

Development of Social Media Applications as a Website-Based Discussion Place to Increase Student Learning Interest at the Vocational Level

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ARTICLE INFO	ABSTRACT
<p>Article history Received June 24, 2024 Revised Dec 15, 2025 Accepted Dec 28, 2025</p> <hr/> <p>Keywords Social Media Media Learning Interest in learning</p>	<p>Social media is a digital technology platform in the form of applications and websites that provide an interactive environment for users. While it serves as a space for creating and discussing topics, current social media platforms are often unsuitable for educational purposes due to unfiltered content, which can distract students during learning discussions. This study aims to examine the increase in students' learning interest through the development of a dedicated social media platform designed for academic discussions. The research evaluates key usability aspects, including learnability, efficiency, memorability, error reduction, and security, to determine their impact on learning engagement. The study employs a Research and Development (R&D) approach using the waterfall model, which includes analysis, design, coding, and testing phases. The findings indicate that the introduction of a specialized social media platform for educational discussions significantly enhances students' learning interest, with an N-Gain score of 0.82. According to the N-Gain classification, a score above 0.7 signifies a high level of improvement, demonstrating the effectiveness of the proposed platform in fostering academic engagement.</p>

I. Introduction

In this era of rapid technological advancement, social media has become an unavoidable part of human life. Fundamentally, social media can be defined as digital technology, in the form of software-based applications and websites, that provide a platform for users to share and access information [1]. However, in modern times, many adolescents and young adults have been negatively influenced by social media, exacerbated by harmful online interactions that lead to unethical behavior [2]

When used effectively, social media offers numerous benefits in enriching and complementing the learning process. Teachers can enhance their teaching quality and creativity through social media [3]. Furthermore, individuals who use social media wisely can gain significant advantages, including networking, accessing information, and securing digital job opportunities [4]. Therefore, it is crucial to develop social media platforms that not only facilitate socialization but also promote healthy usage through monitoring mechanisms.

Observations at SMKN 5 Malang, SMKN 4 Malang, and SMKN 11 Malang revealed difficulties in student engagement during online discussions. Students were often unresponsive in platforms like Google Classroom, rarely reading or commenting on discussion topics. Additionally, students were easily distracted by notifications from platforms like Instagram, Facebook, and WhatsApp, reducing their focus on learning. In contrast, previous research found that Instagram effectively enhanced interest in learning English among 30

students, demonstrating social media's potential as an educational tool [5].

The previous research explored strategies for educators to boost student interest by creating innovative and practical learning environments [6]. Their study suggested that teaching media closely related to students' daily lives—such as social media—enhances engagement, as these platforms are already deeply integrated into their routines.

Previous research has examined social media as a learning tool, but these studies have primarily focused on general socialization rather than on the integration of vocational education (SMK). Moreover, existing platforms were not explicitly designed for educational purposes. To address this gap, this study proposes a Web-Based Social Media Application for SMK Students to Enhance Interest in Learning. This platform is designed to facilitate academic discussions among students and teachers while allowing school administrators to monitor usage. By incorporating the best features of Instagram, Facebook, and WhatsApp while tailoring them for educational purposes, this application aims to create an engaging and focused discussion environment that increases student motivation and interest in learning.

Social media is one of the intermediaries supporting indirect human social interaction [7]. The rapid development of technology and communication has brought about changes in people's attitudes and activities. According to previous research, [8], the use of social media in the context of learning can duplicate many

activities, including assignments, learning materials, discussions, quizzes, information, learning tutorials, and entertainment. In addition, another benefit of social media is as a medium for discussion. This makes social media an essential role for increasing interest in learning.

Discussion method is learning where the teacher gives a problem to students, and students jointly solve the problem with their peers. Through these discussion activities and information exchanges, students can also provide input and defend their opinions to help solve the problems they face [9]. The issues that often occur in the classroom are that teachers only use the lecture method, which usually makes students feel bored faster, and in the end, students do not focus on the lesson [10]

A website is defined as a collection of pages that contain information in various visual formats, such as text or images, uploaded over the internet and displayed in a browser such as Mozilla Firefox, Google Chrome, or others [11]. A Website, according to, is software that contains files in the form of images and text and is connected to the internet. In addition, a website can be considered a source of information created in HTML and accessed by web users through navigation to the next page [12]. From this, it can be concluded that a website is a digital device comprising interrelated pages that present a variety of information in various formats, making it an essential means of disseminating information widely and effectively in the digital era.

Learning in vocational schools balances theory and practice. Students learn basic concepts in the classroom and gain hands-on experience in a real-world environment. This aims to provide contextual experiences that support students' readiness to enter the world of work [13]. One advantage for SMK students is the strong cooperation between schools and industry. This includes internship programs, field work practices, and money competency certification tests involving practitioners as external examiners [14]. Information technology facilitates online discussions between teachers and students, thereby creating a more interactive and flexible learning experience [15]. Therefore, a social media application was developed as a discussion platform for vocational students to facilitate discussions and enhance their theoretical knowledge.

Learning interest is an essential aspect in assessing the success of a learning process. Learning interest can be defined as a deep attention accompanied by a desire to learn, know, or do something. The continuous [16]. In the context of education, learning interest can reflect an internal drive that makes students more enthusiastic and diligent in participating in learning. Learning interest plays a vital role in increasing student involvement in the learning process. Learning interest plays an essential role in increasing student involvement in the learning process. With high interest, students are more likely to understand the material.

II. Method

In this study, researchers used the Research and Development research type which means using the research and development method. This social media model was developed using the waterfall model. This . The . The development model is known for its linear workability, meaning that each stage builds on the previous one. [17]. Therefore, a stage will not be completed until the last stage is completed. The Waterfall model has four stages, including: (1) analysis, (2) design, (3) code, and (4) testing.[18]"

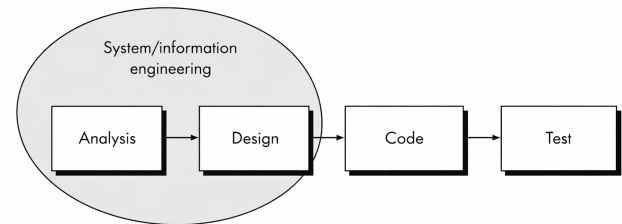


Fig. 1. Waterfall Stages

A. Analysis

In analyzing the problem, interviews were conducted with teachers directly related to how the class discussion process unfolds when students face online problems at SMKN 5 Malang, SMKN 11 Malang, and SMKN 4 Malang. The observation was carried out to determine which applications the school uses and how the discussion processes between students and peers, and between students and teachers, work. Based on the observation, it is concluded that there are problems with the lack of active students during online discussions on Google Classroom or WhatsApp. This problem makes students less effective at finding solutions to problems they encounter in their learning. In the analysis, the purpose of this social media development is used as a place for students to discuss material in their school. In addition, the purpose of developing social media is to help teachers and peers ask for or provide input on material anytime and anywhere. During the needs analysis stage, several features are identified as required for this social media system. These features include: (1) the feature of creating posts, (2) the feature of editing posts, (3) the feature of viewing posts, (4) the feature of commenting on posts, and (5) the feature of teachers to approve posts.

B. Design

The design stage is a process that converts the data obtained at the Analysis stage into a system design. This stage will produce three types of designs, including: (1) Process modeling; (2) Data modeling; and (3) interface design.

1) Process modeling

In the process modeling stage, it will be described using a data flow diagram (DFD) that explains how the flow runs. A context diagram illustrates the system process

in general. The following is a context diagram of the system in the picture.

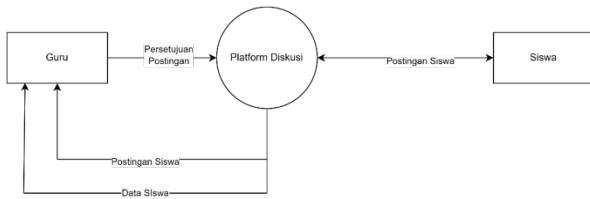


Fig. 2. Diagram Context

2) Data Modeling

Data modeling will create an Entity Relationship Diagram (ERD). An ERD is a diagram that illustrates the relationships among the entities in a system. A tool to describe the relationship between data based on the relationship between entities using notation.

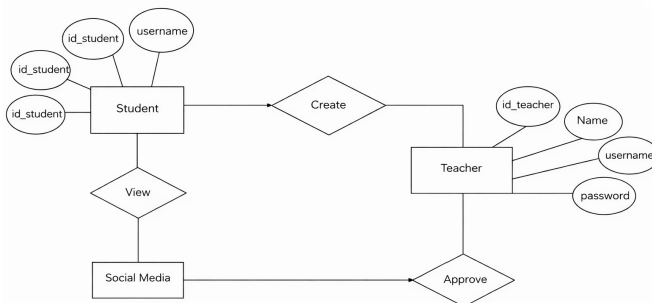


Fig. 3. Data Modeling

3) Interface Design

The system interface design provides an overview of the social media display to be created. The following are some social media interface designs.

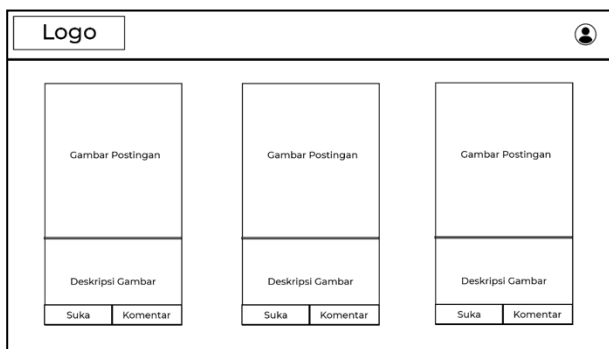


Fig. 4. Home Page Interface Design

4) Code

In the coding stage, the design from the previous stage will be implemented in a product. At this stage, the design will be implemented in PHP. The PHP programming language will be used with the Laravel framework in its coding. This will make writing PHP code concise and efficient. The database will use MySQL with PhpMyAdmin, and the scripting process will use Visual Studio Code as a text editor.

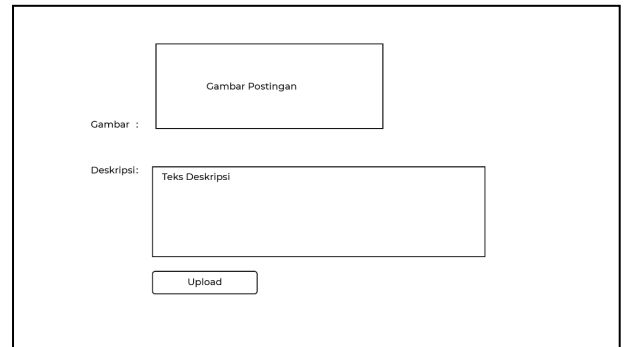


Fig. 5. Create Post Page Interface Design

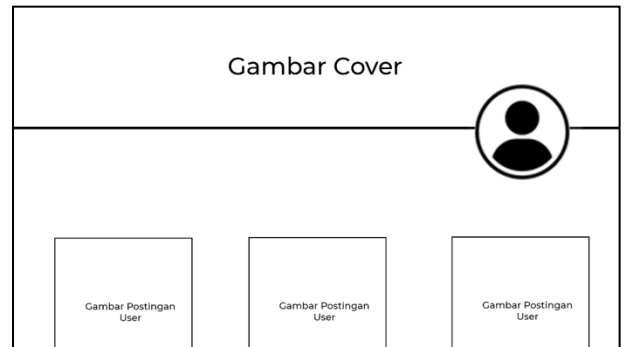


Fig. 6. Profile Page Interface Design

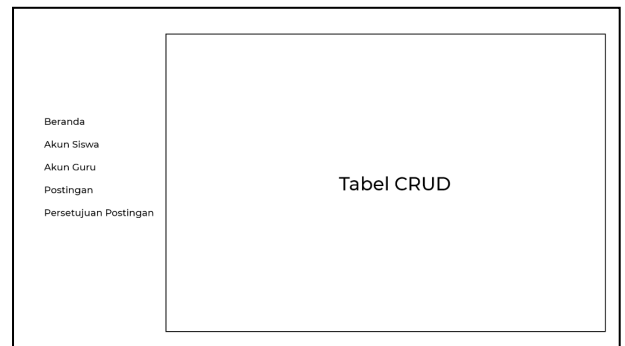


Fig. 7. Admin Page Interface Design

5) Test

This Social Media Test Design draws on social media experts and field trials. Tests by social media experts are carried out to test the functionality of the system from all users. Field trials aim to assess system users in the field. The testing technique used is black-box testing. After the validity test is completed, the trial will continue to evaluate the increase in learning interest. The test subjects of this social media are several users, namely Information Systems Experts (lecturers from the Department of Electrical Engineering and Informatics, State University of Malang (UM)) and Teachers (teachers from SMKN 11 Malang). The number of samples will be determined using purposive sampling. This technique is a sampling technique by researchers with specific considerations [8]. The sample used in this study was 4, considering that the teacher teaches RPL majors and software engineering subjects. Students are from SMKN 11 Malang. Using

Purposive sampling, the criteria were applied to select one RPL class of 31 students.

To determine the validity of the development product, it is necessary to use the checklist method for data collection, and the instrument is designed around system functionality. Data collection will be done when the application is ready for testing. To collect data, the questionnaire will be distributed via Google Forms and will use a four-point Likert scale. The four-option Likert scale is shown in Table 2.

Table 1. Likert Scale With 4 Options

Score	Description
4	Criteria Strongly Agree / Very Suitable / Very Good / Very Clear / Very Easy / Very Complete.
3	Criteria Agree / Suitable / Good / Clear / Easy / Complete.
2	Criteria Less Agree / Less Suitable / Less Good / Less Clear / Less Easy / Less Complete.
1	Criteria Disagree / Not suitable / Not good / Not clear / Not easy / Not complete
Score	Description

The results from the product trial stage are processed and analyzed to determine the product's feasibility for implementation in the learning process. The data obtained from the trial stage can be processed. The data from the system trial results are processed using the equation [19]:

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Description:

P = Percentage of questionnaire data per item

X = Number of correct answers

Xi = Total maximum score

Taking the expected value into account assumes that the test subject can provide the highest value on all questions. The validity and feasibility of the system will be assessed using the results of data processing against system feasibility criteria. The criteria for determining system validity, system feasibility, and student learning interest criteria can be seen in the following table:

Table 2. Validation Criteria

Percentage	Validation Criteria
85,01 – 100,00	Very valid, or can be used without revision
70,01 – 85,00	Valid enough, or can be used with small revision
50,01 – 70,00	Less valid, recommended not to used because of the major revision
01,00 – 50,00	Not valid, can't be used

Based on the validity criteria above, the system is considered valid when the validity presentation exceeds

70%. When validity exceeds 70%, testing can continue to assess the incremental learning interest.

Table 3. Criteria of Interest in Study

Percentage	Criteria of Interest
81–100 %	Very Highly Interest
61– 80%	Highly Interest
41–60%	Enough of Interest
21-40%	Low of Interest
0-20%	Very Low of Interest

Increased interest in learning can be measured using a normalized gain test (N-Gain), which includes a pre-test and a post-test. Pre- and post-tests are given before and after treatment or intervention. The pretest measures students' initial interest in the product, while the posttest assesses their interest after using it. According to [20], the normalized gain (N-Gain) in the following formula.

$$N-Gain = \frac{Post-test\ score - PretTest\ score}{Maximal\ Score - Pretest\ Score}$$

In the formula above, the pre-test score reflects the result of the learning interest test before using the product, and the post-test score reflects the result after using the product. The percentage results are then analyzed to determine whether there is an increase in interest in learning about the developed product. Decision-making refers to the criteria in Table 4 [20].

Table 4. N-Gain Category

Point N-Gain	Category
N-Gain > 0,70	High
0,30 < N-Gain <0,7	Medium
N-Gain <0,30	Low

From the table above, it can be concluded that if the N-Gain value is above 0.7, it falls into the high category. Then, if the N-Gain value is between 0.3 and 0.7, it falls into the medium category; if it is below 0.3, it falls into the low category.

III. Results and Discussion

A. Product Description

Social media, as developed, is a discussion platform that uses web-based social media to increase students' interest in learning at SMK. The social media used can be accessed at <https://ceritakitaa.my.id>. This application has 2 user levels: students and teachers/admin. The student and admin/teacher levels have almost the same features, but the admin/teacher can manage the social media more deeply. The features provided to users in the developed social media are as follows;

1) Student Level

At the student level, the features provided are: (a) the feature of creating posts, (b) the feature of editing posts, (c) the feature of viewing posts, and (d) the feature of commenting on posts.

2) *Teacher Level*

Almost like the student level, the teacher level has features, namely: (a) the feature of creating posts, (b) the feature of editing posts, (c) the feature of viewing posts, and (d) the feature of commenting on posts. However, the teacher level can access the admin page, which has the following features: (e) manage posts, (f) manage user accounts, (g) manage reports, (h) manage categories, and (i) manage comments.

B. *User Interface*

The following is the user interface used by both students and teachers/administrators.

1) *Registration Page*

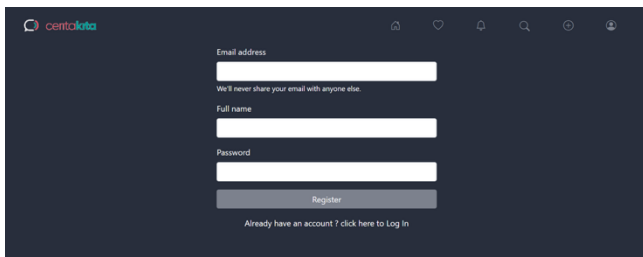


Fig. 8. Registration Page

The registration page has a form to fill. In the email address, full name and password and all these inputs must be filled in and must use the original email.

2) *Verification Email*

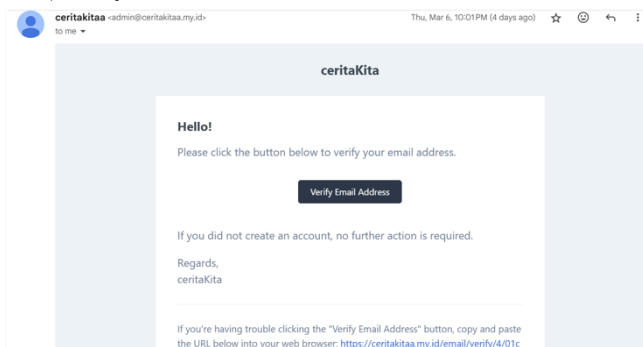


Fig. 9. Verification Email

Verify Email can be seen in the email after registering an account. Email verification is required to prevent fake accounts from registering on the website so that each user can use their own email.

3) *Login Page*

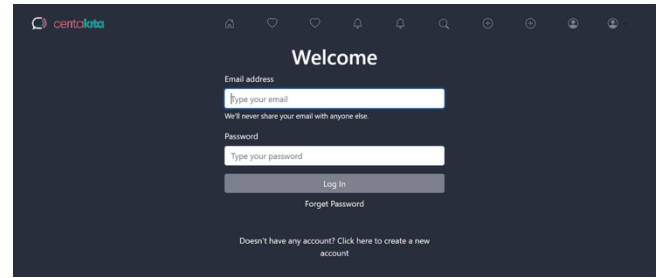


Fig. 10. Login Page

Display to log in to the account that has been registered and verified previously.

4) *Form Profile Register*

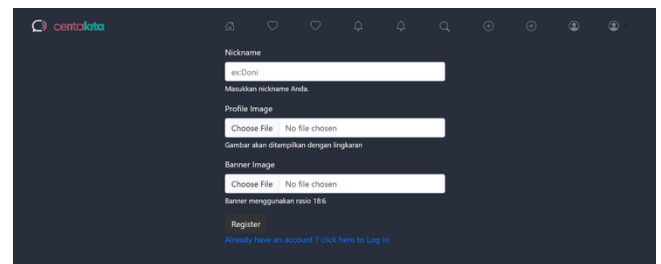


Fig. 11. Form Profile Register

There is a page to fill in the user profile, the user profile will be displayed when the user performs activities in the application.

5) *Main Page*

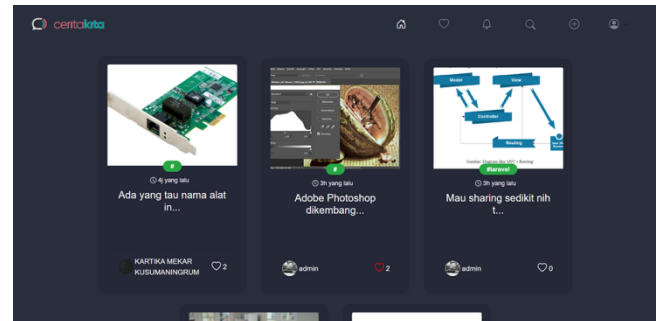


Fig. 12. Main Page

Main page is a page to view posts. The main page has a toolbar to navigate to other pages. The main activity of this application is on the main page.

6) *Post Modal*

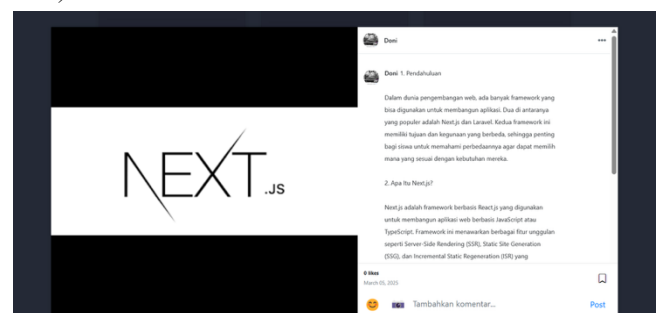


Fig. 13. Post Modal

In the figure above, there is a modal post. After clicking on the post on the main page, a modal post will appear that can be commented on to conduct a discussion.

7) Notification Page

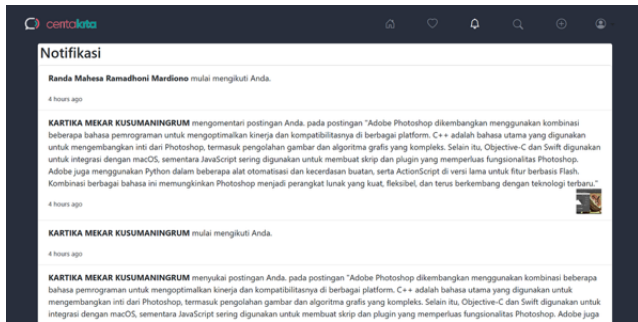


Fig 1. Notification Page

In the picture above, there is a notification page. This notification page has content when there are accounts that start following, make comments to our posts, like posts that have been made.

8) Create a Post Modal

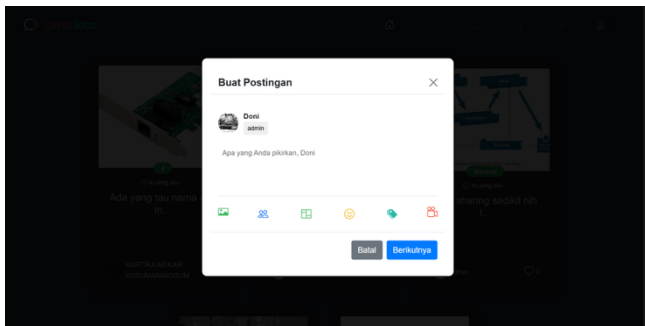


Fig 2. Create Post Modal

Users can create posts through the toolbar. After clicking the icon to add a post, the create post modal will appear. In the create post, we can add posts with descriptions, images, tag others, categories, emojis, hashtags, or videos.

9) Profile Page

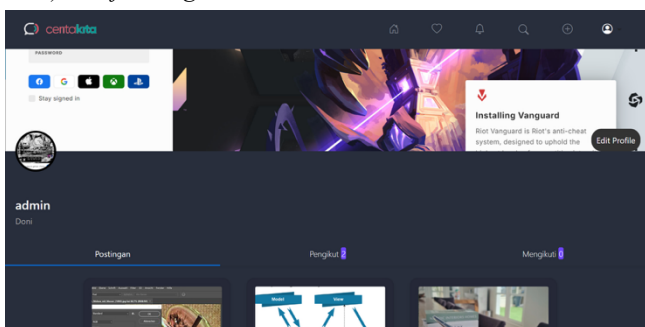


Fig 3. Profile Page

Users can view their own profile page or other people's profile pages. On the profile page, users can follow others when they are on other people's profiles. Meanwhile, if they are on their own profile, users can edit their profile, edit posts, and delete posts.

10) Edit Profile Page



Fig 4. Edit Profile Page

In the picture above, there is a page for editing profiles. This page has input to change full name, nickname, profile image, banner image, password. Users will fill in the parts they want to replace and leave blank the inputs that are not replaced.

11) Admin Dashboard Page

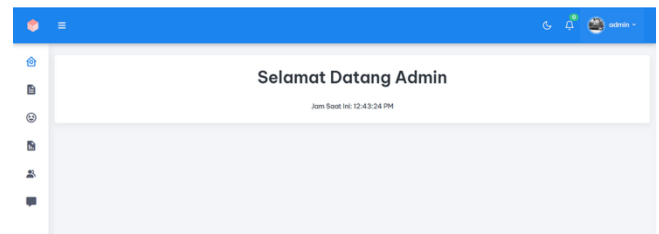


Fig 5. Admin Dashboard

The picture above shows an admin dashboard page. The admin dashboard has time and hour information along with a welcome greeting.

12) Manage Post Page

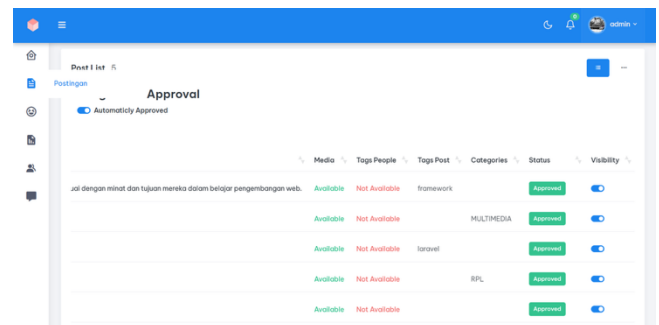


Fig 6. Manage Post Page

The post manager page is intended to manage posts from all users. On this page, the admin can see the description, friend tags, post tags, categories, status, and viewability. In addition, the admin can enable the automatic post-approval feature.

13) Manage User Page

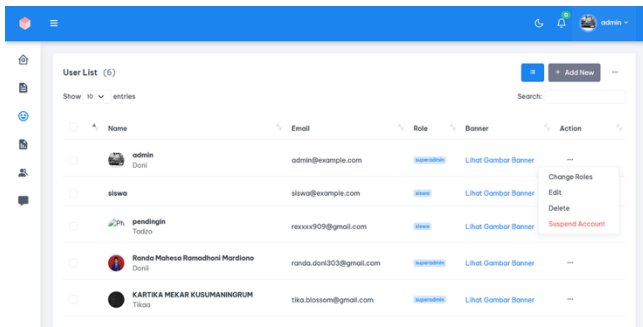


Fig. 14. Manage User Page

Users with admin level can perform account management. That is to edit, change roles and also suspend accounts.

14) Manage Report Page

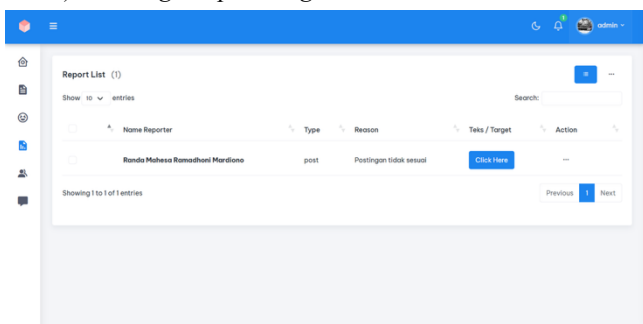


Fig. 15. Manage Report Page

Users with admin level can manage reports, both reports on a comment or reports on a post. Users can change the visibility of reports or posts so that they are not visible to other users.

15) Manage Category

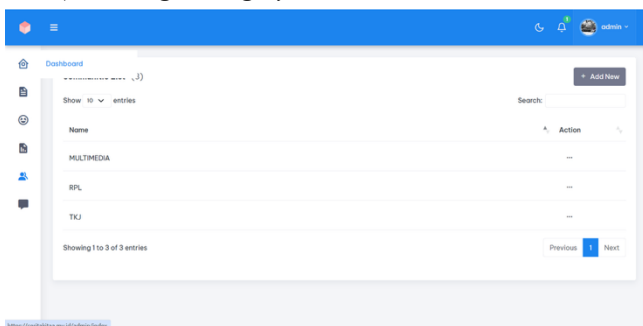


Fig. 16. Manage Category Page

Users with admin level can manage existing categories. The category is organized into classes at the SMK. Users can add, change, or delete from existing categories.

16) Manage Comment Post

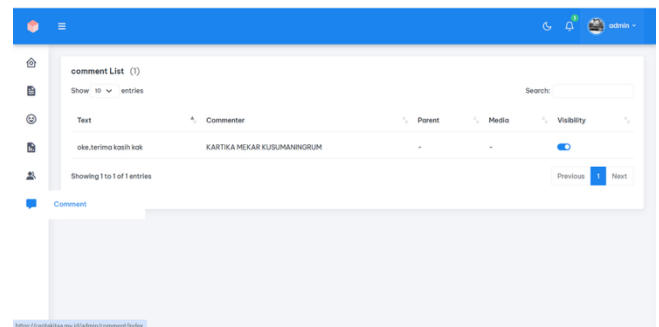


Fig. 17. Manage Comment Post

In the figure above, there is a page for managing comments. On this page, there is a name, text, parent (if the comment comments on other comments), media (if the comment has media), and visibility of existing comments. Admin can turn off or turn on the visibility of existing comments.

C. Result of Validation and Testing

1) Validation of Specialist, Teacher, and Student

Based on the research results, it is known that the development of social media as a platform for discussion has been successful. The development was carried out using the waterfall model, namely through the stages of analysis, design, coding, and testing. The analysis stage is conducted to identify problems occurring in SMK. Through interviews with several teachers, it was found that students were not active during discussion activities on existing social media. After further investigation, the use of Google WhatsApp Classroom and WhatsApp is not suitable for discussion activities because it is difficult to discuss if there are many topics, and is often ignored by students. After the development of social media, it has reached the testing stage by media experts, teachers, and students. They showed that the social media developed was suitable for use. Social media expert validation shows 97.05%, indicating that the application is highly feasible. Trials conducted by teachers have a score of 95.6%, suggesting that the application is effortless to use. While the trials carried out on students also yielded a score of 93.7%, indicating that the application developed is very feasible to use [21]. When the application is created, it will ensure its functionality, usability, and support its intended benefits [22]. The result is shown in the picture below.

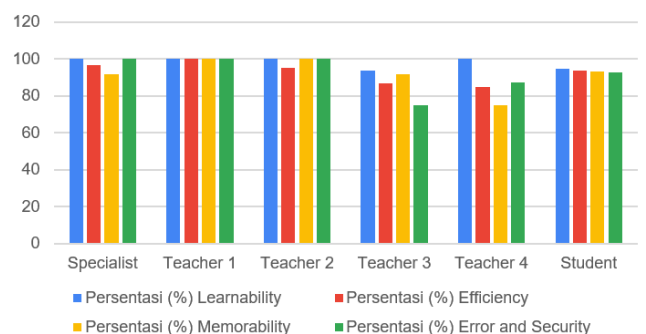


Fig. 18. Validation's Result

In the graph presented, not all parts are 100% filled. This is due to some minor errors in the localhost environment, namely, an issue with the search button on the mobile version that cannot be used after hosting the website. After fixing the hosting section and considering the input and suggestions from the validators, the product was revised before conducting a trial to increase interest in learning. This validation means that the development of social media has been successful. This is in line with previous research [8], where media validation scores above 81% indicate that the press is very suitable for use. Highly feasible for use in the learning process.

D. Interest in Study after Using Media

Interest in learning can be defined as a person's interest, desire or drive to gain knowledge through the learning process. This learning interest will arise when students are interested, motivated, and enjoy learning activities so that they will tend to be more active in understanding the material being studied. One of the emerging interests in learning is the existence of good learning media that can be used by these students. Based on the results of the study, it is known that the development of social media as a place to discuss (X) has a positive relationship with student interest in learning at SMK (Y).

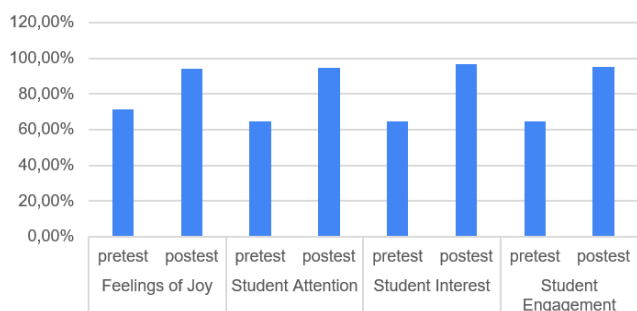


Fig. 19. Result of Pretest and Posttest

This is known through calculations using the N-Gain formula, based on data from pre- and posttests [23]. When the data has been taken and calculated, there is an N-Gain value of 0.82, which means that the results of the pretest and posttest of students' learning interest have a high increase [24]

IV. Conclusion

This research and development on social media as a student discussion platform to enhance learning interest at vocational high schools (SMK) successfully achieved its objectives, resulting in a functional online discussion product in the form of a website accessible on laptops or mobile devices without requiring additional memory. The product's feasibility was validated through expert evaluation (97.05%), teacher trials (95.6%), and student trials (93.7%), all indicating high suitability for use. Additionally, testing on learning interest showed significant improvement, with a gain score of 0.82 (classified as high) initial student interest scored 66.17%

before using the platform, rising to 95.24% afterward. Thus, the goal of developing this web-based social media discussion platform to boost SMK students' interest in learning has been accomplished.

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