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Effectiveness of Pinterest Application-Based Learning Media to Improve Hair-Bun Styling Learning Outcomes

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Abstract

The rapid advancement of information and communication technology, particularly internet-based platforms, has increased the demand for innovative learning media that align with the learning characteristics of students in the digital era. One visual based platform with potential application in vocational education is Pinterest. This study aims to examine the effectiveness of Pinterest based learning media in improving learning outcomes in creative hair bun styling among vocational high school students. A pre-experimental research design using a one group pretest posttest approach was employed. The participants consisted of 20 eleventh grade students from the Beauty Department at SMK Tama Jaya. Data were collected through cognitive achievement tests and psychomotor performance assessments. Statistical analyses included normality and homogeneity tests, paired sample t tests, and N gain analysis. The results showed a statistically significant improvement in both cognitive and psychomotor learning outcomes following the implementation of Pinterest based learning media with $p < 0.05$. The N gain value of 0.51 indicates a moderate level of learning improvement. These findings indicate that Pinterest based learning media is effective in enhancing conceptual understanding, practical skills, and creativity in creative hair bun styling. In addition, the visual, diverse, and accessible features of Pinterest support independent learning among vocational students.

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INTRODUCTION

Education is a crucial factor in determining national progress. This is consistent with Law Number 20 of 2003, Article 1, Paragraph (1), which defines education as a conscious and planned effort to create a learning process that enables learners to actively develop their potential. Education plays a vital role in national development. Therefore, both the government and society must recognize its importance in preparing future generations. The primary objective of education is to develop individuals with faith, piety, and noble character, in accordance with the direction of character education development. Consequently, the state is required to design appropriate strategies to achieve high quality education.

One formal education level that is widely implemented in Indonesia is Vocational High School. Vocational education aims to prepare learners to become work ready graduates according to their respective fields of expertise. It emphasizes the development of attitudes, knowledge, and skills as preparation for entering higher education or the professional workforce. This objective requires learners to be adaptive to various components that support the learning process.

The curriculum is a fundamental component of the education system. The curriculum currently implemented in Indonesia is Kurikulum Merdeka. This curriculum emphasizes essential learning content and encourages learners to be more active, creative, and innovative. Kurikulum Merdeka is designed to accommodate individual talents and interests, allowing learners to choose learning paths that align with their preferences. One of the main instructional approaches promoted in this curriculum is project-based learning, in which learners apply acquired knowledge through structured projects (Sutirman, 2013). Learning media is an important supporting element in the implementation of Kurikulum Merdeka, as it is expected to provide concrete learning experiences, increase motivation, and improve learning comprehension and retention (Arsyad, 2020).

Along with technological advancements, social media platforms have the potential to be utilized as alternative learning resources. One such platform is Pinterest, a visual based application that provides images and videos featuring a wide range of creative ideas, including content related to makeup and hairstyling. Pinterest functions as a photo sharing platform that effectively gathers visual ideas from various digital sources (Gao and Feng, 2020). It serves as a visual discovery tool that enables users to explore project ideas and specific interests. Through this platform, users can access, save, and organize visual inspirations that may be used as references for creative work development (Kurniawati, 2019).

One area of creative content that can be explored through Pinterest is creative hair bun styling. Hair bun styling is a form of hairstyling art that contains aesthetic value, philosophical meaning, and practical functions in enhancing appearance. Mastery of hair bun techniques is therefore an essential competency for learners in the Beauty Department. However, field observations indicate that learning activities related to hair bun styling still face several challenges. Learning media are generally limited to textbooks, printed modules, and direct demonstrations by teachers. This limitation results in a lack of diverse and innovative visual references. As a consequence, learners tend to imitate existing styles without sufficient confidence to explore or create new variations, which leads to limited creativity and low learning motivation.

Observations and interviews conducted with the head of the Beauty Department at SMK Tama Jaya revealed that teaching practices for creative hair bun styling still rely heavily on direct demonstration methods. This approach is considered less effective because learners have limited opportunities to access varied visual references. Teachers expressed the need for innovative learning media that could support practical hairstyling instruction and expand creative exploration.

The use of Pinterest as a learning medium is expected to provide learners with broader insights into hair bun variations while encouraging the development of creative ideas

that align with current trends and industry needs (Handayani, 2021). The rapid growth of digital technology and social media offers new opportunities in education, particularly in providing diverse visual resources that can enrich learning experiences and stimulate creativity. Therefore, this study aims to develop innovative and creative learning video media based on the Pinterest application to support the learning of creative hair bun styling and to enhance learner competence and creativity.

METHODS

This study employed a Research and Development method using the ADDIE development model, which consists of the stages of Analysis, Design, Development, Implementation, and Evaluation. The research design followed a pre-experimental approach using a one group pretest posttest design, in which the study was conducted without a control group (Sudiarti et al., 2021). Participants were administered a pretest prior to the treatment and a posttest after the treatment was implemented.

Table 1. Pretest Posttest Without Control Group Design

Pretest	Treatment	Posttest
T1	X	T2

Description:
T1 : Pre-test conducted before the treatment.
X : Treatment (Learning using creative hair-bun styling video media based on the Pinterest application) in
the experimental class at SMK Tama Jaya School, involving 20 students.
T2 : Post-test conducted after the treatment.

The implementation of Pinterest based learning media in this study was conducted with a large group consisting of 20 eleventh grade Hairdressing students at SMK Tama Jaya School. Student performance was observed to identify improvements in competence and creativity following the use of the learning media. The implementation testing utilized a multiple-choice test designed to measure cognitive learning outcomes based on predetermined indicators, covering the aspects of knowledge, comprehension, application, analysis, synthesis, and evaluation (Widowati, 2023).

Data validity in this study was established using several techniques. Content validity was assessed using the Content Validity Ratio formula for all research instruments. Point biserial correlation validity was applied to the practicality questionnaire instrument. Item analysis, including difficulty level, discrimination power, and distractor effectiveness, was conducted for the test instruments. Reliability testing was performed using the Percent of Agreement method and the Kuder Richardson 20 formula for the test instruments.

The data analysis techniques employed in this study included descriptive analysis of teacher response questionnaires. In addition, paired sample t test analysis and N gain score analysis were used to determine improvements in learning outcomes resulting from the implementation of Pinterest based learning media. Prior to conducting these analyses, prerequisite tests were carried out, including normality and homogeneity tests.

RESULTS AND DISCUSSION

Effectiveness Results of the Cognitive Aspect

a) Normality Test

The normality test was conducted to determine whether the data were normally distributed. Table 2 presents the results of the pretest and posttest normality tests for the class utilizing Pinterest based learning media.

Table 2. Normality Test Results for the Cognitive Aspect

Statistic	df	Sig.	Statistic	df	Sig.
.138	20	.200*	.939	20	.226
.163	20	.174	.939	20	.233

Based on the Shapiro Wilk test, the significance value for the pretest was 0.226, while the significance value for the posttest was 0.223. The Shapiro Wilk test was selected because the sample size in this study was fewer than 100 participants. Data are considered normally distributed when the significance value exceeds 0.05. Since both the pretest and posttest significance values were greater than 0.05, it can

be concluded that the cognitive learning outcome data were normally distributed.

b) Homogeneity Test

The homogeneity test was conducted to determine whether the data exhibited homogeneous variance. Table 3 presents the results of the homogeneity test for the pretest and posttest cognitive scores.

Table 3. Homogeneity Test Results for the Cognitive Aspect

Based on Mean	016	1	38	899
Based on Median	025	1	38	875
Based on Median and with adjusted df	025	1	37.937	875
Based on trimmed mean	007	1	38	936

The homogeneity analysis based on the mean showed a Levene statistic value of 0.016 with a significance value of 0.899. The analysis based on the median produced a Levene statistic of 0.025 with a significance value of 0.875. The analysis based on the median with adjusted degrees of freedom also showed a significance value of 0.875, while the trimmed mean analysis produced a significance value of 0.936. Since all significance values were greater than 0.05, it can be concluded that the pretest and posttest cognitive data had homogeneous variance.

c) Paired Sample t-Test

The paired sample t test was conducted to examine differences between pretest and posttest cognitive scores. The results of the analysis are presented in Table 4.

Table 4. Result t Test Sample Pairet t Test

t	df	Sig. (2-tailed)
37.741	39	.000

t table = a ; (df)
t table = 0,05 ; (20+20-2)
t table = 0,05 ; (38)
t table = 1,681

The calculated t value was 37.741 with a significance value of 0.000. The critical t value at a significance level of 0.05 and 38 degrees of freedom was 1.681. The decision criterion stated that the null hypothesis is rejected when the calculated t value exceeds the critical t value. Since 37.741 was greater than 1.681, the null hypothesis was rejected. This result indicates a statistically significant increase in cognitive learning outcomes after the implementation of Pinterest based learning media.

d) N-Gain Test

The N gain test was used to measure the magnitude of improvement in cognitive learning outcomes. Table 5 presents the results of the N gain analysis.

Table 5. Result N-Gain Score

Pretest	Postest	N-Gain	Improvement Category
63.5	82.25	0.51	Moderate

The mean pretest score was 63.5, while the mean posttest score increased to 82.25. The calculated N gain score was 0.51, which falls within the moderate improvement category. This finding indicates that Pinterest based learning media contributed to a meaningful improvement in students cognitive learning outcomes.

Observation Results (Effectiveness of the Psychomotor Aspect)

The psychomotor learning outcomes were assessed through teacher observations of student performance based on the creativity and quality of hair bun styling produced by the students.

a) Normality Test

The normality test was conducted to determine whether the psychomotor performance data were normally distributed. Table 6 presents the results of the Shapiro Wilk normality test for the pretest and posttest performance scores.

Table 6. Normality Test Results for the Psychomotor Aspect

Statistic	df	Sig.	Statistic	df	Sig.
.157	20	.200*	.943	20	.268
.207	20	.055	.894	20	.052

Based on the table above, the significance value for the experimental class pre-test in the Shapiro-Wilk test is 0.268, and the significance

value for the post-test is 0.052. The Shapiro-Wilk test was selected because the sample size in this study is less than 100. Data are considered to be normally distributed if the significance value is greater than 0.05. Since the pre-test significance value (0.268 > 0.05) and the post-test significance value (0.052 > 0.05) both exceed this threshold, it can be concluded that the pre-test and post-test data (Performance Test) for the class using Pinterest-based learning media are normally distributed.

b) Homogeneity Test

The homogeneity test aims to determine whether the data possess homogeneous variance. The following are the results of the homogeneity test for the pre-test and post-test scores (Performance Test) in the class utilizing Pinterest-based learning media:

Table 7. Homogeneity Test Results for the Psychomotor Aspect

	Levene Statistic	**Sig.**
Based on Mean	.185	.670
Based on Median	.149	.702
Based on Median and with adjusted df	.149	.702
Based on trimmed mean	.173	.680

Based on the table above, the Based on Mean section shows a Levene Statistic value of 0.185 with a significance value of 0.670. The Based on Median section shows a Levene Statistic of 0.149 with a significance value of 0.702. In the Based on Median and with Adjusted df section, the Levene Statistic is 0.149 with a significance value of 0.702, and the Based on Trimmed Mean section shows a Levene Statistic of 0.173 with a significance value of 0.680. Data are proven to have homogeneous variance if the significance value is greater than 0.05. From the results presented in Table 4.x, it can be concluded that the pre-test and post-test data (Performance Test) possess homogeneous variance.

c) Paired Sample t-Test Results (Performance Test)

The following are the results of the Paired Sample t-test for the pre-test and post-test scores (Performance Test) of the class utilizing Pinterest-based learning media:

Table 8. Paired Sample t-Test Results for the Psychomotor Aspect

t	**df**	**Sig. (2-tailed)**
33.963	39	.000

t table = a ; (df)
t table = 0,05 ; (20+20-2)
t table = 0.05 ; (38)
t table = 1.681

The criteria for rejecting the null hypothesis HO and accepting the alternative hypothesis Ha is if the t count value is greater than the t table value (t count > t table) at a significance level (α) 0,05. Based on the calculation, the result shows t count > t table (33.963 > 1.681). Therefore, it can be concluded that there is a significant increase in the mean scores of the Performance Pre-test to the Post-test in the class utilizing Pinterest-based learning media.

Discussion

Pinterest based video learning media is effectively implemented in the learning process. This effectiveness is demonstrated by the significant difference between students cognitive pretest and posttest results, which fall into the excellent category. Furthermore, the N gain score results indicate an improvement from pretest to posttest scores within the moderate category. This learning medium also effectively supports and facilitates students in achieving more optimal independent learning.

In addition to improving learning outcomes, Pinterest serves as a platform for exploring creative ideas in hair bun styling. Research by Wulandari and Oktavia (2021) indicates that the use of visual media based on the Pinterest application can enhance students creativity and learning outcomes by providing a variety of visual references that are easily adaptable. This finding is further supported by Safitri and Nugroho (2022), who state that interactive learning media based on digital platforms such as Pinterest can increase student motivation, particularly in subjects that require practical skills.

Creativity in hair bun styling is not limited to the ability to imitate existing models, but also includes the capacity to modify, combine, and create new forms (Guilford, 2019; Torrance, 2018). Pinterest provides a rich visual ecosystem in which students can observe various trends, styles, and techniques from different cultures and historical periods. Exposure to this visual diversity stimulates divergent thinking, which refers to the ability to generate multiple ideas or solutions to a problem (Runco and Acar, 2019). Students learn that a single hair bun style can have numerous variations, which encourages them to develop their own signature style (Sawyer, 2021).

The aesthetic aspect is also a central focus in Pinterest facilitated hair bun learning. The platform features not only technical tutorials but also displays aesthetically appealing and inspiring final results (Kim and Kim, 2020). Through visual observation, students learn design principles such as proportion, balance, harmony, and contrast. They also begin to understand how the selection of accessories, color, and texture influences the overall appearance of the hair bun (Arnheim, 2019). Implicit aesthetic learning through visual exposure is as important as explicit technical learning, as the quality of a hair bun is ultimately evaluated not only based on technical execution but also on visual appeal (Dewey, 2021).

Furthermore, Pinterest facilitates the development of visual literacy, which refers to the ability to read, interpret, and derive meaning from visual information (Avgerinou and Pettersson, 2023; Brumberger, 2019). In the context of hair bun styling, visual literacy enables students to analyze why a particular style appears visually appealing, what elements contribute to its uniqueness, and how those qualities can be replicated or adapted in their own work. This competence is essential not only for hair bun styling but also for broader skill development in the fields of makeup and beauty (Metros, 2020).

Despite the high level of effectiveness demonstrated in this study, the implementation of Pinterest as a learning medium also presents several challenges. First, the availability and quality of internet access are critical factors that influence successful implementation (Selwyn, 2019; Williamson, 2021). Inconsistent internet connectivity at home can hinder independent learning activities. Second, differences in student digital literacy levels require initial guidance to ensure that all students are able to use Pinterest effectively (Pangrazio and Sefton Green, 2021). Third, the quality control of content accessed by students must be considered, as Pinterest is an open platform with varying levels of content quality (boyd, 2018).

To address internet access limitations, schools can provide stable Wi Fi access or allocate specific time for students to explore Pinterest in computer laboratories (Reich and Ito, 2020). Alternatively, teachers can develop curated Pinterest boards containing high quality content, allowing students to download learning materials while connected to the internet for later offline use. A blended learning strategy that integrates online and offline learning activities can also serve as an effective solution (Halverson and Graham, 2019; Rasheed et al., 2020).

To accommodate varying levels of digital literacy, teachers can organize introductory workshops or training sessions on the use of Pinterest at the beginning of the semester (Carretero et al., 2018). Short instructional videos demonstrating how to create boards, save pins, organize content, and collaborate with peers can support students who are less familiar with the platform. In addition, a buddy system in which digitally proficient students assist peers who experience difficulties can be implemented to promote peer learning (Topping, 2019).

In terms of content quality control, teachers play a crucial role as content curators by creating master boards that contain reliable and high-quality references (Trust, 2020). Teachers can establish clear criteria for evaluating content quality, including tutorial clarity, source credibility, and relevance to learning objectives. Students should also be trained to apply critical thinking skills when selecting references, rather than simply following popular trends, by considering technical accuracy and safety aspects in hairdressing practices (Breakstone et al., 2021).

The use of Pinterest as a learning medium has important implications for pedagogical practices. Teachers are no longer positioned as the sole source of knowledge, but instead function as facilitators, content curators, and guides for exploration (Darling Hammond et al., 2020;

König et al., 2020). This shift in instructional roles requires a change in mindset, in which teachers must be more flexible, open to innovation, and willing to learn alongside their students. Moreover, teachers must develop competencies in designing instruction that integrates technology meaningfully, rather than using technology solely for its novelty (Mishra, 2019; Tondeur et al., 2021).

Professional development for teachers is therefore essential in this context. Regular workshops or training programs focusing on digital pedagogy, particularly on the effective use of visual platforms such as Pinterest for learning, should be implemented (Bates et al., 2020). Teachers need to be equipped with knowledge related to visual learning principles, digital instructional design, and assessment strategies for technology supported learning environments (Noesgaard and Ørngreen, 2021). Additionally, teachers must understand legal and ethical considerations related to digital content usage, including image copyright and appropriate attribution practices (Bozkurt and Sharma, 2022).

Collaboration among teachers can also be strengthened through the use of Pinterest. Educators from different schools or regions can share boards, instructional strategies, and best practices (Krutka et al., 2019). This collaborative network can function as a community of practice that continuously provides inspiration and professional support, thereby fostering broader instructional innovation. In this context, Pinterest can serve as a professional learning space that transcends geographical limitations (Trust et al., 2020).

Based on the overall discussion, it can be concluded that Pinterest based learning media represents an effective, relevant, and innovative approach for creative hair bun styling instruction. This medium addresses the limitations of conventional learning media that were previously used and were less aligned with the characteristics of digital era learning (Crompton and Burke, 2020; Pelletier et al., 2022). Therefore, the integration of Pinterest as a learning medium offers a strategic alternative for optimizing student learning outcomes.

For sustainable implementation, several recommendations should be considered. First, the development of structured guidelines or learning modules that systematically integrate Pinterest into syllabi and lesson plans is necessary (Beetham and Sharpe, 2019). Second, continuous monitoring and evaluation should be conducted to identify areas for improvement and to document best practices that can be shared with other educators (Guskey and Yoon, 2020). Third, further exploration of integrating Pinterest with other digital platforms or learning tools is recommended to create a more comprehensive learning ecosystem (Selwyn et al., 2020).

Further research is also required to explore aspects that were not addressed in this study. Future studies may include longitudinal research to examine the long-term impact of Pinterest use on student competence development (Farrington et al., 2019), investigations into the use of Pinterest in collaborative or project-based learning contexts (Kali et al., 2021), or detailed analyses of the types of Pinterest content that are most effective for specific skill acquisition. Comparative studies involving other visual platforms such as Instagram or TikTok may also provide valuable insights into the unique characteristics of each platform (Escott and Rubio, 2020; Ferchaud et al., 2023).

In addition, it is important to examine how Pinterest can be integrated into more comprehensive assessment systems. Pinterest based digital portfolios may serve as an authentic assessment alternative, allowing students to document their learning process from initial idea exploration to final product development (Birenbaum, 2020). Assessment rubrics that include aspects of content curation, creative adaptation, and reflective learning can be developed to provide more holistic feedback to students (Panadero and Jonsson, 2020).

Ultimately, the successful implementation of Pinterest as a learning medium depends not solely on the technology itself, but on how teachers design meaningful learning experiences, how students actively engage in the learning process, and how the broader educational ecosystem supports pedagogical innovation (Admiraal et al., 2023; Fullan and Langworthy, 2022). Pinterest is a powerful tool, but its effectiveness is determined by its integration within a well planned and reflective instructional

framework. With an appropriate pedagogical approach, Pinterest can function as a catalyst for learning transformation that empowers students to become independent and creative learners who are prepared to face the challenges of the digital era workforce (Scott, 2020; Zhao and Watterston, 2021).

CONCLUSION

Pinterest based learning media represents an effective, superior, and relevant instructional innovation for creative hair bun styling education. Pinterest not only improves student learning outcomes in the cognitive and psychomotor domains, but also supports the development of creativity, visual literacy, learning motivation, and self confidence. Supported by a strong theoretical foundation, appropriate technological characteristics, and strategic implementation, Pinterest can function as a catalyst for transforming vocational education to better prepare students for success in the digital era. The success of Pinterest implementation depends on the commitment of all educational stakeholders to continuously innovate, collaborate, and develop meaningful and reflective pedagogical practices in integrating technology to achieve optimal learning objectives.

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