Case study

Enhancing Campus Communication and Collaboration: Design and Development of a Social Community Media Website For Universitas Multimedia Nusantara

ABSTRACT

Aim: The primary aim of this research was to create and implement a social community media website system at Universitas Multimedia Nusantara (UMN) using the Rapid Application Development technique. Furthermore, the objective of the study was to evaluate and determine the level of satisfaction about the user interface of the social community media website system implemented by UMN.
Study design: This study was designed with Rapid Application Development to build asocial media UMN community website.
Place and Duration of Study: Department of Informatic Universitas Multimedia Nusantara, between February 2023toJuly 2023.
Methodology: Designing and developing a social media community website system using the Rapid Application Development methodology, which consists of three stages: requirement planning, design workshop, and implementation. Rapid Application Development is a method that allows designing and developing a system quickly and effectively, with good results.
Result: The social community media website system has been effectively developed and constructed, and the results of User Acceptance Testing calculations have been obtained. Specifically, the Perceive Usefulness question yielded a score of 88.08%, while the Perceive Satisfaction question yielded a score of 88.67%.
Conclusion: Based on the findings derived from the user satisfaction questionnaire, it can be inferred that the users exhibit a high level of agreement with the functionality and efficacy of the Sircle social media platform.

Keywords: Spreading Information, Social media, Rapid Application Development, Universitas Multimedia Nusantara

1. INTRODUCTION

The Universitas Multimedia Nusantara (UMN) is situated in the GadingSerpong region of Tangerang Regency. The establishment of UMN dates back to 2005, and it has four distinct faculties, namely the Faculty of Engineering and Informatics, the Faculty of Art and Design, the Faculty of Business, and the Faculty of Communication Science. Based on the statistics retrieved from the PDDikti website, the total student enrollment at UMN in the year 2022 amounted to 8,415 individuals [1].

UMN students engage in many activities on campus that need the establishment of social connections. These connections serve multiple purposes, including the opportunity to

showcase their academic and creative efforts, stay informed about upcoming campus events, and conveniently identify potential study respondents. At present, the existing means of displaying students' works on campus primarily consists of bulletin boards. However, these platforms suffer from limited visibility and fail to effectively reach a wider audience. Likewise, communication regarding college events is typically disseminated through bulletin boards or infrequently utilized media platforms. Obtaining study participants may provide difficulties when students possess limited familiarity with one another.

In order to deepen comprehension of the present social dynamics among students at the UMN, an initial investigation was undertaken in the form of a survey administered using Google Forms. The survey instrument, which is provided as an attached questionnaire, was distributed among UMN students. The results are succinctly described in the following manner.

The study revealed a high level of agreement among respondents (80.66% agreement) regarding their familiarity with more than 10 students from different cohorts and programs. This finding suggests that students at UMN possess a propensity for forming connections not only within their own academic program but also across various programs. The study revealed that a significant majority of respondents (73%) expressed agreement with the notion that they have limited exposure to the creative output of students from different cohorts and programs. According to the survey results, it was discovered that a significant majority of respondents (89%) expressed strong agreement with the necessity for more visibility of the works produced by students from UMN. The study revealed a high level of agreement (90% score) among respondents regarding the effectiveness of the UMN email system in facilitating the dissemination of both academic and non-academic material to students.

The study revealed a high level of agreement among respondents (92.33% agreement) regarding their preference for reading just pertinent material from the email communications of UMN. The data revealed a significant consensus among the respondents (83.66% agreement) regarding their tendency to not consistently follow all social media accounts associated with the Student Activity Units at UMN. This phenomenon may be construed as students exclusively engaging with Student Activity Unit social media profiles that are deemed pertinent and captivating. The study revealed that participants exhibited uncertainty (with a score of 44.66%) on their frequency of reading the information posted on bulletin boards at UMN.The study revealed that a majority of respondents (71.66%) expressed agreement with the challenging nature of locating the campus bulletin boards at UMN. The study revealed that participants expressed uncertainty (with a score of 56.66%) on their inclination to attend booths or exhibitions featuring students' work at UMN.

The study revealed a high level of agreement among respondents (88.33% agreement) regarding their frequent requirement for participants in assignments or research endeavors. The analysis of further survey responses revealed that 83.33% of participants expressed a strong agreement with the notion that locating respondents via personal conversations or class groups for assignments or research is a time-consuming process. The study revealed a significant consensus among respondents, with a score of 90%, indicating a strong agreement that information obtained through digital platforms is more comprehensible in comparison to information disseminated through posters or pamphlets. The study revealed that a majority of respondents (81.33%) expressed strong agreement with the availability of information pertaining to academics, non-academics, and student works at UMN on a social media platform. This finding highlights the significant role played by social media in facilitating the distribution of information. The study revealed a high level of agreement

among respondents (score = 90.66%) regarding the potential benefits of utilizing student emails for disseminating information to other students at UMN.

The pilot study's findings show the necessity of a social hub media platform tailored to meet the specific requirements of UMN students. Hence, the present study involves the design and development of a social community media system utilizing the Rapid Application Development (RAD) approach[2]–[4]. The impetus behind the development of this novel social community media platform stems from the demand for a distinct media outlet catering specifically to the UMN student population. Moreover, the Rapid Application creation (RAD) methodology places emphasis on the efficient creation of a system within a condensed timeframe[5], [6]. This approach is characterized by a systematic process, with the ultimate goal of effectively completing the social community media system and yielding favorable outcomes[7]–[9]. The objective of this study was to develop and construct a social community media website system at UMN utilizing the Rapid Application Development approach. Additionally, the study aimed to assess and ascertain the degree of satisfaction with the front end interface of the UMN social community media website system.

2. MATERIAL AND METHODS

The study employed a case study technique to address an actual problem and afterwards propose a solution within the scope of the research. The research employed a quantitative technique, wherein data was collected from a sample of respondents who completed a pre-distributed questionnaire. The system design and development methodology employed in this study is the Rapid Application Development (RAD) approach[8], [10]. This involves several key stages, including Requirement Planning, Design Workshop, and Implementation. Subsequently, the system will undergo testing to ensure its functionality and reliability. Finally, a comprehensive report will be generated to document the entire process. This research involves several steps, including the design and enhancement of the flowchart flow, as well as the interface design, appearance, and functionality of the front end of the Sircle social media website system.

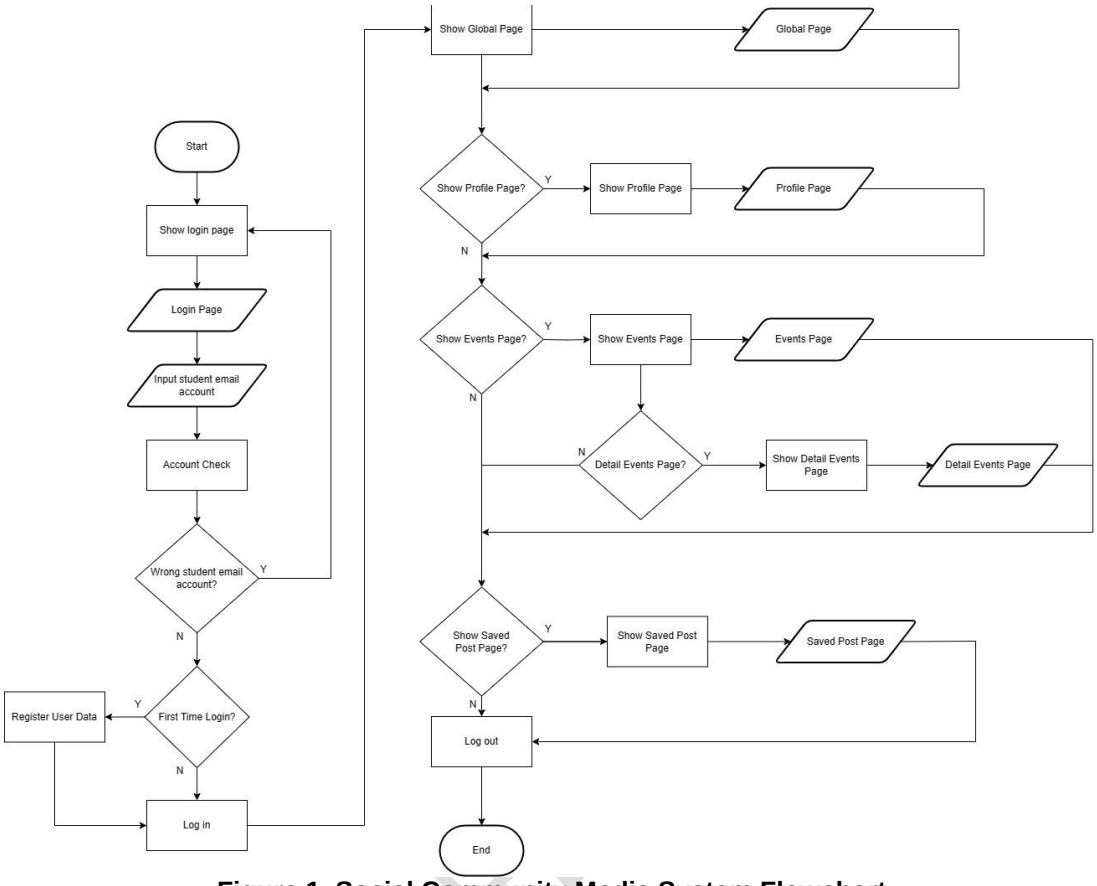
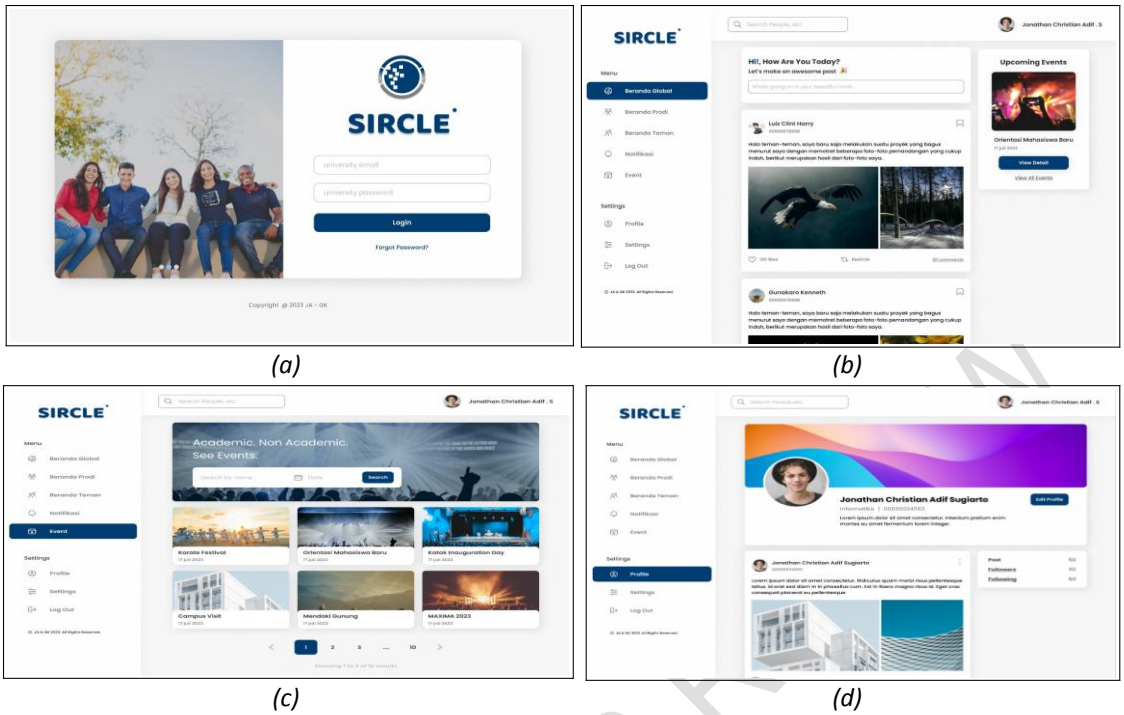


Figure 1. Social Community Media System Flowchart

Figure 1 presents a flowchart illustrating the front-end aspect of the Sircle social media community website system. The initial step involves the user logging in using their student email. Subsequently, a verification process is conducted to see if the account is associated with a student email. If the email is not recognized as a student email, the system will prompt an appropriate response. Proceed to navigate to the login interface and proceed with the process of logging in once more. In the event that a user is accessing the Sircle social media community website system for the first time, it is necessary for them to complete the registration process by providing user data, including the selection of a student email and the creation of a password. However, if the user has previously registered, they only need to select their student email and subsequently gain access to the system. The social media website is round in shape.The interface design display refers to the preliminary design created prior to the development of a system in a research project. Screenshots of the interface design presentation of the Sircle website system are depicted in Figures 1 to Figure2.



(a) *(b)*

(c) *(d)*

Figure 2 Sircle Website User Interface display design

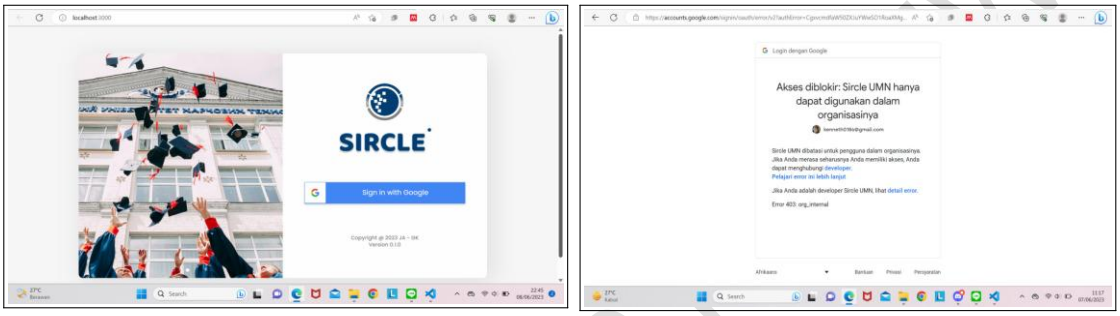
Figure 2a presents the User Interface (UI) design of the login page on the Sircle social media community website system. The login page is divided into two grids. The left grid features a collection of photos that can be navigated using a slider. On the right grid, the Sircle logo is displayed alongside forms for entering email and password, as well as login buttons. Figure 2b presents the user interface (UI) design of the Global page. The design includes a left sidebar containing multiple menus from the Sircle website system. Additionally, a navbar is positioned above, featuring a search functionality implemented using the tailwind css form. On the left side of the UI, a user's photo and name are displayed. In the middle, there is a prominent card that facilitates post creation. When clicked, this card reveals a post maker feature, designed using Tailwind css. Below the card, various posts made by other users are displayed. Adjacent to these articles, there exists a card that encompasses pertinent details regarding the forthcoming event. Additionally, a button is provided to facilitate navigation to the Event website, where users can get a more comprehensive elucidation of the event.

Figure 2c depicts the user interface (UI) display design of the Events page. Located at the uppermost section of the interface is a filter functionality that enables users to conduct event searches and refine their results based on the event date. Directly beneath this feature, users will find a series of visually presented cards, each containing pertinent details such as the event name, date, and an accompanying image, pertaining to forthcoming events. The subsequent element depicted in Figure 2d pertains to the user interface (UI) design of the Profile page. Positioned at the upper section is a backdrop derived from the user's profile, accompanied by a circular user profile photograph. Adjacent to this visual representation, pertinent details such as the user's name, major, and NIM (Student Identification Number) are provided. Additionally, a "edit profile" button is situated in close proximity, enabling the user to modify their profile information. The content is partitioned into two distinct grids, wherein the left grid encompasses the posts generated by the user in question, while the

right grid provides details pertaining to the quantity of posts, followers, and other users that the aforementioned user has chosen to follow.

3. RESULTS AND DISCUSSION

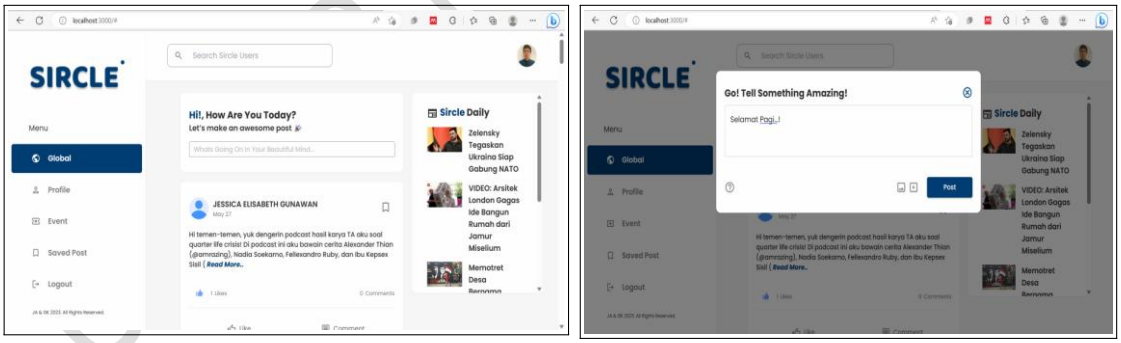
In the Implementation section, the visual representation of the Sircle social media community website system will be presented based on the previously developed flowchart design. The outcomes of the implementation of the login page display on the Sircle website system are depicted in Figure 3a. The login button allows users to log in using a Google account, specifically requiring the use of a UMN student email account. In the event that a user attempts to log in with a non-student email account, the access view will be obstructed, as illustrated in the figure. In Figure 3b, as depicted in the diagram.



(a) *(b)*

Figure 3. Login Page display design

Figure 4a presents the outcome of implementing the Global page display feature on the Sircle website system. This feature includes a form that facilitates the creation and dissemination of information, as depicted in Figure 4b. Additionally, the main page of the website showcases a compilation of information posted by other users. Furthermore, users can access a column dedicated to news and general information.



(a) *(b)*

Figure 4. Main page display design with post and news views

The present study aims to assess the social media community website system using quantitative approaches. To achieve this, the Google Form platform will be employed to design a questionnaire, which will subsequently be disseminated to a sample of 43 participants. The questionnaire items were categorized into two distinct sorts, which were determined by the method of user acceptability testing[11], [12]. These types included perceived utility, which focused on the program's functionality, and perceived satisfaction, which assessed the user's contentment with using the application[13]–[15]. The response

criteria for the questionnaire employed a Likert scale consisting of five points, ranging from 1 to 5. These points corresponded to the following levels of agreement: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. Upon receiving the responses from the participants on the survey instrument, the subsequent stage involves computing the percentage outcomes derived from the questionnaire answers through the utilization of the Likert scale formula.

Table 1 presents the aggregated data obtained from the distribution of questionnaires to a total of 43 participants. The questionnaires consisted of inquiries pertaining to the perceived usefulness of the subject matter[16], [17]. The categories of inquiries within the construct of perceived usefulness mostly pertain to the extent to which users employ the system, as measured by a Likert scale ranging from 1 to 5.

Table 1. The Results of the Perceived Usefulness Questionnaire

Question	1	2	3	4	5
The SIRCLE social community media system helps me get to know other students at UMN.	0	0	2	22	19
The SIRCLE social community media system makes content and works of UMN students more exposed.	0	0	1	15	27
The SIRCLE social media system makes it easier and more relevant to receive information related to the academic community, both academically and non-academically.	0	0	4	24	15
The "Sircle" social community media system simplifies and shortens the time to find information related to the UMN academic community both academically and non-academically.	0	0	5	19	19
The SIRCLE social community media system makes dissemination of information related to the UMN academic community both academically and non-academically easier and saves time.	0	0	4	16	23

Once the questionnaire results in Table .1 have been obtained, the subsequent procedure involves determining the total number of Likert scales for each question pertaining to perceived usefulness, as presented in Table .2. Specifically, each question is assigned a corresponding label, such as P1 for question 1, and so forth until P5. The total value of the Likert scale is then computed by multiplying the scale value (likert) by the number of respondents who selected that particular scale.

The calculation for determining the percentage involves dividing the cumulative score of the questions by the total number of respondents and then multiplying the result by the maximum value of the Likert scale. The findings presented in Table 3 illustrate the computed percentages for each question, yielding an average percentage of 88.67. Based on these results, it can be inferred that the respondents strongly agreed with the perceived usefulness of the questionnaire.

Table 4 presents the aggregated outcomes obtained from the distribution of questionnaires to a total of 43 participants, focusing on inquiries pertaining to perceived pleasure. The categories of inquiries pertaining to perceived satisfaction mostly pertain to the level of satisfaction experienced by users when utilizing the system, as measured on a Likert scale ranging from 1 to 5.

Table 2. Perceive Satisfaction Questionnaire Results

Question	1	2	3	4	5
I am satisfied with the display quality of the SIRCLE social community media system.	0	0	4	17	22
The SIRCLE social community media system is interesting to use.	0	0	3	14	26
The functionality of the SIRCLE social community media system is what I expected.	0	0	5	19	19
I feel that SIRCLE's social community media system needs to be leveraged.	0	0	4	14	25
The features of the SIRCLE social media system are not difficult to learn to use.	1	0	4	15	23
I would recommend the SIRCLE social media community system to be used by friends of the UMN academic community.	0	0	4	15	24

Once the questionnaire findings in Table 1 have been obtained and recorded, the subsequent task involves determining the aggregate count of the Likert scale responses for each topic pertaining to perceived pleasure. The subsequent procedure involves determining the percentage outcomes derived from the total count of Likert scales on the questionnaire, employing the Likert scale formula. The calculation for determining a percentage involves dividing the cumulative score of a given question by the total number of responders, and subsequently multiplying this quotient by the maximum value on the Likert scale. Table 3 presents the outcomes derived from the computation of the proportion for each question, yielding an average proportion of 88.67. Consequently, it can be inferred that the findings of the survey on perceived satisfaction are I am in complete agreement.

4. CONCLUSION

The research findings indicate that the Sircle social community media website has been effectively designed and developed using the Rapid Application Development method. The results of the User Acceptance Testing conducted at UMN demonstrate a high student acceptance rate, with 88.08% perceiving the usefulness of the website and 88.67% expressing satisfaction. These findings strongly support the notion that the Sircle social community media system is highly functional and satisfactory.

COMPETING INTERESTS DISCLAIMER:

AUTHORS HAVE DECLARED THAT THEY HAVE NO KNOWN COMPETING FINANCIAL INTERESTS OR NON-FINANCIAL INTERESTS OR PERSONAL RELATIONSHIPS THAT COULD HAVE APPEARED TO INFLUENCE THE WORK REPORTED IN THIS PAPER.

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