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Project-Based Learning Interactive Media: Improving Learning Outcomes Special Makeup in Skin and Hair Beauty

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Abstract: Technological advances and developments have affected the world of education; it is necessary to develop learning media to meet the needs of students. The learning media developed are interactive media based on project-based learning. This study aims to develop interactive media and determine the feasibility and effectiveness of interactive media products based on project-based learning in special makeup subjects in skin and hair beauty at SMK Negeri 1 Takengon. The research method is Research and Development (R&D) which was developed using the Borg and Gall model with 10 steps, namely Conducting Preliminary Research and Information Gathering, Planning, Developing Initial Products, Conducting Initial Field Tests, Revision of Main Products, Conducting Field Tests, Conducting Revisions to Operational Products, Conducting Field Trials, and Revisions to the Final Product. The results of development research obtained interactive media based on project-based learning that were very feasible by media experts (4.25), material experts (4.28), and design experts (4.61), as well as field trials on students with an average (4.13), which was relatively high. In measuring the level of effectiveness using the N-gain score, namely 0.63 in the medium category, Based on the results of the data analysis, this learning medium can be used for the learning process.

Keywords: interactive media; project-based learning; special make-up; skin and hair beauty

1. INTRODUCTION

Vocational High School is a secondary educational institution with the specific purpose of preparing its graduates to be ready for work. Vocational education has various meanings, but one can see a common thread. According to Evans in Aini [1], "Vocational education is part of the education system that prepares a person to be more capable of working in a group of jobs or one field of work than in other fields of work," with the understanding that every field of study is vocational education as long as the field of study is studied more deeply and this depth is intended as a provision to enter the world of work.

The Department of Makeup at SMK Negeri 1 Takengon is one of the majors in the tourism department at SMK Negeri 1 Takengon. The department has subjects that play a role in developing knowledge and skills in the field of beauty, such as Special makeup. Special Makeup is one of the productive subjects in the 2013 curriculum program, which has been used by SMK Negeri 1 Takengon and is studied in class XI. One of the basic competencies of Special Makeup subjects is stage makeup.

Stage makeup is facial makeup used for the occasion of staging or performances on stage, according to the purpose of the performance. This makeup consists of: Make-up for dancers' stage faces; make-up for fashion shows; theater makeup [2].

Danker [3] stated that in today's digital era, traditional teacher-centered learning media, or the Teacher-Centered Approach, are no longer suitable for use in everyday learning processes. Because in the future, the learning process will be more modern and student-centered (a student-centered Approach). Ertmer & Ottenbreit [4] further stated that the teacher only acts as a motivator and facilitates students by utilizing existing internet technology as a way to access teaching materials from anywhere, anytime, with anyone, and with anything online.

Interactive media is a media system that processes the delivery and presentation of material under computer control to users (students) who not only hear and see video and sound but also provide an active response, and that response determines the speed and sequence of presentation [5].

In addition, students can also study independently with interactive learning media so that they will more quickly understand the subject matter. Learning media functions to convey messages (knowledge, skills, and attitudes) and can stimulate students' choices, feelings, attention, and progress so that the learning process occurs, is purposeful, and is controlled. Interactive media is media that is equipped with a controller that can be operated by the user so that the user can choose what he wants for the next process [6].

1.1 The Nature of Learning and Learning Outcomes of Special Makeup on Stage Makeup

According to Slameto [7], learning is a process of effort by a person to obtain a new change in behavior as a whole as a result of his own experience in interaction with his environment. According to Skinner, as quoted by Sagala [8], learning is a process of adaptation or adjustment of behavior that takes place progressively, while the notion of learning according to Gagne, as quoted by Sagala [8], is a process in which an organism changes its behavior as a result of experience. Meanwhile, the opinion put forward by Vygostky, as quoted by Slavin [9], states that learning is the social interaction of students with the

surrounding environment, including the environment internally and externally.

Learning outcomes are the most important part of learning. According to Sudjana [10], defining student learning outcomes is essentially a change in behavior as a result of learning in a broader sense, covering the cognitive, affective, and psychomotor fields. Dimyati and Mudjono [11] also stated that learning outcomes are the result of an interaction of acts of learning and acts of teaching; from the teacher's point of view, the teaching act ends with the process of evaluating learning outcomes, while from the students' side, the learning outcomes are the end of teaching from the top of the learning process.

Special facial makeup is used to highlight the beautiful parts of the face and cover the imperfect parts of the face. The development of cosmetology goes so fast. This is based on the importance of cosmetology itself [12]. Make-up is to beautify oneself so as to inspire self-confidence; the art of make-up is a combination of two elements. First, to beautify the face by highlighting parts of an already beautiful face. And the second is to disguise or cover up the flaws found on the face [13].

The purpose of doing makeup is to further beautify one's face because there is no certain pattern that can be used to apply makeup, so the main action is to highlight the good parts of the face and hide the less beautiful parts with cosmetic applying skills. As written by Anita [14], Corrective make-up aims to beautify the face and improve and perfect the shape of the face by displaying the beautiful parts and disguising the less beautiful parts with the help of tools, cosmetics, and make-up. This subject is taught at SMK Cosmetology as a productive subject; the material taught includes special makeup, stage makeup, TV makeup, character makeup, fantasy makeup, and photo makeup, but in this study the researchers focused on developing media only on stage makeup material.

Stage make-up is facial make-up that is used for the occasion of staging or performances on stage, according to the purpose of the show. Stage makeup is facial makeup with an emphasis on certain effects, such as the eyes, nose, lips, and eyebrows, so that special attention is paid to the face. This makeup is to be seen from a distance under bright lights (spot light), so the special makeup that is applied is quite thick and shiny, with clear facial lines, and creates an eye-catching contrast. Stage make-up, including evening make-up, developed from the make-up worn by performers at opera performances or other performances since the golden age of Rome. The rapid development of technology, especially in the use of lamps with very strong light effects for stage lighting, demands more extreme make-up. Stage make-up is applied to appearances on stage, for example, for models at fashion shows, singers at musical shows, theater performers, and dancers [15].

The purpose of stage make-up is to meet the needs and requirements of certain characters, roles, and themes based on the concept of staging goals. The purpose of this is as make-up or corrective make-up, which is to cover deficiencies in a person's face and highlight parts of the face that are already beautiful, especially for an artist, actor, model, dancer, and so on [16].

1.2 The Nature of Interactive Media

According to the Educational Communication Technology Association in Rahardi [17], learning media is everything that people use to convey messages. According to Miarso et al. [18], learning media is anything that can stimulate the teaching and learning process. Based on some of these descriptions, it can be concluded that learning media is a tool used to channel messages or information (learning material) as well as to stimulate students in the teaching and learning process to achieve the learning objectives that have been formulated.

Learning media comes from two words, namely media and learning According to Arsyad [19], the word media comes from the Latin medium, which literally means 'middle', 'intermediary', or 'introduction'. In Arabic, the media is an intermediary, or the delivery of messages from the sender to the recipient of the message. In this sense, teachers, textbooks, and the school environment are media. More specifically, the notion of media in the teaching and learning process tends to be interpreted as graphic, photographic, or electronic tools to capture, process, and reconstruct visual or verbal information.

Indriana [20] states that the function of the media is to direct students to gain various learning experiences. According to Arsyad [21], One of the main functions of learning media is as a teaching aid, which also influences the climate, conditions, and learning environment that are laid out and created by the teacher. Another opinion, according to Miftah [22], The role of the media in learning activities is one that greatly determines the effectiveness and efficiency of achieving learning objectives. Learning media is a tool used with the aim of channeling the sender's message to the recipient so that it can stimulate the interests, thoughts, feelings, and attention of students or encourage them to study harder.

Levied and Lentz [23] argue that learning media, especially visual media, have four functions, namely attentional functions, affective functions, cognitive functions, and compensatory functions. The function of attention is that visual media can attract or direct students' attention so they can concentrate on the learning content contained in the media. The affective function, namely visual media, can be used to create a sense of pleasure or student interest in learning content. Cognitive function means that visual media can make it easier for students to understand messages or information conveyed in learning. Meanwhile, in the compensatory function, visual media can accommodate weak students in accepting learning content.

1.3 Nature of Adobe Animate CC

According to Saputro [24], Adobe Animate CC is software used to create animations, animated videos, learning media, games, Android applications, websites, and so on. Adobe Animate CC is software that can work like its predecessor, Adobe Flash Professional. Adobe Animate CC is the latest version of Adobe Flash CS6, which was developed by Adobe. Adobe Animate CC is a replacement software that complements the existing deficiencies in Adobe Flash by adding its newest features, such as the use of HTML5 Canvas and WebGL. Adobe continued to develop Flash until it changed its name to Adobe Animate CC and supports web developers to design HTML5 animations, animated advertising media, animated videos, learning media, web versions of games, and many more.

Learning media contain simple animations that can be used as a stimulus for students to achieve learning goals. According to Wibawanto [25] Adobe animate cc there are facilities for making animation with several methods, namely: (1) Frame by frame animation, namely animation using several sequential images, for example animated characters making gestures, animated effects of water movement, animated effects of fire

movement, etc.; (2) Motion guide animation, namely animation that uses two keyframes by moving one object from one point to another, without changing its shape; (3) Motion guide animation, namely motion tween animation that uses trajectories so that changes in motion can be adjusted according to the desired trajectory; (4) Masking animation, namely animation that displays an area and hides another area by covering it with an object on it; and (5) Shape tween animation, namely animation based on changes in object shape, for example animation from a circle shape to a star shape, so the shape tween technique can be used.
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1.4 The nature of the Project-Based Learning Model

Project-based learning focuses on active learning where students explore authentic questions or assignments, develop plans, reflect on evaluating solutions, and produce multiple representations of ideas. Blumenfed views project-based learning as a comprehensive instructional approach that can motivate children to think about what they are doing, not just focus on getting it. Project-based learning is a learning method based on project-based learning, which involves students working in groups to compile an experimental report or other project-based learning [26].

Komalasari [27] confirms that project-based learning and structured tasks Project Based Learning is a learning approach that requires comprehensive learning where the student or class learning environment is designed so that students can carry out investigations of authentic problems, including deepening the material of a subject matter and carrying out other meaningful assignments.

Project-based learning is an innovative learning model or approach that emphasizes contextual learning through complex activities. Project-based learning involves the use of projects as a learning model. Project-Based Learning places students in an active role, namely as problem solvers, decision makers, researchers, and document makers. Project-Based Learning: Students plan and carry out investigations of several topics or themes that use cross-subjects or cross-materials in learning.

According to Stripling and Sani [28], the characteristics of effective project-based learning are: (1) Directing students to investigate important ideas and questions; (2) being a process of inquiry; (3) being related to the needs and interests of students; (4) being centered on students by making products and making presentations independently; (5) Using creative, critical, and information-seeking skills to conduct investigations, draw conclusions, and produce products; and (6) being related to authentic real-world problems and issues.

Based on the results of a review of project-based learning, several important characteristics of project-based learning were put forward, namely as follows: (1) Focus on problems for the assignment of important concepts in lessons; (2) Making project-based learning involves students in conducting constructive investigations; (3) Project-based learning must be realistic; and (4) Project-based learning must be planned by students.

Figure 1. Display of interactive media based on project-based learning on makeup subjects specifically majoring in skin and hair beauty with Adobe Animate CC

The research problem is formulated as follows: (1) How to develop interactive media based on project-based learning on make-up subjects specifically majoring in skin and hairstyling? (2) Is interactive media based on project-based learning on special makeup subjects appropriate for use in skin and hair beauty majors? (3) Is interactive media based on project-based learning on special makeup subjects effectively used in beauty majors? skin and hair?

2. METHOD

This type of research is called research and Development (R&D) research. Sukmadinata [29] Research and Development (R&D) is a process or set of steps to develop a new product or improve existing products that can be accounted for. Richey and Klein [30] stated that R&D research is a systematic study related to design, development, and evaluation that aims to develop products that are either educational or not related to the latest findings in products and devices.

This research will be conducted at Vocational High School (SMK) Negeri 1 Takengon, Jln. Lebe Kader Lr. Sejahtera, No. 13, Blang Kolak I, Central Aceh District, Aceh Province, in the Department of Beauty, Class XI KcI and Class XI Kc2 Academic Year 2022/2023.

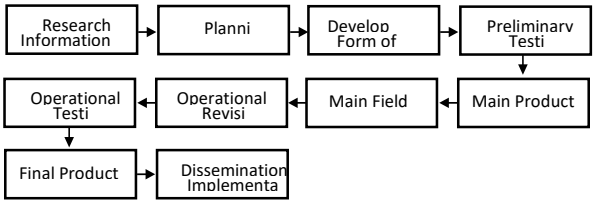


Figure 2. Borg & Gall Development Model (Source: Borg & Gall [31])

The 10 steps for the Dick & Carey learning design model are as shown in Figure 2 below

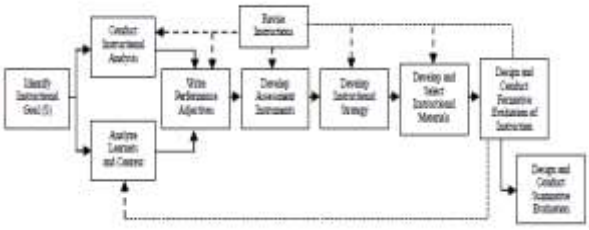


Figure 3. Dick & Carey Learning Design Model

Applying the study of the percentage table that presents the feasibility aspect, Arikunto [32] makes the percentage scale table as follows:

Table 1. Percentage Scale

Achievement Percentage	Value Scale	Interpretation
76% ≤ skor ≤ 100%	4	Very Eligible
51% ≤ skor ≤ 75%	3	Decent
26% ≤ skor ≤ 50%	2	Fairly Decent
0% ≤ skor ≤ 25%	1	Inadequate

Questionnaire data analysis was carried out in the following steps: (1) Examination of the expert validation questionnaire that had been filled out by the validator; (2) Questionnaire answers for each statement are given a score that corresponds to a predetermined weight; (3) Make data tabulations; (4) Calculating the percentage of existing sub-variables with the formula for calculating the percentage of scores; and (5) The percentage is converted into a table.

The effectiveness of project-based learning-based interactive media is measured by measuring the increase in the extent to which targets are achieved from the start before treatment (initial ability test or pretest) to the target learning outcomes after being given treatment (posttest).

Testing the effectiveness of Scandura structure-based e-learning tools uses manual calculations, namely the N-Gain effectiveness formula. The Normalized Gain Test (N-Gain) was carried out to find out how much effect the Scandura structure-based e-learning tool received after being given learning on it. Archambault [33] describes the calculation of the normalized Gain score by the formula:

$$\text{N-Gain Score} = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Maksimal - Skor\ Pretest}\ x\ 100\%$$

Hake [34] explained that the results of the Normalized Gain calculations were then interpreted based on the N-Gain interpretation table.

Table. 2. Criteria for N-Gain Score

N-Gain Presentation	Criteria
71 – 100%	High
31 – 70%	Moderate
1 – 30%	Low

3. RESULTS AND DISCUSSION

3.1 RESULTS

The results of the assessment by media experts, material experts, individual trials, small group trials, and limited field trials for all aspects of the assessment are determined by the average score. The results of the assessment are then analyzed and determined to determine whether or not it is appropriate to develop project-based learning-based interactive media. The average percentage of the results of the assessment of media experts, material experts, individual trials, small group trials, and field trials is shown in Table 3 below:

Table 3. Feasibility of Project-Based Learning Interactive Media

No	Categorization	Percentage of average score%	Criteria
1.	Material Expert Validation	4,28	Is very feasible
2.	Media Expert Validation	4,25	Is very feasible
3.	Learning Design Validation	4,61	Is very feasible
4.	Preliminary Field Test	4,24	Is very feasible
5.	Main Trial	4,16	Is very feasible
6.	Operational Trial	4,13	Is very feasible
Rata-rata		4,28	Is very feasible

Based on Table 6, it can be concluded that the scoring intervals for material expert validation, media expert validation, learning design validation, initial field trials, main trials, and operational trials show an average of 4.56 with very feasible criteria. So the application of project-based learning-based interactive media is very feasible and appropriate to be taught to class XI Beauty Counseling students at SMK Negeri 1 Takengon.

Measuring effectiveness is done by doing a pretest and a posttest. During the pretest, students are given interactive learning media based on project-based learning, while in the posttest phase, it is carried out after students have experienced the teaching and learning process using interactive learning media based on project-based learning.

From the data calculated using SPSS 16.0 for Windows, there are differences in the mean results in the pre-test and post-test. The scores of the pre-test and post-test results can be seen in Table 4 below:

Table 4. Table of Pre-test and Post-test Scores

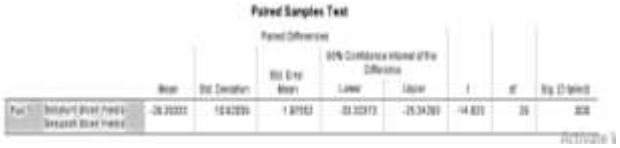
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sebelum diberi media	49.9000	30	15.55103	2.83922
	Sesudah diberi media	79.1833	30	8.04029	1.46795

As seen in Table 4.8, it produces a score of 49.90 in the pre-test score and a score of 79.18 in the post-test score. These data can be interpreted to mean that Ho in this research hypothesis is rejected and Ha in this research hypothesis can be accepted because the mean pre and post values change to become higher.

The paired sample T-test is also known as the mean difference test of two paired samples. The Paired Sample T-Test test is used to test whether there is a difference in the mean. The results can be seen in Table 5 below:

Table 5. Paired sample T-test



From the data in Table 5, it is produced that the value of Sig. (2-tailed) is 0.000 < 0.05, so it can be concluded that there is a significant difference between the results of learning makeup on the pre-test and post-test data.

Data processing was carried out on the measurement results of 30 students obtained from the results of the pretest and posttest on paper. The questions were given before and after the students received instruction about makeup. Furthermore, the results of the pretest and posttest are assessed by interpretation based on the N-Gain Score criteria table, as shown in Table 6 below:

Table 6. Criteria for N-Gain Score

Criteria	Limitation
High	N-Gain score ≥ 0.7
Moderate	0.3 ≤ *N-Gain score* ≤ 0.7
Low	N-Gain score ≤ 0.3

The N-Gain Score is used to see a comparison between the gain or achievement scores obtained by students and the highest acquisition or achievement scores that students might get. The scores obtained after the pretest and posttest were carried out can be seen in Table 7 as follows:

Table 7. Pretest and Posttest Test Results

No	Value		N-Gain Score	Criteria
	Pretest	Posttest		
1	40	80	0.67	Moderate
2	50	85	0.7	High
3	70	90	0.67	Moderate
4	70	85	0.5	Moderate
5	40	70	0.5	Moderate
6	67.5	87.5	0.62	Moderate
7	72.5	90	0.64	Moderate
8	45	85	0.73	High
9	35	65	0.46	Moderate
10	30	77.5	0.68	Moderate
11	25	60	0.47	Moderate
12	35	72.5	0.58	Moderate
13	55	72.5	0.39	Moderate
14	35	82.5	0.73	High
15	70	80	0.33	Moderate
16	45	80	0.64	Moderate
17	25	60	0.47	Moderate
18	30	80	0.71	High
19	30	72.5	0.61	Moderate
20	40	75	0.58	Moderate
21	72	90	0.64	Moderate
22	70	87.5	0.58	Moderate
23	65	85	0.57	Moderate
24	51	80	0.59	Moderate
25	45	79	0.62	Moderate
26	50	83	0.66	Moderate
27	60	80	0.5	Moderate
28	55	76	0.47	Moderate
29	54	80	0.57	Moderate
30	65	85	0.57	Moderate
Total	1497	2375.5	0.63	Moderate
Mean	49.90	79.18	0.63	
Hasil Penilaian	Keefektivan Kategori "Sedang"			

From Table 7 above, it shows that each student gets varied results. Overall, it was found that the use of interactive learning media based on project-based learning provided a significant increase in learning outcomes for students in class XI at SMK Negeri 1 Takengon.

3.2 DISCUSSION

Data obtained from the validator and productive subject teacher, TKKR (Skin and Hair Cosmetology), SMK Negeri 1 Takengon, in the form of qualitative data were converted into quantitative data scores. The scoring rules are adjusted to the assessment using a Likert scale. The score is converted into a product feasibility level with reference to the ideal assessment criteria. To find out the feasibility of the project-based learning-based interactive media that was developed, validation was carried out by material experts, media experts, learning design experts, and productive teachers. Where the validator and the teacher give an assessment of each indicator contained in the learning media validation sheet in the form of an assessment questionnaire, which is expressed in the distribution of scores and categories of rating scales.

Material expert validation, it is known that the assessment is based on material coverage, material accuracy, sophistication, developing contextual insights, quality of learning strategies, quality of learning materials, and quality of learning media. At the Material Expert Validation stage, I achieve an average score of 4.37 "Decent" criteria, and improvements are made based on suggestions and input from material experts. The validity of the first material suggests that operational words in the media must be emphasized or sharpened and states that this medium is suitable for use with a little revision. In the material expert validation stage II, it achieved an average score of 4.20 with the criteria of "Decent". In addition, the validator suggests using simpler and clearer sentences so that students can understand them more easily.

Media expert validation is known based on layout design/layout, text/typography, image, animation, audio, video, packaging, use, navigation, and interactive links. Stage I of media expert validation obtained an average of 3.72 with the criteria of "Not Eligible" . In addition, the validator stated that the media design was good, the menu display was also in accordance with the level of students who used it, but the animation was less attractive, the choice of colors and the shape of the learning media layout were interesting, and the media

used more animation than pictures because the strength of the media was in visualization and animation. In the second stage of the media expert validation, an average score of 4.78 was obtained with the "Decent" criteria. And on average, validation stages I and II get an average score of 4.25 with the "Decent" criteria. The validator also suggested that learning media should be revised to use as little writing as possible, more illustrations with more diverse images, and appropriate backsounds.

Validation of learning design experts in the validation of stage I design experts based on learning approaches, concept truth, concept depth, concept suitability, learning activities, experimental activities, implementation, assessment, content, visualization, and sentence clarity received an average rating of 4.46 with the criterion "worthy.". In addition, the validator stated that the layout design of the learning media was not attractive, the concept map design was not attractive, and the contents and guidelines for using instructional media were not clear, using original pictures instead of cartoons. In the second phase of the design expert validation, an average rating of 4.75 was obtained with the "Decent" criteria. The validator also suggested that learning media should be revised to use more diverse colors and not be too colorful.

Based on the validator's assessment of the interactive media based on project-based learning that was developed as well as the suggestions and input provided by material experts, learning design experts, media experts, and class teachers, the interactive media based on project-based learning that was developed is said to be valid and feasible to be used in learning.

The effectiveness of interactive media based on project-based learning in learning can be seen through the completeness of student learning and the increase in N gain scores obtained from learning outcomes tests in the form of pretests and posttests, which are given at the beginning of learning and at the end of learning activities that have been carried out. Data from the learning outcomes test given to students before using interactive media based on project-based learning is in the form of a pretest, which totals 40 multiple choice questions consisting of five choices, namely a, b, c, d, and e.Student pretest data, as shown in Table 4.9, shows that student learning outcomes are still low, with an average of 49.9. This is seen based on the minimum completeness criteria based on reference to the school's minimum completeness criteria for Productive subjects, namely 75.

After learning activities using interactive media based on project-based learning are completed, a posttest is carried out at the end of the meeting to see student learning outcomes. From the posttest carried out, it can be seen that the average student result reached 79.19. Referring to the school's minimum completeness criteria for Productive subjects, namely 75, it can be seen that there is an increase in student learning outcomes, and it can be said that student learning outcomes have reached the minimum completeness criteria (KKM).

Based on the purpose of this development research, namely "to determine the feasibility and effectiveness of interactive media based on project-based learning in special makeup subjects, majoring in skin and hair beauty at SMK Negeri 1 Takengon, this learning medium can be said to be effectively used for all students and teachers. Based on the data that can be shown, interactive media based on project-based learning in makeup subjects is effective for improving student learning outcomes.

4. CONCLUSION

1. Development of interactive media based on project-based learning in special make-up subjects majoring in skin and hair beauty at SMK Negeri 1 Takengon refers to the development model from Borg & Gall, which is simplified into five steps: (1) conducting preliminary research, (2) developing a product initial, (3) performing product validation, (4) conducting trials, and (5) making the final product.
2. Products in the form of interactive media development based on project-based learning have very feasible results to be used in the learning process in the classroom. This is supported by several validation processes involving material, media, and instructional experts, all of which are "very feasible" to use.
3. In the effectiveness test using the N-Gain Score, learning using interactive learning media based on project-based learning shows an increase in learning outcomes before and after using learning media that was developed with a value of 0.63, or getting into the "moderate" category. Thus, it can be said that interactive learning media based on project-based learning are effective for improving makeup learning for students.

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