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The Implementation of Quizizz-Supported Learning Media to Enhance Achievement and Independent Learning in Basic Beauty Education

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Abstract

The rapid advancement of technology has led to significant changes in the fields of economy, information, and education. An essential component of education that plays a vital role in fostering technological development is Learning Media. One aspect that can be optimized in the learning process is the use of learning media and evaluation tools. Numerous online platforms, such as the Quizizz application, can currently be utilized as learning media. This study aims to understand the development process, feasibility, and effectiveness of Quizizz as a medium and evaluation tool in Basic Beauty courses.

This research employs the Research and Development (R&D) method using the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation. The study follows a Quasi-Experimental design with a Two-Group Pretest-Posttest format. The products generated in this study are learning media and evaluation tools for basic beauty education.

The results of this study, based on feasibility testing and effectiveness testing of Quizizz as a learning medium for basic beauty, indicate that it is highly feasible according to media experts, educational technology experts, and subject matter experts. Effectiveness testing in the experimental class showed that the media could enhance learning outcomes in the anatomy and physiology of beauty. Student responses regarding learning independence showed high levels of self-directed learning when using the Quizizz application developed as a learning medium for Basic Beauty courses.

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INTRODUCTION

The rapid development of technology has brought about significant changes in the fields of economy, information, communication, and others. This progress has imposed a demand on the education sector to produce a generation with the skills to adapt to technological advancements, commonly referred to as 21st-century education skills. Since 2013, UNESCO has emphasized the necessity of using mobile technology in education (Junior, 2020). Education is a human endeavor to shape personality in accordance with the values within society and its culture (Djamaluddin, 2014). Education holds a very strategic position in shaping individuals within society for the betterment of civilization.

This development also requires students to be ready to adapt to various components that support the learning process. One educational component that currently plays a crucial role in technological development is learning media. Learning media are tools that can be used to aid the teaching and learning process, making the message conveyed clearer so that learning objectives can be achieved effectively and efficiently (Nurrita, 2018). One application that can be used both as a learning medium and as an evaluation tool is the Quizizz application. Quizizz is an interactive game application that can be used as a learning medium and integrated with material and evaluation questions to make learning more engaging (Mulatsih, 2020).

Based on observations and interviews conducted by the researcher with Ms. Titik, a teacher of Basic Beauty at SMK Negeri 6 Semarang, it was explained that basic beauty education has so far been carried out only by applying lecture methods and sometimes using PowerPoint presentations. Moreover, final evaluations are still conducted using conventional methods such as student worksheets (paper). This sometimes makes the learning or evaluation less effective because many students feel bored and neglect the teacher's lecture. Furthermore, during evaluations with conventional methods, many students engage in cheating, and the correction process takes a long time.

The use of conventional media causes boredom among students, mainly due to the limited exploration of teacher creativity in developing innovative and interesting learning materials using digital technology in the teaching and learning process (Mukhadik et al., 2023). The assessment results obtained in the anatomy and physiology learning elements for beauty care are less than optimal, with many students not meeting the minimum criteria of mastery learning; only about 35% can exceed the minimum criteria in this material. Students are said to achieve the minimum criteria if the summative test results in the anatomy and physiology elements of beauty are 75 or higher. Therefore, given the problems encountered in the teaching and learning process, there is a need for the development of practical learning media and evaluation tools to aid the Basic Beauty learning process.

METHODOLOGY

The research method used in this study is Research and Development (R&D). Research and Development aims to produce a specific product and test the effectiveness of the method (Hanafi, 2017). The development model used is ADDIE that developed by Dick and Carry (1996). The ADDIE model involves five stages of development: Analysis, Design, Development, Implementation, and Evaluation. This study employs a Quasi-Experiments design with a Two-Group Pretest-Posttest format. In this design, the experimental and control groups are not randomly selected, but both groups are compared. The experimental class receives treatment while the control class does not (S. Ratnasari et al., 2018). Below is an illustration of the ADDIE development stages in this study:

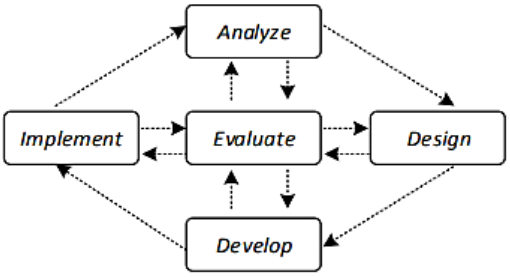

Figure 1. ADDIE development stages

1. **Analyze**
   Analyze is the initial stage in the ADDIE model research and development. This step includes analyzing the curriculum, analyzing the Annual Teaching Program (ATP), analyzing learning needs, observing learning activities, and reviewing the references used in learning to identify weaknesses in students achieving specific learning outcomes.
2. **Design**
   In the design stage, the researcher develops the interactive Quizizz game application and interactive videos using AI technology as learning media and evaluation tools for the Anatomy and Physiology of Beauty elements.
3. **Development**
   The development stage involves creating the learning media and evaluation tools.
4. **Implementation**
   In the implementation stage, the developed media is applied in the learning process.
5. **Evaluation**
   The evaluation stage involves analyzing the effectiveness of the developed learning media.

1. **Subjects and Research Location**

The subjects of this study are tenth-grade (Phase E) students majoring in Beauty and Spa at SMK N 6 Semarang and SMK N 3 Magelang, divided into two classes; the control class and the experimental class. The distribution is as follows:

a. The experimental class consists of 30 tenth-grade students majoring in Beauty and Spa at SMK N 6 Semarang.
b. The control class consists of 30 tenth-grade students majoring in Beauty and Spa at SMK N 3 Magelang.

2. **Data Collection Techniques and Instruments**

Data collection is the initial step in conducting research. It is the method used by researchers to gather data (Riduwan, 2015). The data collection techniques used in this study are: (1) Observation, (2) Written Tests, (3) Expert Validation Questionnaires, (4) Student Independence Questionnaires.

RESULTS AND DISCUSSION

1. **Feasibility of Quizizz Media as a Learning Tool for Anatomy and Physiology**

Feasibility testing was conducted to determine the suitability of the developed Quizizz media. 6 Expert Judgments, including 2 media experts, 2 subject matter experts, and 2 educational technology experts, provided feedback and suggestions on the developed media. This stage was validated by the results of questionnaires filled out by the experts, indicating that the Quizizz and video media are suitable for use in research. Below are the feasibility test results from media experts, technology experts, and subject matter experts:

Table 1. feasibility test results from media experts, technology experts, and subject matter experts

Expert Validator	Average Expert Score	Remarks
Media xpert	4	Feasible
Educational Technology Expert	4.65	Highly feasible
Subject Matter Expert	4.53	Highly feasible

2. **Effectiveness of the Quizizz Application as a Learning Media for Anatomy and Physiology in Improving Student Learning Outcomes**

The effectiveness of the media was measured using N-gain analysis and independent sample t-tests. Below is a graph showing the pretest and posttest score improvements in the experimental and control classes:

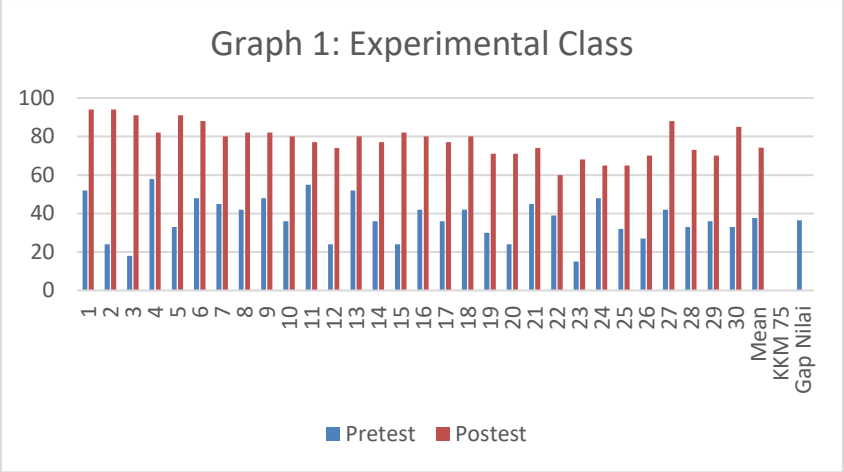

Figure 2. Experimental class graph

Graph 1 shows the pretest and posttest data for 30 students in the experimental class. The graph illustrates the initial abilities of students before and after receiving treatment with the Quizizz media. The average pretest score in the experimental class was 37.7, while the average posttest score was 74.2.

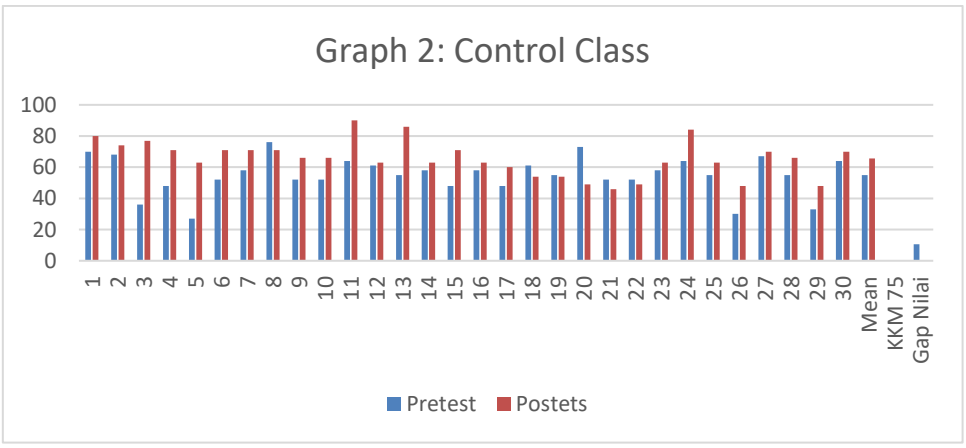

Figure 3. Control Class

Graph 2 shows the pretest and posttest data for 30 students in the control class. The graph illustrates the initial abilities of students before and after receiving treatment with traditional lecture methods. The average pretest score in the control class was 55, while the average posttest score was 65.6. After obtaining the pretest and posttest data from both classes, the data was analyzed using independent sample t-tests and N-gain tests.

a. Independent Sample T-tes

The independent sample t-test in this study was used to determine whether there is a significant difference in learning outcomes between the experimental and control groups. The statistical hypothesis is formulated as follows:

(H0) = no difference, if t-value < t-table with α (0.05)

(Ha) = difference, if t-value > t-table with α (0.05)

The criteria for rejecting H0 and accepting Ha is when the t-value is greater than the t-table (t-value > t-table) with a significance level (α) of 0.05. The independent sample t-test results for the pretest and posttest scores of the experimental and control classes are presented in the table below:

Table 2. Independent Sample T-test Result

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Belajar	Equal variances assumed	1.384	.244	4.810	58	.000	12.700	2.640	7.415	17.985
	Equal variances not assumed			4.810	54.175	.000	12.700	2.640	7.407	17.993

Based on the results, it is evident that the t-value is greater than the t-table (4.810 > 2.002). Therefore, H0 is rejected, and Ha is accepted, indicating that the use of Quizizz media is effective in improving learning outcomes in anatomy and physiology of beauty.

b. N-Gain Test

The N-gain test in this study was conducted to determine the extent of improvement in students' learning outcomes after treatment. The N-gain test results for the control and experimental classes are as follows:

Table 3. N-gain test results for the control and experimental classes

Class	Average Pretest Score	Average Posttest Score	N-Gain	%	Improvement Criteria
Experimental	37.7	74.2	0.59	59%	Moderate
Control	55	65.6	0.24	24%	Low

Based on the table, the N-Gain score in the experimental class using the Quizizz application was 0.5 or 50%, indicating a "moderate" improvement. In contrast, the control class without treatment had an N-Gain score of 0.24 or 24%, indicating a "low" improvement. Thus, it can be concluded that the experimental class using the Quizizz media showed better improvement than the control class.

3. **Effectiveness of the Quizizz Application as a Learning Media for Anatomy and Physiology in Enhancing Student Learning Independence**

Based on the student independence response questionnaires distributed to the experimental class, the results are as follows:

Table 4. Result of student independence response questionnaires

Category	Number of Students	Percentage
Very High	25 students	83%
High	5 students	17%
Moderate	0	0%
Low	0	0%
Very Low	0	0%
Total	30 students	100%

The percentage results in the table indicate that 25 students are in the "Very High" category with 83%, and 5 students are in the "High" category with 7%. It can be concluded that the use of the Quizizz media can foster student independence in the learning process of anatomy and physiology.

Discussion

Based on the research results, the development of an evaluation tool using the Quizizz application to improve student achievement and learning independence in the anatomy and physiology of beauty elements received an average feasibility score of 4.39, categorizing it as highly feasible. This indicates that the Quizizz application developed as a learning medium is highly suitable for enhancing student learning outcomes and independence. This aligns with the study by Lestari & Asmarani (2024), which states that the Quizizz application is highly effective for improving student learning outcomes. Additionally, Ayu et al. (2023) found that the use of the interactive Quizizz multimedia enhances student learning independence.

The effectiveness of the Quizizz media was tested using an independent sample t-test, which resulted in t-value > t-table (4.810 > 2.002). Thus, it can be concluded that H0 is rejected, and Ha is accepted, indicating that the use of Quizizz media can improve teaching competence in the anatomy and physiology of beauty. This is consistent with the study by Amsul et al. (2022), which explained that the Quizizz application is effective for improving student learning outcomes. The difference in learning outcomes between the control and experimental classes was also observed through the N-Gain test, showing an increase of 0.50 in the experimental class (moderate improvement) and 0.24 in the control class (low improvement). This demonstrates that the class treated with Quizizz media showed a higher learning improvement compared to the class that did not use Quizizz media. This finding is supported by the study by Amsul et al. (2022), which explains that the Quizizz application is effective for cognitive development. Quizizz media can enhance learning outcomes because it includes images, videos, and audio, which aligns with the study by Jannah et al. (2022), stating that learning media equipped with animation and audio can clarify the material. The study by Putri et al. (2022) also explains the practical benefits of using audiovisual aids in learning.

The effectiveness of Quizizz was also evaluated using a learning independence response questionnaire analyzed through percentage analysis. It was found that using Quizizz media also affects student learning independence. The developed Quizizz media, combined with images, audio, and interactive videos, can enhance student learning independence. This aligns with the study by Dan & Belajar (2023), which states that Quizizz can improve student independence and learning achievement. This improvement occurs because the Quizizz application can be accessed anywhere and anytime using a smartphone or PC, allowing students to learn about anatomy and physiology easily and independently.

CONCLUSION

1. The Quizizz application is effective for improving student learning outcomes in the anatomy and physiology of beauty elements. This is evidenced by the effectiveness test results, including the N-Gain test and the independent sample t-test, which showed t-value > t-table (4.810 > 2.002). Therefore, it can be concluded that Ho is rejected and Ha is accepted.
2. The developed Quizizz application can enhance student learning independence. This is evidenced by the student learning independence response questionnaire, which showed that students in the experimental class fell into the high independence category.

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