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# PROBLEM-BASED LEARNING MODEL (PBL) BY UTILIZING VIDEOS ON THE COMPETENCY OF UKEL BEND BUNS ON LEARNING OUTCOMES OF CLASS XI SMKN 6 SURABAYA

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**Abstract**

The Problem Based Learning (PBL) model that utilizes video media is an innovative approach to skill learning, especially in the competence of the ukel bend bun. This approach is expected to be able to improve the understanding and skills of students who have been experiencing difficulties mastering the material optimally. This study aims to examine the characteristics of learning video media, analyze the implementation of the syntax of the PBL learning model, determine the improvement of student learning outcomes, and evaluate student motivation towards the use of learning videos in the PBL model on the competence of the bending bun. The type of research uses a quantitative approach with a One-Group Pretest-Posttest design without a control group. The research sample was 31 students in grade XI TKC 2 SMKN 6 Surabaya. The data collection methods used were observation, questionnaires, and cognitive learning outcome tests. The results showed that the characteristics of video media were very feasible to use with an average validation of 90%, the implementation of PBL syntax was carried out very well with an average of 100%, there was a significant increase in learning outcomes from an average of pretest 83.06 to a posttest of 95.96 ($p < 0.05$), and student learning motivation was relatively high with an average score of 87.57%. This study proves that the application of a problem-based learning model by utilizing video media is effective in increasing student learning outcomes and motivation in the competence of the ukel bend bun at SMKN 6 Surabaya.

**Keywords** : Problem-Based Learning, Video Media, Learning Outcomes, Ukel Bend Bun.

## INTRODUCTION

Problem-based learning using video media is one of the innovative approaches in the world of education, especially for practical skills such as traditional hair makeup. One of the important materials in this field is the ukel bend bun, which is a technique for curling hair with a distinctive shape that has aesthetic as well as cultural value. This material requires visual comprehension and repeated practice so that students are able to master it well.

At SMKN 6 Surabaya, the competence of the ukel bend bun is taught to students majoring in Beauty as part of learning cosmetology skills. However, in its implementation, this learning often encounters obstacles, such as limited practice time, inadequate facilities, and low student learning motivation. Therefore, the use of video media and *the Problem Based Learning* (PBL) approach is considered to be able to help improve student learning outcomes in mastering the ukel bend bun technique more effectively and interestingly.

This condition requires innovation in the learning process. Learning video media is one of the solutions that can help students understand the technique of making buns visually and systematically. Eldarni et al. (in Cahyo and Hera, 2020) stated that video media is a tool that displays audio and visuals containing concepts, studies, and learning pillars. These media support more engaging learning and allow students to access material outside of face-to-face hours. Riyani (in Pratama, et al. 2020) added that learning videos help students understand material concepts in audio-visual form so that they are easier to understand. In addition, Wahyuningtyas (2020) stated that the use of video media can increase student participation, clarify work steps, and make learning more effective because students can repeat impressions as they need.

The use of *the Problem Based Learning* (PBL) model also strengthens the effectiveness of video in learning. This model provides a learning experience that emphasizes real problem-solving. According to Rusman (Aulia & Budiarti, 2022), PBL makes it easier to understand material and improves problem-solving skills, so that student learning outcomes increase. Arends (in Masrinah, 2019) explained that PBL has characteristics such as asking questions, interdisciplinary focus, authentic investigation, producing products, and teamwork. This model is very suitable to be applied to learning skills such as cosmetology.

Video media has distinctive characteristics that support the implementation of PBL. Sumaranti (2020) stated that video media is one-way, displays dynamic images, and is developed based on the psychological principles of behaviorism and cognition. Video tutorials allow students to learn at their own pace and can repeat steps that are considered difficult. In the context of the ukel bend bun, this media provides a real visualization of the bun-making process, which initially could only be taught through direct demonstrations.

The ukel bend bun is a traditional bun that originated in the Special Region of Yogyakarta. Hipij & Sulistyami (in Maria Valensia, 2023) explained that this bun is a cultural heritage that used to be only used by the royal family. Today, this bun making technique is one of the essential skills in the world of makeup because it is often used by different types of brides and symbolizes beauty. Learning to make traditional buns is also culturally important because it reflects aesthetic values and norms that need to be preserved.

This study aims to examine the characteristics of learning video media used by vocational school students in understanding the competence of the ukel bend bun, analyze the implementation of the syntax of the problem-based learning model (PBL) in the learning of these competencies, and determine the improvement of student learning outcomes through the application of the PBL model. This research is expected to prove that the application of a problem-based learning model that utilizes video media is effective in increasing students' learning outcomes and learning motivation in the competence of the folded ukel bun at SMKN 6 Surabaya.

## METHOD

This type of research uses a quantitative approach with a pre-experimental method. The research method used is *One-Group Pretest-Posttest Design,* which is a pre-experimental research design that involves one group without a control group. The design in this study can be described as follows:

O1 X O2

Information:

O1 = *Pretest* (before the implementation of problem-based learning)

X = Implementation of problem-based learning

O2 = Posttest (after the implementation of problem-based learning

The subject of the study was 31 students in grade XI TKC 2 SMK Negeri 6 Surabaya, who were selected purposively because they had studied the subject of the ukel bend bun.

Data collection was carried out using tests, observations, and questionnaires. Tests in the form of cognitive questions were given before and after treatment to find out learning outcomes. Observations were used to evaluate the implementation of the learning model and the feasibility of video media. The questionnaire was given to find out students' motivation for learning.

The instruments used in this study include observation sheets on the characteristics of video media, observation sheets on the implementation of problem-based learning models, learning outcome test sheets (*pretest-posttest*), and student learning motivation questionnaires. All instruments used have been tested for validity and reliability.

The data analysis used in this study is as follows:

1. Data Analysis of Video Media Characteristics

The feasibility assessment of video media uses percentage descriptive statistics by comparing the total score of validators to the maximum score. This percentage illustrates the extent to which video media is suitable for use in learning. The formula used is as follows:

$$\text{Percentage (\%) x 100\%} = \frac{Jumlah\ Skor\ Total\ (X)}{Skor\ Maksimal\ (Y)}$$

Information:

Total Score (X): The total number of scores obtained from all validators.

Maximum Score (Y): The highest score of the validation sheet multiplied by the number of validators.

The eligibility categories used based on the percentage of results are:

Table 1. Video Qualification Categories

| Percentage | Eligibility Categories |
|---|---|
| < 21% | Very Unworthy |
| 21 – 40 % | Not Eligible |
| 41 – 60 % | Quite Decent |
| 61 – 80 % | Proper |
| 81 – 100 % | Highly Worth It |

(Source : Sari, 2023)

2. PBL Syntax Implementation Data Analysis

Observation of the implementation of the Problem-Based Learning (PBL) syntax that utilizes video media was carried out using a Likert scale with a score range of 1 to 5 on each indicator of teacher activity. The collected data is then analyzed by calculating the percentage of implementation using the following formula (Rizal et al., 2021):

$$P\ (\%) = \text{x } 100\% \frac{f}{n}$$

Information:

P = Syntax Implementation Percentage

f = Frequency of Teacher Activity

$n$ = Number of Indicators

Categories of teachers' activities apply learning syntax:

Table 2. Syntax Implementation Category

| Interval | Category |
|---|---|
| 81% - 100% | Excellent |
| 61% - 80% | Good |
| 41% - 60% | Pretty Good |
| 21% - 40% | Less |
| 0% - 20% | Very Less |

3. Student Learning Outcomes Analysis

The analysis of student learning outcomes was carried out by comparing the average pre-test and post-test scores. The normality of the data is tested using the Shapiro-Wilk method, and if the data is abnormal, the Wilcoxon test is performed to see significant differences. The average score is calculated using:

$$And = \frac{Xi}{n}$$

Information:

Me = Average value

Xi = Total value

N = Number of students

Then, the interpretation of the grades into competency categories is as follows:

Table 3. Student Grade Categories

| Grade Categories | Final Score | Predicate | Information |
|---|---|---|---|
| A | 86 – 95 | Highly Competent | Students understand the material very well. |
| B | 76 - 85 | Competent | Students understand the material quite well. |
| C | 70 - 75 | Enough | Students' understanding is still limited. |
| D | 0 – 69 | Not Competent | Students do not yet understand the material. |

4. Analysis of Learning Motivation Data

Student learning motivation analysis was carried out to measure changes in students' motivation before and after using video media in problem-based learning. The percentage of learning motivation is calculated by comparing the score obtained with the maximum score, using the formula:

$$P = \frac{m}{M} \times 100\%$$

Information:

P = percentage of motivation score achieved by students

M = the score obtained by the student (motivation score)

M = maximum motivation score.

Table 4. Student Motivation Category

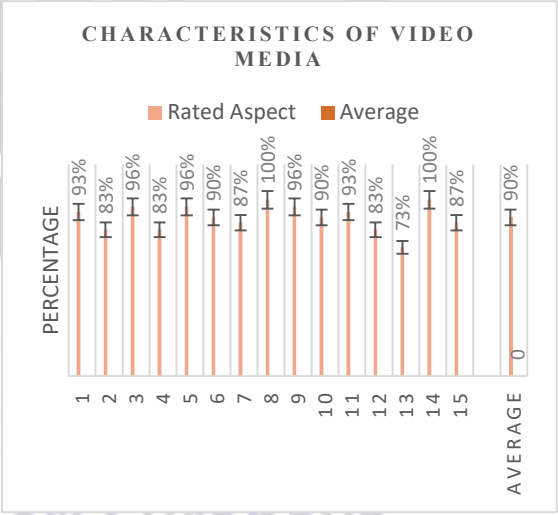
| Score | Category |
|---|---|
| 86% ≤ P ≤ 100% | Highly Motivated |
| 72% ≤ P < 86% | Motivated |
| 58% ≤ P < 72% | Simply Motivated |
| 44% ≤ P < 58% | Less Motivated |
| 30% ≤ P < 44% | Unmotivated |

## RESULTS AND DISCUSSION

This research was carried out on March 6, 2025 at the Hair Laboratory of SMKN 6 Surabaya with 31 students in class XI Beauty Discipline 2. The researcher acted as a model teacher, with observations carried out by two teachers and one student who had attended related courses. The study aims to measure the influence of the problem-based learning model (PBL) combined with video media on student learning outcomes in the competence of the ukel bend bun.

### 1. Characteristics of Video Media

The media assessment of the ukule bend bun tutorial video was carried out by six expert validators through a questionnaire that measured 15 aspects of media effectiveness. The assessment of the video media can be seen through the following diagram:




The results of the assessment showed an average of 90% media eligibility, which was included in the category of very feasible for use in learning. Some aspects obtained a perfect score of 100%, namely in aspect 2 (layout proportionality) and aspect 4 (ease of access to videos that can be shown in various places and times). This shows that video media is visually well designed and easy to use in a variety of learning situations

Other aspects that also received high scores included aspect 7 (the ability of the video to display

many objects at once) and aspect 10 (suitability in the presentation of the material), each of which received a score of 96%. The audio-visual quality that supports learning, namely aspect 8, received a score of 93%, while the attractiveness of the video in attracting students' attention and supporting the problem-based learning model (aspect 11) received a score of 90%. However, several aspects such as aspect 5 (fast delivery of information) and aspect 12 (ease of use by teachers and students) still need to be strengthened, with a score of around 87% each. Aspect 9 (video storage) and aspect 14 (one-way nature of the media) have values in the range of 83%. The aspect with the lowest score is aspect 15, namely student involvement, which obtained a score of 73%, indicating the need for improvement in encouraging active student participation during learning.

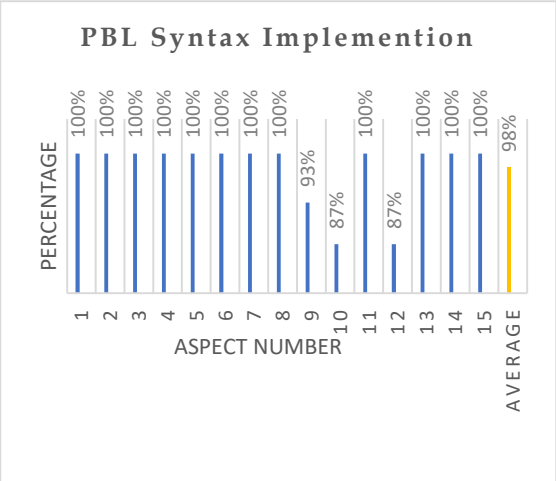
Overall, this video medium meets most of the criteria for being very effective for problem-based learning. These media allow students to access learning flexibly, make it easier for teachers to use without special technical skills, and visually bridge engineering understanding. However, it is necessary to pay attention to the increase in student involvement so that learning becomes more interactive and in accordance with the characteristics of PBL which prioritizes active participation and student collaboration.

In line with the opinion of Arsyad (2015), effective learning media is one that is easy to use and can support students' visual understanding. Research by Yanita et al. (2022) also corroborates that video media can improve students' learning achievement and motivation, especially for materials that require practical demonstrations such as bun skills. Therefore, this video media is highly recommended as the main tool in learning ukel bend bun skills in various beauty institutions.

Overall, it can be concluded that the use of video media in the problem-based learning model is effective in improving students' understanding and learning outcomes, while providing ease of access and learning flexibility. Further development is suggested to increase active student engagement so that these media can be used optimally in student-centered learning.

**2. Implementation of PBL Syntax**

The results of the assessment of the implementation of the syntax of the Problem Based Learning (PBL) learning model were obtained through observation sheets conducted by three observers, consisting of two subject teachers and one Cosmetology education student from the State University of Surabaya. This observation assesses 15 aspects of activities that represent the five stages in the PBL model, namely problem orientation, problem preparation, independent investigation, development and presentation of results, as well as evaluation and reflection. The observation data is processed and presented in the form of the following diagram:




Overall, the implementation of the learning syntax was carried out very well, with an average achievement of 98%. Of the 15 aspects observed, as many as 12 aspects (80%) obtained a score of 100% and were included in the very good category, while 3 aspects (20%) obtained a score between 87% and 93% which were classified as good.

At the problem orientation stage, the teacher successfully conveyed the learning objectives (aspect 1), showed relevant videos (aspect 2), and motivated the students (aspect 3), all of whom scored 100%. This shows the teacher's ability to attract attention and build student interest from the beginning of learning activities.

The problem preparation stage also runs optimally, where the teacher organizes students in groups (aspect 4) and gives LKPD that is in accordance with the problem in the video (aspect 5). Both aspects received a score of 100%, which reflects the teacher's success in facilitating students' initial collaboration in the problem-solving process.

Furthermore, at the stage of independent investigation, excellent achievements were obtained in the aspect of students actively discussing in groups (aspect 6), using various sources of information (aspect 7), and the involvement of teachers in guiding the student investigation process (aspect 8). All three obtained a score of 100%. Meanwhile, in the aspect of recording and summarizing the results of the discussion (aspect 9), a score of 93% was obtained, which shows that some students still need to be guided in writing down the points of the discussion results systematically.

At the stage of development and presentation of results, there are two aspects that obtained a score of 87%, namely in the ability of students to present the results of the analysis (aspect 10) and in making

revisions based on the input provided (aspect 11). This score indicates that some students have difficulty compiling and delivering information in a structured manner, or a lack of confidence in delivering the results of their group work.

However, teachers still show optimal performance in providing feedback on student presentations (aspect 12) and evaluating solutions developed by students (aspect 13), both with 100% achievement.

The last stage, namely evaluation and reflection, also showed excellent results. The teacher reflects with the students (aspect 14) and gives the final conclusion of the learning (aspect 15), with an achievement of 100% for both. This shows that the closure of learning is carried out comprehensively, systematically, and provides space for feedback and strengthening student understanding.

This indicates that the PBL model syntax has been optimally implemented. Video media used in learning has been proven to help students understand problems and encourage their active involvement in the problem-solving process. These results are in line with research by Erlinda Diningrum et al. (2023) at SMK Negeri 1 Sooko Mojokerto, which showed that the application of PBL to learning to arrange traditional Javanese buns (ukel tekuk buns) gave very good results with an increase in learning scores from 59 to 84 and student activity reaching 87%.

Based on the results obtained, it shows that the application of the problem-based learning model is highly recommended for bun makeup competencies, because it is able to significantly increase students' understanding and active participation.

### 3. Student Learning Outcomes

Student learning outcomes on the competency of the folded ukel bun were obtained from the assessment of the cognitive domain, by comparing the pre-test and post-test scores carried out before and after the application of the Problem Based Learning (PBL) model assisted by video media. The comparison of the pre-test and post-test results can be seen in the following diagram:

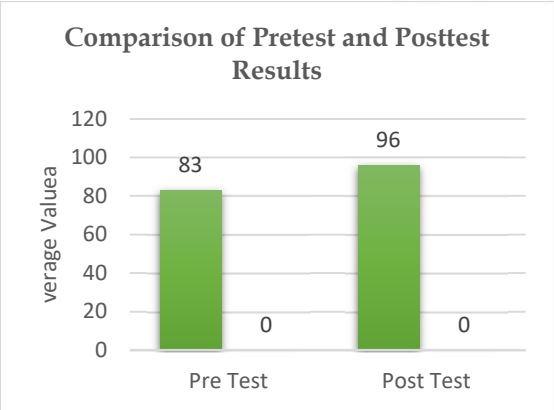



Diagram 3. Comparison of Learning Outcomes

Before the hypothesis is tested, a normality test is first carried out using the One-Sample Kolmogorov-Smirnov Test to determine the distribution of data.

Table 5. Normality Test Results

**One-Sample Kolmogorov-Smirnov Test**

| | | Unstandardized Residual |
|---|---|---|
| N | | 31 |
| Normal Parameters[a,b] | Mean | .0000000 |
| | Std. Deviation | 3.57537389 |
| Most Extreme Differences | Absolute | .314 |
| | Positive | .314 |
| | Negative | -.178 |
| Kolmogorov-Smirnov Z | | 1.746 |
| Asymp. Sig. (2-tailed) | | .005 |

a. Test distribution is Normal.

b. Calculated from data.

The results of the normality test (Table 5.) showed a significance value of 0.005, which is smaller than 0.05 ($p < 0.05$). This indicates that the data is not distributed normally. According to the Kolmogorov-Smirnov test criteria, the data is said to be normal if the Asymp value. Sig. $\geq 0.05$, while a value below 0.05 indicates abnormal data distribution. Therefore, hypothesis testing was continued using a non-parametric statistical test, namely the Wilcoxon Signed Rank Test.

Table 6. Wicoxon Test Results

**Ranks**

| | | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| post test - pre test | Negative Ranks | 0[a] | .00 | .00 |
| | Positive Ranks | 29[b] | 15.00 | 435.00 |
| | Ties | 2[c] | | |
| | Total | 31 | | |

a. post test < pre test

b. post test > pre test

c. post test = pre test

Based on the results of the Wilcoxon test (Table 6), it can be seen that out of 31 students, as many as 29 students (93.5%) experienced an improvement in learning outcomes after the implementation of the PBL learning model with video assistance. None of the students experienced a decrease in scores, and 2 students had the same score between *the pre-test* and *post-test*. In addition, a significance value (p-value) of 0.000 ($p < 0.05$) showed a significant difference between learning outcomes before and after treatment. The average pre-test score was 83.06 which was included in the competent category, while the average post-test score increased to 95.96, which is included in the very competent category.

The results of this study indicate that the application of the Problem-Based learning model assisted by video media has a significant influence

on improving student learning outcomes on the competence of the ukel bend bun. The PBL model emphasizes real problem solving as the core of the learning process, so that students are required to think critically, discuss, and find solutions collaboratively. In the context of learning hairdressing, this method is particularly appropriate because students not only learn theory, but also engage directly in practices that reflect the conditions of the world of work.

The use of video media as a learning tool allows students to observe the stages of work visually and repeatedly, thus strengthening their understanding and skills. The significant increase in average scores from pre-test to post-test corroborates that the combination of active PBL methods with visual media is very effective in optimizing learning outcomes, both in the cognitive and psychomotor domains.

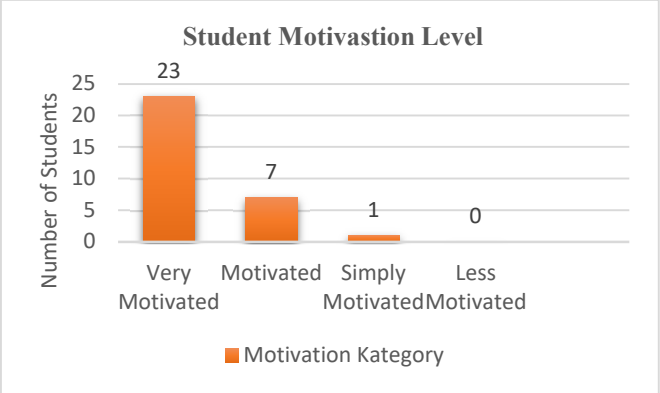
The results of this analysis support the statement of Yustia et al. (2023) that the use of audio-visual media can increase students' knowledge of the competence of ukel konde buns and ukel tekuk. Innovative learning media such as video tutorials and Android-based applications provide an alternative to independent learning outside the classroom and enrich the learning process.

In addition, the application of the PBL model involving video media also has a positive impact on students' learning motivation. Students become more enthusiastic and active during the learning process because they feel directly involved and see the relevance of the material to real life or the world of work. The collaborative approach in the PBL model also strengthens social and communication skills between students.

The results of this study can be concluded that a problem-based learning model that utilizes video media not only increases the value of learning outcomes, but also the quality of the learning process as a whole. This model is highly recommended to be applied in skills subjects, especially in the competence of ukel bend buns, in order to equip students with knowledge, skills, and work attitudes that are in accordance with the needs of the current beauty industry.

**4. Student Motivation**

Learning motivation was measured to find out the extent of the success of the *Problem Based Learning* (PBL) model using learning video media in increasing students' enthusiasm for the competence of the Ukel Tekuk Bun. The researcher distributed a questionnaire containing 15 statements on a Likert scale to all students. The results were analyzed to find out the score, average, and percentage of motivation of each student.




Based on the results of the questionnaire, most students showed high motivation to learn. Of the 31 students, 23 students (74%) were categorized as highly motivated, 7 students (23%) were motivated, and 1 student (3%) was quite motivated. No student is classified as lacking or unmotivated. The average student motivation was 87.57%, which is included in the highly motivated category.

The highly motivated category is achieved by students with a percentage of 81–100%, with some even achieving perfect scores. This shows that learning with a PBL approach equipped with learning videos is able to create an interesting learning atmosphere and encourage active student involvement.

Students in the motivated category have a score of 61–80%, and still show a passion for learning. Meanwhile, 1 student who was classified as moderately motivated (68%) showed the need for an additional approach to increase their motivation. The absence of less motivated students shows that this approach is quite successful. The PBL model makes students more active and challenged to solve problems. The use of video media also helps students understand the material visually, be more focused, and not get bored easily.

According to Aiman, in 2020, the Problem Based Learning (PBL) model allows students to actively participate in the learning process by identifying problems, finding solutions, and applying their science knowledge to solve them. This is especially important in learning skills such as the bow ukel bun which requires perseverance and repeated practice.

Overall, PBL learning with the support of video media has been proven to be able to increase students' motivation to learn and is an important provision to face the world of work.

**COVER**

**Conclusion**

Based on the results of the research on *the Problem Based Learning* (PBL) model with video media on the competence of the bending ukel bun, it

can be concluded that the characteristics of the video media used are very effective in supporting the learning process. The validation results of the six validators showed a feasibility rate of 90%, falling into the category of "very feasible." This media helps to support students' understanding optimally.

The implementation of the syntax of the problem-based learning model (PBL) is going very well. Observations during learning showed that the majority of indicators were implemented optimally, with an average implementation of 100% in most stages.

The problem-based learning model by utilizing video can significantly improve student learning outcomes. The average student score increased from 83.06 (pre-test) to 95.96 (post-test), and Wilcoxon's test results showed a significant improvement ($p < 0.05$) after treatment.

Students' motivation to learn also increases. As many as 74% of students are highly motivated, and another 23% are motivated. The average motivation score reached 87.57%, indicating that the combination of PBL and learning videos can increase student enthusiasm and participation.

**Suggestion**

Based on the results of the analysis and observations in this study, teachers are advised to apply the PBL model more often, especially in learning skills such as buns. The use of learning videos should be maximized so that students can relearn independently. Combination with other evaluation methods such as discussion and presentation of works is also recommended to increase student involvement.

Students are expected to be more active in PBL learning, especially in discussions and group work. Learning videos can be used as additional learning resources to deepen understanding and support independent learning. Follow-up research is recommended to be carried out with a more diverse number of participants and materials so that the results can provide a broader and in-depth picture. In addition, it can also develop more interactive digital learning media, such as applications or simulations, as well as explore other innovative learning models in the field of aesthetics.

This research is expected to be a foothold for the development of hair beauty learning, especially the competence of the ukel bend bun, to be more effective, attractive, and according to the needs of students.

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