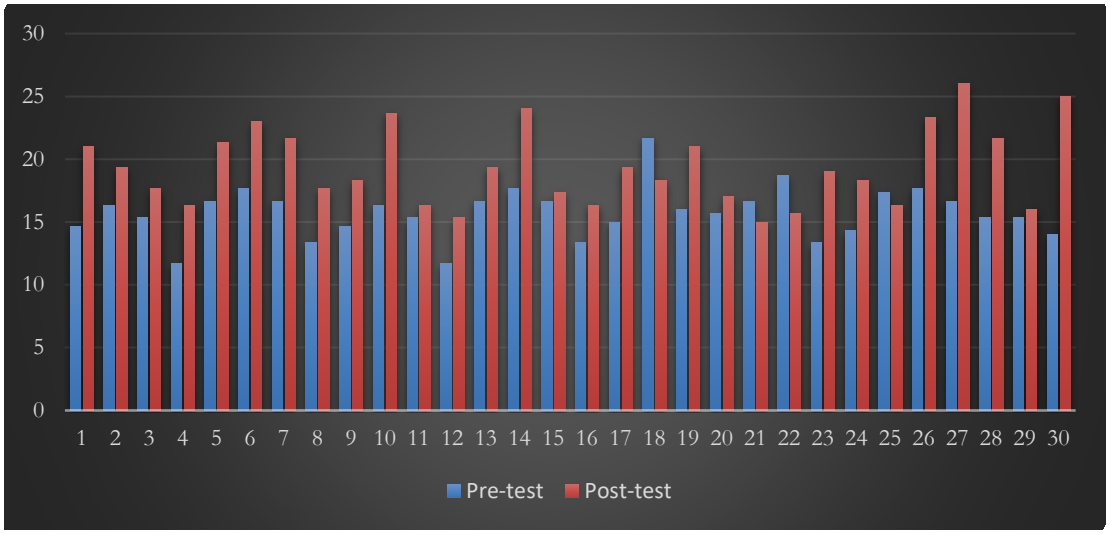

Figure 4. Histogram of Creative Products on Pretest and Posttest

Furthermore, comparing creative products from the two learning outcomes data determines the effectiveness of employing flipbook maker-based e-modules to enhance student learning creativity in learning nail art. Normality and data homogeneity tests are performed through one sample Kolmogorov-Smirnov Test (H. A. Kim & Yang, 2021).

Table 4. Result of Normality Test for the Creative Product

One-Sample Kolmogorov-Smirnov Test			
		Pretest	Posttest
N		30	30
Normal Parameters [a,b]	Mean	15.744	19.355
	Std. Deviation	2.054	3.109
Most Extreme Differences	Absolute	.127	.136
	Positive	.127	.136
	Negative	-.087	-.081
Test Statistic		.127	.136
Asymp. Sig. (2-tailed)		.200 [c, d]	.163 [c]

According to Table 4, all data groups in the pretest and post-test groups have a normal power distribution since they have an asymp. sig. > from 0.05 as the critical limit of the normal level of data to be evaluated associatively. The homogeneity test was then carried out on two data groups to determine the variance of cognitive data to be examined. Table 5 summarizes the findings of the homogeneity test of research data on creative items.

Table 5. Homogenity Test of Creative Product

Levene Statistic	df1	df2	Sig.
.076	1	4	.796

As indicated by the summary of homogeneity test results in Table 5, the total study data set has a significance score of 0.796 > from 0.05, implying that the data to be analyzed varies from the same population. Thus, the t-test can be employed to compare the outcomes of the two groups. After testing the classical assumptions on the data set that will be evaluated in comparison to determine the level of effectiveness of the creative products that have been generated, a comparative study of the creative product data from the two data sets is performed.

The hypothesis test in this study is designed to determine whether there are changes in the data on student learning outcomes on creative output as a result of student practice. The paired samples t-test was employed to evaluate the hypothesis test using SPSS software. The findings of the creative t-test in the pretest and post-test groups may be found in the hypothesis results in Table 6.

Table 6. Hypothesis Test of Creative Product

Paired Samples Test									
		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-3.611	3,299	.602	-4.843	-2.378	-5.994	29	.000

According to Table 6, if the value of sig. (2-tailed) is 0.000 0.05, then H0 is rejected, and Ha is approved. In addition to comparing the significance value (sig.) with a probability of 0.05, another technique to test the hypothesis is to compare the t-count with the t-table. It is well known that tcount has a negative value of -5.994. This negative t-count results from the pretest learning outcomes having a lower average value than the posttest learning outcomes. A negative Tcount can have a positive significance in this circumstance. As a result, the value of t-count becomes 5.994.

The analysis of the t-test score t-count of 5.994 compared to the critical value of the t-table for df 29 at a significance of 0.05, which is 2.045. The hypothesis that reads there is a difference in learning outcomes scores on creative products between the pretest and posttest groups at a significance level of 0.05 is then known to be t-count > t-table. As a result, there is an average difference between pretest and posttest learning outcomes, revealing that utilizing flipbook maker-based e-modules to improve students' creativity in studying nail art has an effect.

Education development is required to overcome challenges that still need to be optimal, from educational goals to attaining learning objectives in particular (Nurhasnah & Sari, 2020). The goals for enhancing the learning system include the planning, process, and evaluation of learning, which are the tasks and obligations of an educator. The fullest effort of an educator through innovation in learning is an action that necessitates processes to demonstrate that the results of a development that may be employed and useful to overcome challenges within the area of education are in the hands of educators (N. P. Kim, 2020).

Similarly, in learning hand, foot, and nail care, the author has attempted to create instructional media to increase student creativity in learning nail art. This learning media development features innovations that aim to change learning outcomes by utilizing the development of the globalization age, which has mostly influenced the shift in teaching and learning activities. As

a result, the author believes that the creation of learning media and innovations must be carried out so that the educational process is of good use because it was carried out in response to student needs.

A research discussion can be made based on the description of the research results offered on the research and development of flipbook maker-based e-modules to boost student creativity in studying nail art in the cosmetology and beauty education study program. In this study, the effectiveness test was carried out to assess the effectiveness of the flipbook maker-based e-module learning media that was applied to the research sample and whose application was carried out with all of the provisions in its application and development. A summative evaluation was designed to examine learning outcomes. According to the study's findings:

The findings of creative personal effectiveness were examined using a questionnaire issued to 30 students who scored 71.9% in the quite creative group. At a significance level of 0.05, the creative product hypothesis states that there is a difference in learning outcome scores before and after using flipbook maker-based e-module learning media. It is known based on the t-count score of 7.083 > t-table of 2.045. As a result of the value mentioned above, there is an average difference between pretest and posttest learning outcomes, indicating that employing flipbook maker-based e-modules to enhance student creativity in learning nail art has an effect.

The research findings demonstrate that the validity of the product in the expert assessment as a validator shows valid results in all assessments, the practical results show the average score in the practical category, and the effectiveness score shows the effectiveness results with the data results after using the flipbook maker-based e-module learning media higher than before consuming the media. According to H. A. Kim and Yang (2021) and Sutama et al. (2021), learning media can be said to be effective if it displays clear elements, can coordinate users so that they can attract students to cultivate or develop creativity, learning media are easy to understand, and it is hoped that students will accomplish more activities.

CONCLUSION

The study concluded that technological advancement can only be achieved with education. The advancement of technology has aided in the education of various media. Because development and innovative ideas are required in the Nail art course, researchers have tested flipbook-based e-modules for students majoring in cosmetology and beauty. E-modules designed by researchers have affected students in generating creative and innovative ideas and increasing creativity. This is obvious from the research results, which show that the personal effectiveness test has a value of 71.9%, the creative product effectiveness test has a significant level of 0.05, and the t-score is 7.083 > t-table is 2.045. As a result, flipbook-based e-modules can be utilized in universities as an alternative media for nail art.

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