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Development of ClassPoint Based Interactive Learning Media for Improving Students Cognitive Abilities

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Abstract
Vocational High Schools, particularly Beauty and Spa programs, play a crucial role in preparing students for the workforce. However, preliminary observations indicate that learning in the Spa and Beauty Industry Profile element still utilizes conventional media (lectures, static PowerPoint presentations), resulting in minimal interactivity, student passivity, low motivation, and low cognitive achievement. This study aims to develop interactive learning media based on ClassPoint to improve students' cognitive abilities in the Spa and Beauty Industry Profile element. The method used is the ADDIE Research and Development (R&D) model through the stages of analysis, design, development, implementation, and evaluation. The product was validated by three media experts and three material experts, and its effectiveness was tested through pre- and post-tests on 60 students in the control and experimental classes. The results showed that the media was declared very feasible by the media experts with an average score of 4.27 and very appropriate by material experts with a score of 4.46. The independent t-test showed a significant difference in learning outcomes after treatment, and the effectiveness test showed an N Gain score of 83% in the experimental class, higher than the control class. It can be concluded that interactive learning media based on ClassPoint valid, appropriate, and effective for improving students' cognitive abilities in learning.

Keywords: interactive learning media, ClassPoint, cognitive ability

INTRODUCTION

Vocational High Schools have a strategic role in preparing students to be ready to enter the workforce through providing competencies according to industry needs. According to (Sutikno, 2013) vocational education is a level of education that provides knowledge and skills to students so they can do a job for themselves, the world of work and also national development. SMK Negeri 1 Pekalongan is one of the schools that provides a Beauty and Spa expertise program, where students are required not only to understand theory, but also to master professional practical skills. In the Basics of Spa and Beauty subject, specifically the Spa and Beauty Industry Profile element, there are learning outcomes that emphasize understanding the types of professions, scope of work, competency standards, and professional ethics in the beauty industry.

This understanding is very important as a foundation before students enter more complex vocational practice material. However, based on initial observations and interviews with beauty teachers and students at SMK Negeri 1 Pekalongan, several issues were identified. First, the learning media used was still conventional and not interactive. Teachers continued to use lectures, textbooks, and standard PowerPoint presentations. Second, student participation and cognitive abilities were not optimal.

Many students lack enthusiasm for asking or answering questions during learning. They tend to have difficulty remembering concepts, terms, and procedures in the material because the presentation is not contextual and engaging. Third, there has been no innovation in ClassPoint- based learning media for Spa and Beauty subjects. Teachers have not utilized ClassPoint as an interactive learning medium. Various

features in Classpoint position Classpoint as an interactive learning medium, making it a highly engaging learning medium (Sundari et al., 2021).

One potential technology is ClassPoint. One interactive learning medium in the form of software is Classpoint. Classpoint is an application integrated with PowerPoint Presentation. This application was developed by INKOE, a technology provider (Sundari et al., 2023). This application can be obtained by downloading it for free from the Classpoint.io website. Once downloaded, the application will be directly installed on the PPT. To use it, you need to register on PPT. Next, users can run various interesting features on Classpoint. These various features build interactions between teachers and students.

Several previous studies have demonstrated the effectiveness of ClassPoint-based interactive learning media. Research by Ni'mah & Supriyo (2024) found that ClassPoint media in mathematics produced high validity and was able to increase student learning motivation. Similar findings were expressed by Nurlina et al. (2024) who stated that the use of ClassPoint had a significant effect on increasing learning motivation in Christian Religious Education subjects. In addition, Utari et al. (2023) reported that ClassPoint was effective increasing interest and motivation to learn in Arts and Culture learning. An interactive learning process is ideal learning (Hasanah & Setyaningrum, 2020). This learning process supports the process of students in building their knowledge in accordance with the constructivist view. The interaction that occurs between teachers and students creates a pleasant learning atmosphere so that teachers can easily direct and motivate students in the process of building their knowledge However, there has been no research that specifically develops Classpoint-based interactive learning media to measure students' cognitive abilities in the profile elements of the spa and beauty industry, especially in the Beautician, Hairdresser, Makeup Artist, Therapist and Personal Branding materials.

In the context of vocational learning, understanding the professional profiles in the spa and beauty industry forms a crucial foundation for students' knowledge. Engaging and interactive learning media will help students identify professional characteristics, analyze work competency standards, and integrate this information with practical skills. Therefore, developing interactive media is essential to improving the quality of learning.

Based on this description, this study aims to develop interactive learning media based on ClassPoint to enhance students' cognitive abilities and test the media's feasibility and effectiveness. This research is expected to contribute to the development of learning innovations in vocational schools and strengthen the integration of technology into the vocational learning process.

METHODS

The type of research conducted was Research and Development (R&D), specifically the development of classPoint-based learning media. This research used the ADDIE model developed by Dick and Carey, consisting of five stages: analysis, design, development, implementation, and evaluation (Wahyuni & Putra, 2022).

This research was conducted at SMK Negeri 1 Pekalongan during the odd semester. This study consisted of two variables: an independent variable and a dependent variable. The independent variable in this study was ClassPoint-based interactive learning media. Meanwhile, the dependent variable was... the bound is the feasibility and effectiveness of interactive learning media based on classpoint. The data collection technique in this study uses an interview instrument, structured, feasibility questionnaire, and media effectiveness test using pretest and posttest.

The media feasibility instrument through validity and reliability tests uses the Aiken V Index formula Widianto & Setyowati (2022) to test the validity of the learning media developed before being tested on students and the ICC (Intraclass Correlation Coefficients) reliability test agrees with Damayanti & Mashuri (2022) emphasizing that ICC is superior to ordinary correlation because it is able to detect consistency as well as absolute value agreement between assessors. Based on the results of the material expert validation of 0.875 carried out by the Beauty Lecturer, according to the percentage results obtained Very High. The results of the material expert's reliability of 0.808 according to the percentage results obtained were Good. The results of the media expert validation carried out by the Educational Technology Lecturer and Classpoint Certified Trainer Indonesia 0.902 Very High. Media expert reliability results 0.831 percentage results Good.

Meanwhile, the effectiveness instrument, consisting of pretest and posttest questions, has undergone validity and reliability testing. Validity testing used the point biserial correlation formula. Validity testing of the learning outcome instrument items was conducted using the point biserial correlation technique. This formula was chosen because the test results were dichotomous, with a score of 1 given for correct answers and a score of 0 for incorrect answers. As explained by Sari & Herlina (2022) Point Biserial correlation provides more accurate and precise results than Pearson Product Moment in measuring the validity of multiple-choice items because it considers the proportion of correct answers and the standard deviation of the total score simultaneously. For reliability testing using KR-20 according to Arifin (2017) provides a more precise reliability estimate for true/false or multiple-choice questions because it takes into account the level of difficulty of each item.

The questionnaire consisted of 45 items aligned with the Learning Outcomes and Learning Objectives in the spa and beauty industry profile. The validity of the pretest and posttest questions using the Point-Biserial formula yielded 35 valid questions and 10 invalid questions. The reliability test using the KR-20 formula yielded a significance level of 0.948, which is considered very high. The feasibility data analysis in this study was conducted using quantitative descriptive analysis. Data from media experts and material experts were then calculated using the average formula, then interpreted according to the response score criteria. The effectiveness data analysis from the pretest and posttest results was analyzed using the N Gain formula and the Independent t Test, the data were normally distributed and homogeneous. The purpose of using this test is to determine the feasibility and effectiveness of using interactive learning media based on classpoint . Therefore, the results of this analysis serve as the basis for answering this research question.

RESULTS AND DISCUSSION

Development of interactive learning media based on Classpoint

The development model used in this research is the ADDIE model. Based on the research and development conducted, the following research results were obtained:

Analysis

This stage was conducted to analyze the learning needs at SMK Negeri 1 Pekalongan. Researchers conducted observations and interviews with Class X Teachers of SMK Negeri 1 Pekalongan. The observation data was strengthened by the results of questionnaires and interviews with teachers and students. The results obtained from the interviews included: (1) more than 80% of students felt bored in learning, (2) teachers had not utilized interactive learning media, (3) student learning outcomes that achieved KKTP were below 60%. Analysis of learning outcomes was conducted by reviewing curriculum documents, especially the learning outcomes of Phase E (Class X SMK) on the Spa and Beauty Industry Profile element. At the end of the phase, according to the ATP (Learning Objective Flow), namely (1) Students are able to analyze insight into the spa and beauty industry profile. (2) Students are able to understand personal branding. (3) Students are able to understand the professional profile in the spa and beauty industry. This analysis is important so that the media developed can adapt the content of the material to the competencies that must be achieved. Thus, the ClassPoint- based media design is not only attractive, but also improves cognitive abilities, students according to the curriculum.

Design

In the design stage, the researcher designed the media according to the Learning Objective Flow with the scope of Beautician, Hairdresser, Makeup Artist, Therapist, and Personal Branding materials. The media was designed in the form of interactive PowerPoint combined with ClassPoint features such as word clouds, short answers, draggable objects, multiple choice, slide drawing, and leaderboards. The design also includes storyboards, visual layouts, navigation, video integration, and material presentation strategies with the Problem Based Learning (PBL) learning model. The media storyboard flow is (1) Cover, Instructions for use, Developer Profile; (2) Ice Breaking; (3) Displaying Learning Achievements and Learning Objectives; (4) Introduction to the beauty profession ÿ MCQ quiz; (5) Beautician material in the form of a YouTube video link Opening; (6) Interactive Word Cloud Quiz; (7) Hairdresser material in the

form of a YouTube video link; (8) Interactive Word Cloud Quiz;

(9) Makeup Artist material in the form of a YouTube video link; (10) Interactive Draggable object Quiz; (11) Therapist material in the form of a YouTube video link; (12) Interactive Short Answer Quiz; (13) Personal Branding Material in the form of a YouTube video link; (14) Interactive Word Cloud Quiz; (15) Discussion and Q&A; (16) Doing a Posttest; (17) Displaying a Leaderboard; Polling fills the practicality of the media by students.

Development

As a follow-up to the design that was carried out at the design stage, the following developments were carried out:

a. Development of interactive learning media based on Classpoint.

This media development focuses on the spa and beauty industry profile elements within the Beauty Care Department. The media development also draws on relevant literature, previous research, and teacher and student interviews, then tailored and aligned them to the learning outcomes and objectives. The media is equipped with text, images, and videos to facilitate student understanding of the spa and beauty industry profile material. The following is an overview of the development of interactive learning media based on ClassPoint.

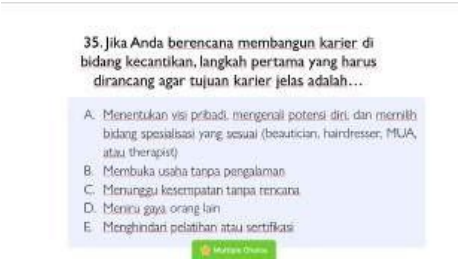
Table 1. Media development

Pictures	Description
	Description: Slide 1 (Opening) Displaying the UNNES logo, title, material, name of compiler and study program compiler.
	Description: Slide 2 (Instructions) use) Students scan barcode to join in interactive classes.
	Description: Slide 3 Displaying developer profile.
	Description: Slide 4 Ice Breaking

	Description: Slide 5 Introduction of students/respondents
	Description: Slide 6 Ice breaking
	Description: Slide 7 Displaying Learning Outcomes
	Description: Slide 8 Displaying Learning Objectives
	Description: Slide 9 Interactive Short Answer Quiz: Short Answer (Students answer) what beauty profession do you have? know ?
	Description: Slide 10 Opening, Definition & Role, Skills, Characteristics, Opportunities Career, closing.

	Description: Slide 11 Word Cloud Interactive Quiz: Interactive accommodate students' ideas related to “A Beautician must be able to choosing cosmetic application techniques that suits your skin condition, what risks that arise if the beautician using the product wrongly??”
	Description: Slide 12 Opening, Definition & Role, Skills, Characteristics, Opportunities Career, closing.
	Description: Slide 13 Word Cloud Interactive Quiz: Interactive mention 2 skills Hairdresser ?
	Description: Slide 14 Opening, Definition & Role, Skills, Characteristics, Opportunities Career, closing.
	Description: Slide 15 Draggable object Interactive Quiz : Moving cosmetic objects (images, shapes, text) directly on slides during the presentation.

	Description: Slide 16 Opening, Definition & Role, Skills, Characteristics, Opportunities Career, closing.
	Description: Slide 17 Quiz Interactive Short Answer (What main characteristic differences Therapist versus profession other beauty?
	Description: Slide 18 The material is in the form of a video containing Opening, Definition & Role, Skills, Characteristics, Opportunities Career, closing.
	Description: Slide 19 Interactive Word Cloud Quiz (what word that comes to mind when you hear Personal Branding?
	Description: Slide 20 Students are ready to work on *posttest* 35 questions
	Description: Slide 21 Working on *Posttest* Questions, if the answer correct will get 1 star.

	Description: Slide 55 Working on *Posttest* Questions
	Description: Slide 56 Media Assessment by Students. If the answer correct will get 1 star.

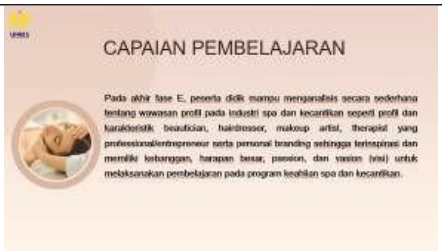
b. Product Validation

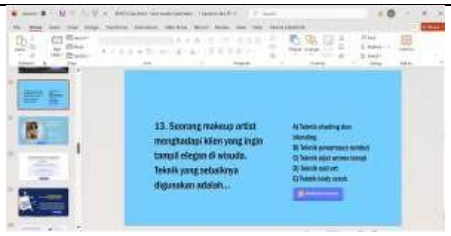
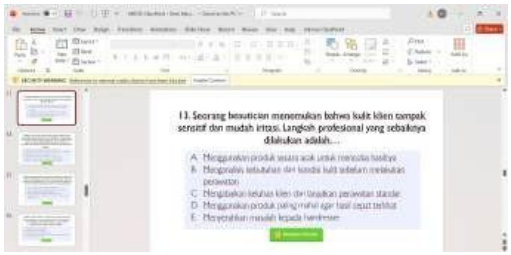
The development phase resulted in a complete learning media product that was validated by three subject matter experts and three media experts. Validation was conducted to ensure the accuracy of the content, the suitability of the material to learning outcomes, the quality of the display, and the suitability of interactivity. Input from the validators was used as the basis for revisions to make the media more usable. The final product consisted of 56 slides covering the material, interactive activities, quizzes, and posttests.

c. Product Revision

The data from the assessments by media and content experts will serve as the basis for revising the developed media to refine the classpoint- based media components before being tested on students. The validated media design will then be revised based on the experts' input, in this case, the revisions made are in the following sections.

Table 2. Improvements from Media Experts & Material Experts

Before Revision	After
Developer Profile not listed	
There was no Ice Breaking at the	
Not yet list achievements	
 The material is packaged in a video, when opened it takes a long time.	 The material is uploaded to YouTube, then the YouTube link is included in the PowerPoint.

 For posttest template & font selection, it is best to make them the same.	

Implementation

This stage is an implementation with respondents of 30 students of class X Beauty from X KC 2 SMK N 1 Pekalongan as the experimental class and 30 students from class X KC 3 SMK N 1 Pekalongan as the control class.

a. Pretest

The pre-test stage is the initial step taken by researchers before administering the treatment in experimental research. The pre-test is given to students to determine their prior knowledge levels in both the control and experimental groups. At this stage, participants are asked to answer questions prepared based on learning outcomes in the form of a test sheet.

b. Treatment with interactive learning media based on classpoint

At this stage, after students have completed the pre-test, they are then given treatment in the form of Providing interactive learning media based on ClassPoint as an experimental class. The media provided as a treatment is arranged based on Learning Outcomes and Objectives. Learning on the elements of the spa and beauty industry profile.

c. Posttest

The final stage in testing the effectiveness of interactive learning media based on classpoint. This was achieved by administering a post-test. The post-test assessment sheet was administered after respondents were given a pre-test and provided with interactive learning media based on ClassPoint. This post-test was administered once to both the control and experimental classes. The assessment items on the post-test were identical to those used for the pre-test. This aimed to determine the final results of comparing the treatments. before and after being given media.

Evaluation

There are two evaluations conducted at this stage: formative evaluation and summative evaluation. The formative evaluation stage is an assessment conducted by the validator during the development stage, including media development, media expert validation, and expert validation, material, and revision. This assessment serves to ensure that the desired objectives are achieved and to revise the learning media, which includes interactive ClassPoint-based media. Summative evaluation, meanwhile, aims to determine the effectiveness of media use. Media can be declared effective if the experimental group's student learning outcomes are significantly higher than those of the control group. Summative evaluation in this study, the media in the experimental group with N Gain obtained scores with effective criteria, this agrees with (Jafnihirda et al., 2023)

Results

Feasibility of Classpoint -based interactive media

This stage is carried out to determine the feasibility of the media being developed. The media feasibility test was carried out by 3 media experts and 3 material experts to obtain criticism and Validator's suggestions for the product being developed. The feasibility test instrument has been proven valid and reliable. The results of the media feasibility analysis by media experts and material experts can be seen in Table 3.

Table 3. Results of Media Suitability Test by media experts

No	Aspect	Validator			Average	Category
		1	2	3		
1	Visual Appearance and Media Design	4.4	4.2	4.2	4.26	Very Feasaible
2	Easy of use	4	4	3.75	3.91	Feasaible
3	Qualities of Interactivity	4.2	4	4	4.06	Feasaible
4	Technical Feasibility and Consistency Function	4.5	5	5	4.83	Very Feasaible

Based on the data in table 3, it can be seen that the overall average of media experts is 4.27 so that the media is declared valid and suitable by media experts from the above aspects. The results of the media feasibility test by material experts are shown in Table 4. Effectiveness of ClassPoint-based Interactive Media The effectiveness of student learning outcomes in the cognitive aspect in this study used the N Gain test and the Independent t-test. Before conducting the effectiveness test, prerequisite tests were required, namely normality and homogeneity tests. The results of the normality and homogeneity tests can be seen in Tables 5, 6, and 7.

Table 4. Results of Media Feasibility Test by material experts

No	Aspect	Validator			Average	Category
		1	2	3		
1	Suitability of Material to Objectives	4	4.5	4.5	4.33	Very Feasaible
2	Depth and Accuracy of Material	4	4.5	4.5	4.33	Very Feasaible
3	Integration of Material with Media Interactive	4	4.5	4.5	4.33	Very Feasaible
4	Language and Presentation	4	4.5	4.5	4.33	Very Feasaible
5	Material Benefits and Applicability of Material in Learning	5	5	5	5	Very Feasaible

Based on table 4, it can be seen that the overall average of the material experts is 4.46 so that the media is declared valid and very feasaible by the material experts from the aspect of above. Thus, it can be concluded that the Classpoint- based interactive media is valid and does not require significant revisions and is suitable for use in learning the spa and beauty industry profile.

Effectiveness of ClassPoint-based Interactive Media

The effectiveness of student learning outcomes in the cognitive aspect in this study used the N Gain test and the Independent t-test. Before conducting the effectiveness test, prerequisite tests were required, namely normality and homogeneity tests. The results of the normality and homogeneity tests can be seen in Tables 5, 6, and 7.

Table 5. Normality Test Results

	Class	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Hasil	Pretest A (Control)	,132	30	,194	,945	30	,121
	Postest A (Control)	,151	30	,078	,946	30	,133
	Pretest B (Eksperiment)	,146	30	,105	,952	30	,189
	Postest B (Eksperiment)	,143	30	,122	,923	30	,032

Based on table 5, it can be seen that the normality test of the media effectiveness instrument both the pre-test and post-test in the control class and the experimental class showed scores significance (sig.) > 0.05, then it can be concluded that the data is normally distributed.

Table 6. Results of the Pretest Homogeneity Test Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Value	Based on Mean	,093	1	58	,761
	Based on Median	,138	1	58	,712
	Based on Median and with adjusted df	,138	1	57,940	,712
	Based on trimmed mean	,110	1	58	,741

Table 7. Results of the Posttest Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Value	Based on Mean	,422	1	58	,519
	Based on Median	,251	1	58	,618
	Based on Median and with adjusted df	,251	1	57,469	,618
	Based on trimmed mean	,423	1	58	,518

Based on table 6 and table 7, the results of the homogeneity test on the pre-test and post-test of the control class and the experimental class obtained a significance value (sig.) > 0.05, so it can be It is concluded that the data is homogeneous. After the prerequisite test is carried out, a follow-up Independent t- Test will be carried out to determine the differences between the control and experimental groups. The results of this test can be seen in tables 8 and 9.

Table 8. Results of the Independent t Test Pre 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
ValueEqual variances assumed	,093	,761	1,326	58	,190	2,667	2,011	-1,359	6,692
Equal variances not assumed			1,326	57,742	,190	2,667	2,011	-1,359	6,692

Table 9. Results of the Independent t Test Posttest

	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
ValueEqual variances assumed	,422	,519	-14,953	58	,000	-20,033	1,340	-22,715	-17,351
Equal variances not assumed			-14,953	57,737	,000	-20,033	1,340	-22,715	-17,351

Table 8 shows that the learning outcomes between groups obtained a significance result of 0.190 which is greater than (>) 0.05, so it can be concluded that the pre-test learning outcomes between the control group and the experimental group did not have a significant difference. This means that the control group and the experimental group had the same initial ability in understanding the spa and beauty industry profile before receiving the learning treatment.

Meanwhile, table 9 shows that the learning outcomes between groups obtained a significance result of 0.000 which is smaller than (<) 0.05, so it can be concluded that there is a difference in learning outcomes between the control group and the experimental group in understanding.

Profile of the spa and beauty industry after receiving treatment in the form of providing interactive media based on classpoint in learning. After the Independent t Test is carried out, the next step is the N Gain test analysis to find out effectiveness of media use. The results of the N Gain test can be seen in Table 10.

Table 10. N Gain Test Results Descriptive Statistics

N		Minimum	Maximum	Mean
Eksperiment_NGain_Percent	30	62,16	100,00	83,3408
Control_NGain_Percent	30	,00	60,78	28,7448

Discussion

The final result of this development research is in the form of interactive learning media. ClassPoint-based . The media development process is carried out in stages to produce suitable media, which is then validated by media and content experts, as well as by users.

ClassPoint-based media is a form of interactive media that plays a crucial role in the learning process. This interactive media can increase student engagement and provide an engaging and challenging learning experience. This aligns with the theory of Wahyuningsih et al. (2023), which explains that the use of ClassPoint in teaching and learning activities has been shown to increase classroom interactivity, as students can actively engage with the material through engaging quizzes and polls.

The feasibility study of the media development results is based on the assessment sheet containing responses from media experts and material experts, who are experts in the field of media and beauty materials, specifically the profile elements of the spa and beauty industry. The media experts' feasibility test, based on the technical feasibility and functional consistency indicators, achieved the highest score of 4.83, categorized as very feasible. This aligns with research by Apriansyah & Pratama (2023) that media feasibility testing using technical feasibility indicators can produce valid media feasibility data. After validation, the results showed that the media had become a final product that was very suitable for use by students to improve their understanding of the spa and beauty industry profile. The conclusion that this ClassPoint -based media was suitable was obtained from the validation results of 3 media experts and 3 material experts, with a score of 4.27 with the criteria of Very Suitable from the media experts and a score of 4.46 with the criteria of Very Suitable from the material experts.

Based on the effectiveness test stage of classpoint-based media. The independent t-test showed that the control class and the experimental class did not have a significant difference before being treated with classpoint-based media, the learning outcomes between groups obtained a significance result of 0.000 smaller than (<) 0.05, so it can be concluded that there is a difference in learning outcomes between the control group and the experimental group in understanding the spa and beauty industry profile after receiving treatment in the form of providing classpoint- based interactive media in learning. In line with the theory of Handayani & Rahmadi (2022), which states that the group given treatment obtained much higher learning outcomes than the group not given treatment.

The N Gain test yielded a result of 83%, indicating that the implementation of ClassPoint- based media is effective in improving students' cognitive abilities. This finding aligns with Rizqi & Setyawan (2023) theory that ClassPoint media improves student learning outcomes when supported by the use of interactive features.

CONCLUSION

Based on the results and discussions related to the development of interactive learning media based on ClassPoint to Improve Students' Cognitive Abilities, it was concluded that the media development was carried out using the ADDIE model with the stages of analysis, design, development, implementation, and evaluation. The media received an average score of 4.27 from media experts (very feasible) and 4.46 from material experts (very feasible). Therefore, it can be concluded that the media is valid with revision and does not require significant overhaul. ClassPoint -based media is also declared effective for use in the spa and beauty industry profile elements. This is based on the effectiveness test with a pre-test and post- test which obtained an N Gain result of 83%. Thus, it can be concluded that the use of ClassPoint- based media plays a role in improving students' cognitive abilities in the spa and beauty industry profile elements.

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