From Social Media to Education: Developing a Specialised Social Networking System for Collaborative Learning

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ABSTRACT

Social networking sites (SNSs) are widely adopted due to their diverse functionalities, such as communication, collaboration, content sharing, and news dissemination. Despite their popularity, general-purpose SNS platforms often present challenges in educational contexts, including distraction and addictive usage patterns that may hinder student performance. To address these issues, this study proposes the development of a customised Social Networking System facilitating collaborative learning in higher education. The system enables students and lecturers to communicate effectively, share learning materials, and spread academic updates in a cohesive institutional setting. Usability testing was conducted to evaluate students' intention to use the system and their satisfaction with its functionality. Results reveal that the system successfully meets user requirements in terms of ease of use, perceived usefulness, interface adequacy, and overall functionality. This specialised SNS offers a practical solution for promoting collaborative learning and has the potential to improve student involvement and academic performance.

Keywords-Social Networking System, Collaborative Learning, Educational Technology, System Usability Testing

INTRODUCTION

Social networking sites (SNSs) have deeply changed daily life across the globe. The ability to instantly connect and communicate has allowed these platforms to rapidly grow. They offer ways to share information and help people grow as individuals. Beyond providing entertainment, SNSs are useful for career networking, trend creation, and community building for shared interests. They have also changed business marketing and opened doors in education. Today, these platforms are used daily to share life updates, photos, and videos. Popular sites such as Facebook, Instagram, and Twitter are at the centre of global communication, enabling easy messaging and media sharing. Research indicates that even academics are utilising social media for various personal, professional, and teaching purposes [1].

In recent times, educators have begun to become increasingly aware of the significant benefits that social media offers for teaching and learning purposes [2]. SNSs are now key tools for group learning. They not only allow information to be shared but also foster environments where problems can be solved. However, using social networks in the classroom comes with its advantages and disadvantages. On the positive side, social media platforms can enhance collaboration and communication among students and their teachers. Research by [3] evidently showed that integrating online social media into collaborative learning significantly improves peer and instructor interaction that fosters sharing of knowledge. These engagements may result in increased student participation, having a beneficial effect on outcomes in studies.

Despite these benefits, research shows that SNSs remain underutilised for learning purposes. While these platforms have a lot to offer for educational activities, in reality they are primarily used for social interaction rather than academic engagement. Additionally, active use of these platforms may cause distraction and

addiction, which can negatively impact student behaviour, as students view them more for entertainment than education [4]. Prior research [5] has also identified negative impacts on academic motivation and engagement, such as procrastination and reduced involvement in academic tasks. For instance, [6] found that student participation in WhatsApp-based collaborative learning was limited, despite their awareness of its benefits. Although students use WhatsApp actively in their daily lives, they tend to be passive in group learning settings and are not very much into active, independent and collaborative learning. In addition, [7] highlighted that cyberbullying can play a role in nullifying the positive results of social media on academic performance by damaging the connection between participation and innovation. These challenges underline the need for strategies that minimise the negative consequences of SNS use in the academic settings.

SNSs offer collaborative learning tools, promote interaction between students and teachers, and also have a simple learning curve, which in turn makes them very useful and easy to use in e-learning research and practice. Nevertheless, they are not specifically designed to support educational activities. According to [8], most educators remain sceptical about the usage of social media for student-teacher communication, as they often view these platforms as informal and unsuitable for instructional purposes.

To address these limitations, this paper introduces the Student Social Networking Site System (SSNSS)**,** a web-based platform designed specifically to support collaborative learning in higher education. SSNSS is for members of the academic community, which includes students, lecturers and staff. It provides a structured environment for communication and collaboration through resource sharing and involvement in campus-related activities, mostly within the same faculties and classes. The platform enables students to form meaningful educational connections no matter their physical location, thus improving the learning experience through an inclusive and efficient system. By putting forward collaborative learning as a priority, SSNSS also seeks to mitigate the negative impacts that traditional SNSs have on student behaviour, while simultaneously fostering significant improvements in engagement, communication and academic performance.

Related Works

In higher education, social media platforms have been widely adopted to support collaborative learning. Among these, WhatsApp has emerged as one of the most innovative and effective tools. Research shows that WhatsApp facilitates group collaboration and improves student performance, particularly in technical courses such as internet programming for information technology students [9][10]. In another study, WhatsApp was integrated into a course for weekly pre- and post-lecture discussions and gradable homework. The findings demonstrated that students were more engaged with coursework and that using WhatsApp for graded projects enhanced collaborative learning and promoted active participation before and after lectures [11].

Beyond messaging applications, other social networking sites have also been explored in educational contexts. In Ghana, [12] examined how SNSs impact higher education. Based on their findings, these platforms improved students' grades, with YouTube being the top choice, followed by Facebook and Twitter. Similarly, [13] investigated the potential of Facebook Groups (FGs) as an alternative to traditional learning management systems (LMSs). Their results showed that teachers thought Facebook Groups were easy to use, useful, and could build teamwork in learning. Furthermore, [2] noted a growing interest in using Facebook for education, as it has better teaching tools and an increasing number of active users.

As social media applications evolve, their educational uses are being explored on newer platforms. For instance, [14] found that when students used Instagram, Pinterest, Snapchat, and WhatsApp for educational purposes, they were primarily engaged in content creation and peer learning, or assessment discussions. In addition, [15] showed that TikTok could be a good way to teach, especially for classes on body language. Expanding this perspective, [16] investigated SNS usage patterns in higher education across six institutions in the United Arab Emirates (UAE), Malaysia, and Pakistan. Their results revealed that one-third of students actively used SNSs for education, and nearly half regarded them as effective learning tools. Students also reported benefits such as information gathering, networking, collaborative learning, and engagement in communities of practice.

Other research has focused on discipline-specific uses of SNSs. For example, [17] analysed the integration of Facebook as a Web 2.0 tool in foreign language teaching, particularly for English instruction at higher educational institutions. The study highlighted multiple benefits, including increased student engagement, improved academic performance, enhanced cross-cultural awareness, and greater satisfaction with the learning process. These findings underscore the potential of SNSs to enrich both motivation and achievement in education.

As a whole, past research demonstrates that SNSs can play a significant role in higher education by promoting collaboration, supporting active learning, and improving academic performance across many disciplines and settings. However, for the most part these studies are based on general-purpose platforms like WhatsApp, Facebook, YouTube and TikTok, which were not originally designed for educational use. While effective in some situations, these platforms present issues of distraction, passive participation and also questions of sustainability and institutional acceptance. This puts forth a research gap: the need for dedicated, education-focused social networking systems that are explicitly designed to support collaborative learning within higher education. To address this gap, the study presents the Student Social Networking Site System (SSNSS), a custom-made web-based platform which gives structure, purpose and sustainable collaborative learning for students and staff.

METHOD

This study employed an Agile software development methodology to guide the iterative design and implementation of the Student Social Network Site System (SSNSS). Agile was chosen for its adaptability, user-centred focus, and its ability to change with ongoing feedback as requirements evolve.

The development process was structured into five key phases:

1. **Analysis** - User needs were gathered through interviews and surveys, leading to the identification of core features such as registration, group management, and content sharing.
2. **Design** - A three-tier system architecture was designed, and user interface prototypes were developed to ensure a responsive and intuitive experience.
3. **Development** - Features were implemented incrementally in short sprints, allowing early delivery of functional modules and continuous integration.
4. **Testing** - Unit, integration, and usability testing was conducted in each sprint to ensure system reliability and user satisfaction.
5. **Evaluation** - User feedback was collected and analysed to refine the system and guide future improvements.

Agile's iterative approach enabled the development team to remain flexible to user input. This ensured the SSNSS evolved in alignment with stakeholder expectations and educational goals.

PROPOSED SOLUTION MODULE

The Student Social Network Site System (SSNSS) is a web-based application developed to function as an effective educational tool, integrating key features such as peer collaboration, academic resource sharing, information dissemination, and real-time communication tools to support collaborative learning. Table 1 presents the five main functional modules, each supporting specific operations essential for collaborative and academic engagement:

TABLE I FUNCTIONAL REQUIREMENTS OF THE SSNSS

Features	Functions
User, Faculty, Programme, and Subject Management	Administrators can manage user, faculty, programme, and subject records, with both bulk uploads and individual entries supported.

Event Management	Administrators manage event records, while users can view and track campus activities.
Post Management	Users (administrators, lecturers and students) can create, edit, delete, and view posts in multiple formats (text, URLs, images, videos, and files). Posts may be liked and commented on, encouraging interaction.
Group Chat Management	Lecturers can create and manage group chats, while students can join groups, exchange messages, and share multimedia content. This fosters peer-to-peer collaboration and supports both academic and social connections.
Resource Management	Lecturers can upload, update, and delete learning resources (assignments, tutorials, quizzes, lab work and past papers), while students can access and download them within group spaces.

Fig. 1 illustrates the context diagram of the Student Social Network Site System (SSNSS), providing a high-level overview of the system's data flow and interactions. The diagram identifies four key entities: the administrator, lecturer, student, and the SSNSS platform itself. Students and lecturers serve as primary data sources, providing input such as profile details, post content, chat messages, uploaded tutorials, academic resources, past year examination questions, and group chat information. The SSNSS processes this data to generate outputs tailored for each user. Students and lecturers receive profile notifications, post updates, chat communications, downloadable tutorials and resources, access to past year questions, and group chat information. The administrator manages the system, ensuring data integrity, user management, and content moderation. This context diagram captures the bidirectional flow of information, emphasising SSNSS's role as a centralised platform for collaborative learning and academic engagement.

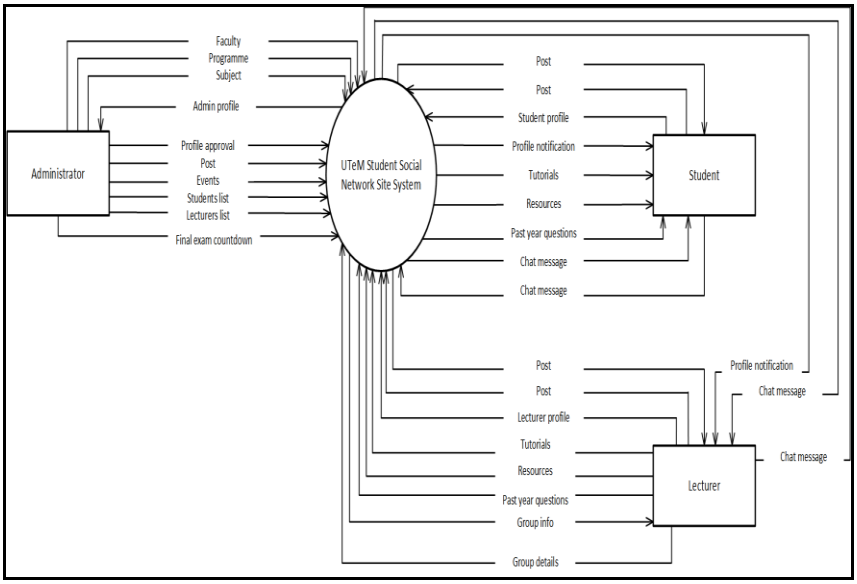

Fig. 1. The context diagram for the Student Social Network Site System

Figs 2–17 illustrate selected interface prototypes. For example, Figs 2–7 depict administrator dashboards for managing users, faculties, programmes, subjects and events; Figs 8–10 present the layout for post creation by administrators, lecturers and students; Figs 11–15 show the group chat interfaces enabling lecturers to create and manage groups, students to join them, and both lecturers and students can post and view messages; and Figs 16–17 illustrate resource management screens, where lecturers can manage learning resources and for students to view and download them. These interfaces were iteratively refined through user feedback, supporting the Agile principle of continuous improvement.

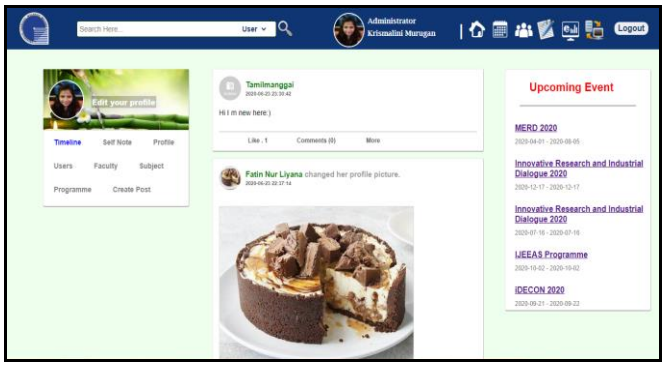

Fig. 2. Admin Home Page

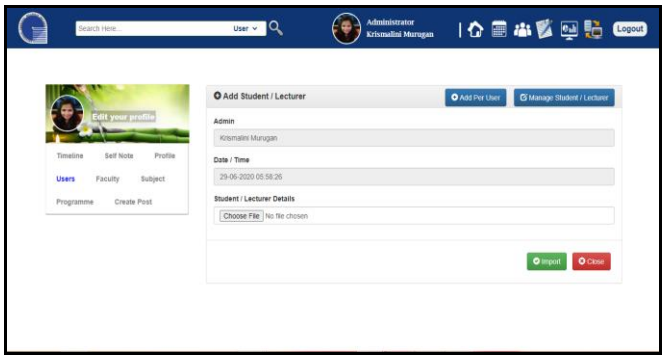

Fig. 3. Admin User Registration Page - Add New Users

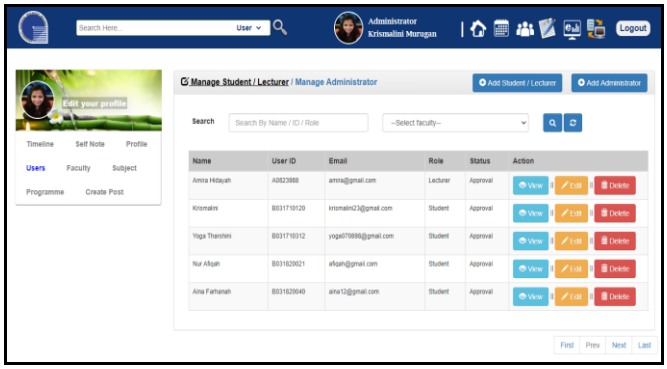

Fig. 4. Admin User Records Page - Manage User

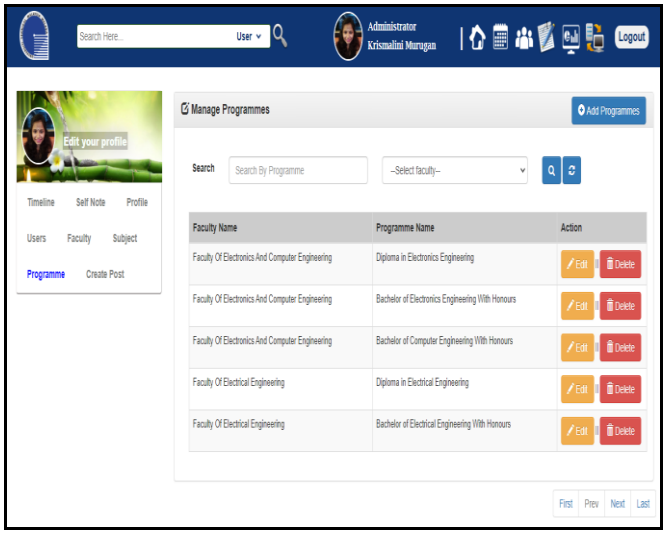

Fig. 5. Programme Management Page -View and Manage Programme

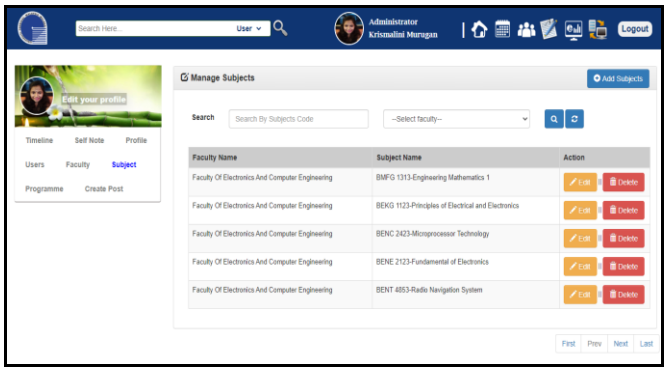

Fig. 6. Subject Records Page - Manage Subject

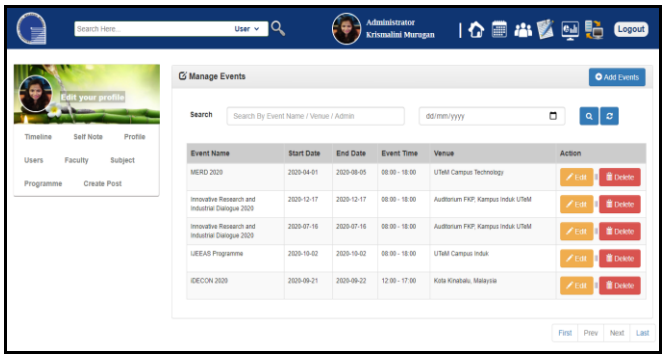

Fig. 7. Event Records Page - Manage Event

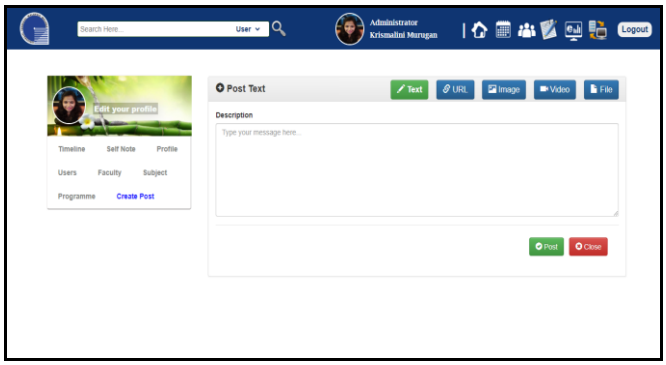

Fig. 8. Admin Posts Page - Create Posts

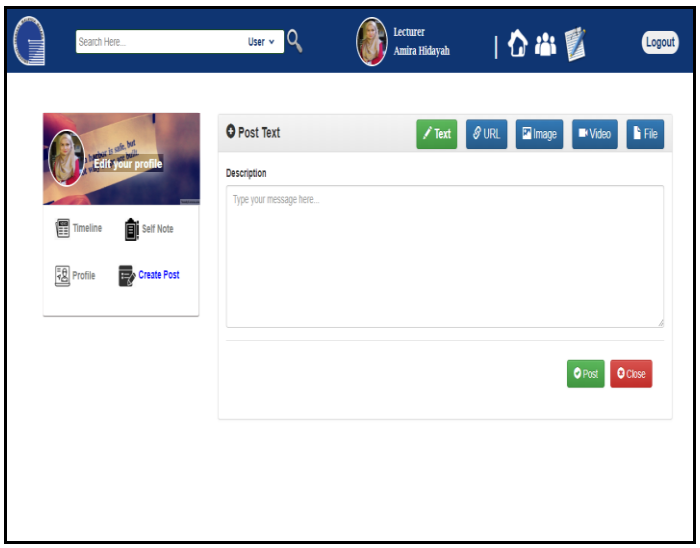

Fig. 9. Lecturer Posts Page - Create Posts

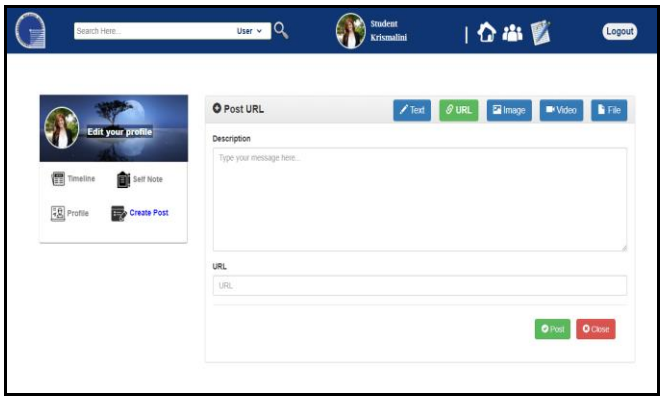

Fig. 10. Student Posts Page - Create Posts

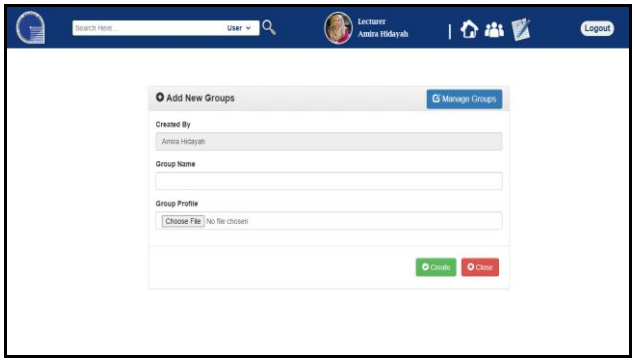

Fig. 11. Lecturer Group Page - Create New Groups

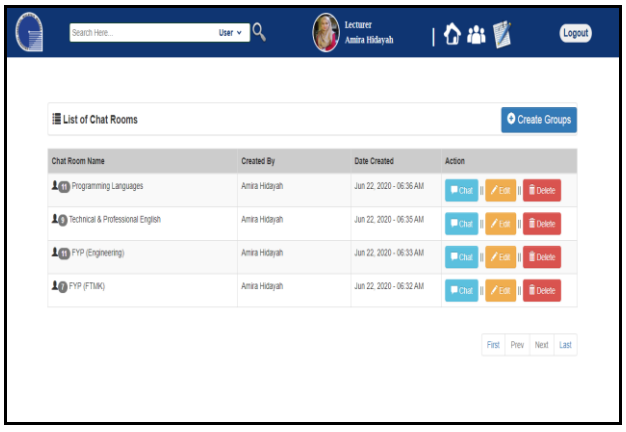

Fig. 12. Lecturer Group Page - Manage Groups

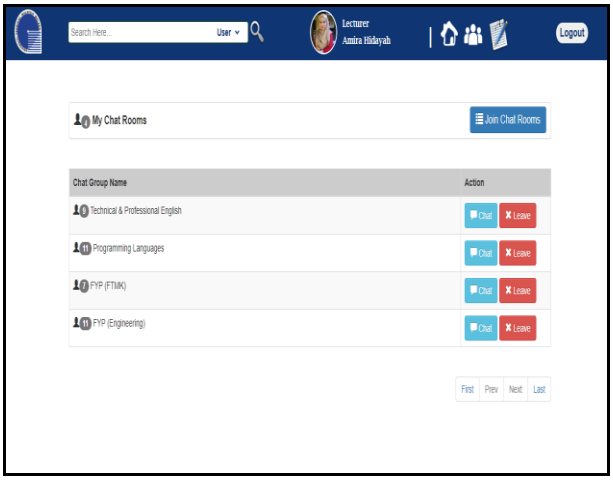

Fig. 13. My Chat Room Page - View Joined Groups

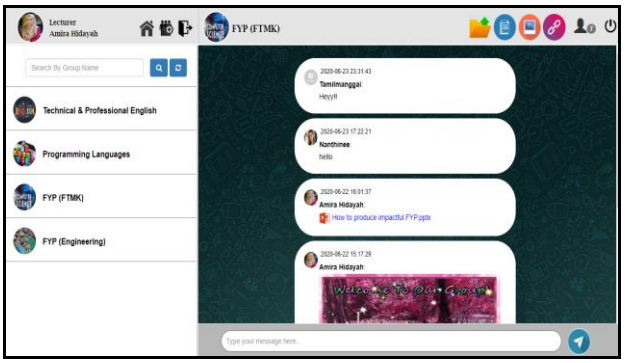

Fig. 14. Lecturer Group Chat Page - View and Post Messages

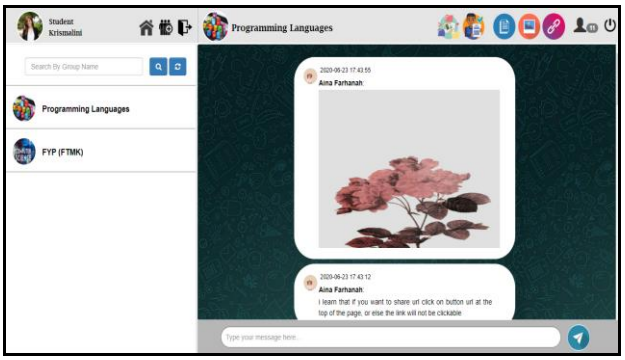

Fig. 15. Student Group Chat Page - View and Post Messages

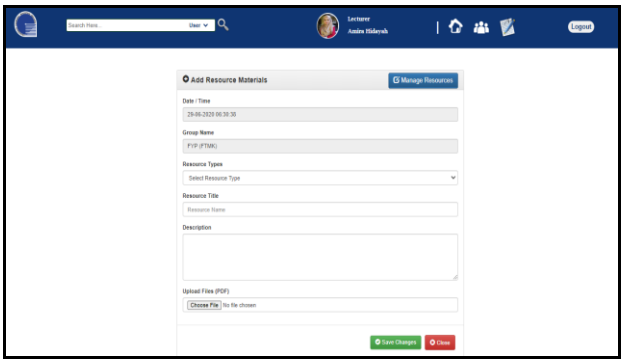

Fig. 16. Lecturer Resource Page - Manage Resources

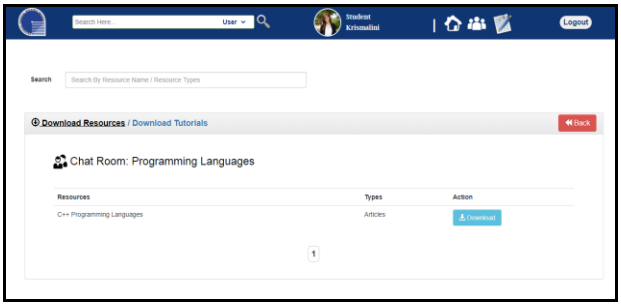

Fig. 17. Student Resources Page -View and Download Resources

System Usability Test

To validate whether the Student Social Networking Site System (SSNSS) met the agreed-upon requirements, a usability test was conducted using an online survey. The objective of this testing was to assess the intention and satisfaction levels of prospective users in terms of ease of use, usefulness, interface adequacy, and system functionality.

Questionnaire Design

The questionnaire consisted of two parts. Part 1 collected demographic information, while Part 2 focused on the usability and functionality of system features. A total of 25 items were included, divided into five constructs: demographic information, perceived ease of use, perceived usefulness, interface adequacy, and system functionality (Table 2). All items were measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

A total of 30 students from a Malaysian public higher education institution participated in the survey. Each participant was asked to explore the SSNSS for 15–30 minutes before completing the questionnaire to ensure familiarity with its functions.

TABLE 2 QUESTIONNAIRE CONSTRUCTS AND ITEMS

Construct	Questionnaire Items	Question No
Demographic	Gender, Faculty, Year of Study	-
Perceived Ease of Use	It was simple to use this system; It was easy to learn; The interface supported performing functions; I felt secure and comfortable using the system; The system responded consistently and predictably;	Q1-Q5
Perceived Usefulness	The system supports collaborative learning; It enables communication and cooperation with peers/lecturers; It allows social interaction; It provides education-related information; The system is useful for meaningful educational purposes, messages, and sharing multimedia content;	Q6-Q10
Interface Adequacy	The screen layouts were helpful; The information displayed was sufficient; Navigation was easy; The interface was pleasant; The layout was user-friendly;	Q11-Q15
System Functionality	The system supports group discussions, collaborative learning, knowledge sharing, access to resources, event information, and media/file sharing; It enables communication and social interaction with peers and lecturers; It provides education-related information and meaningful educational purposes;	Q15-Q25

RESULTS

Demographic Information

The demographic analysis provided an overview of respondents' profiles. Approximately 80% of participants were female (Figure 18). In terms of faculty distribution (Fig. 19), 53.3% were from FTMK, 26.7% from FKEKK, 10% each from FTKMP and FTKEE, while no responses were recorded from FKP, FKE, FKM, or FPTT. Fig. 20 illustrates that respondents were primarily in their second to fourth year of study.

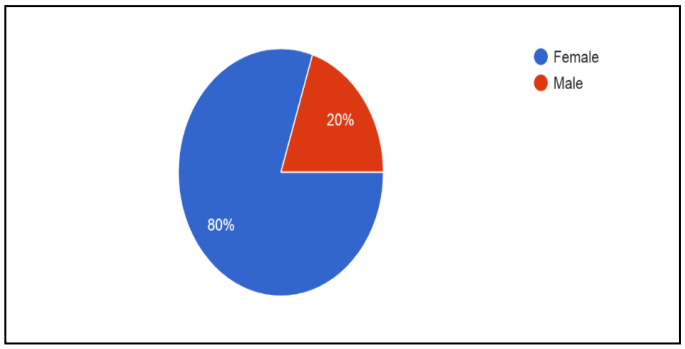

Fig. 18. Percentage of Respondents by Gender

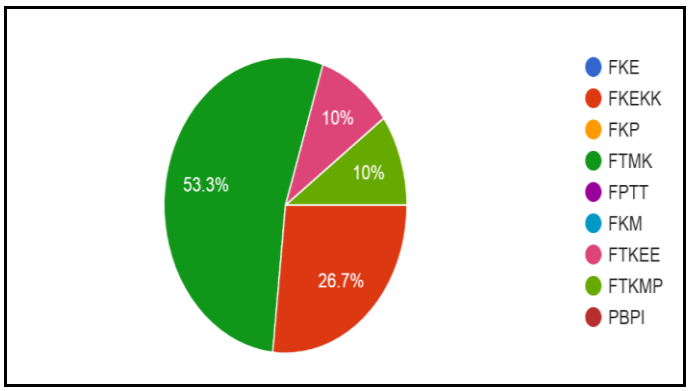

Fig. 19. Percentage of Respondents by Faculty

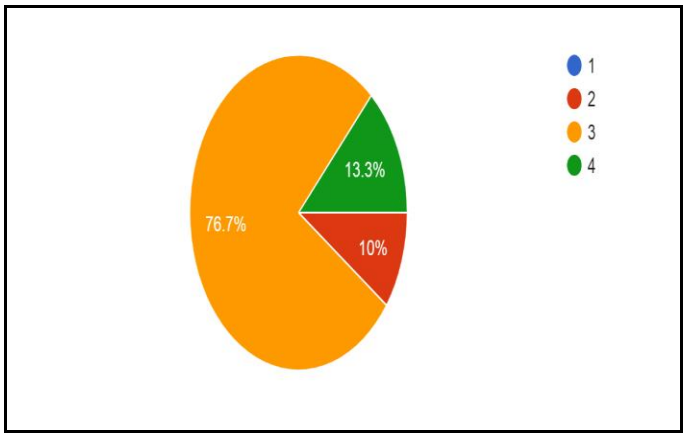

Fig. 20. Percentage of Respondents by Year of Study

Perceived Ease of Use

As shown in Fig. 21 all respondents agreed or strongly agreed with the ease-of-use statements. On average, 71% strongly agreed while 29% agreed, confirming that the system was simple and comfortable to use.

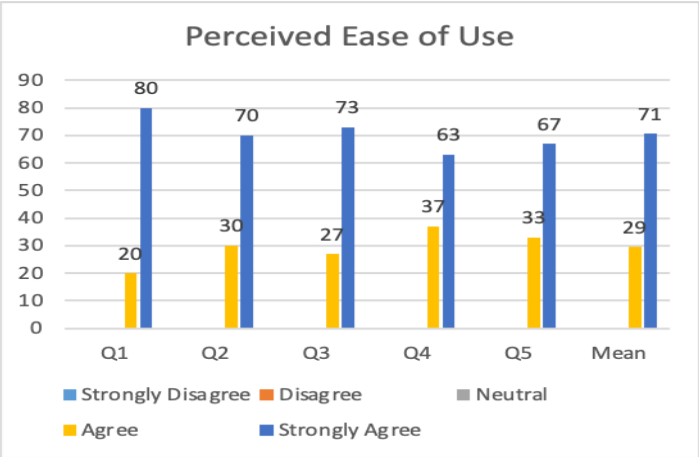

Fig. 21. The result for Perceived Ease of Use

Perceived Usefulness

Fig. 22 shows that 76% strongly agreed**,** 22% agreed**,** and 2% were neutral**.** The results indicate that the SSNSS was widely perceived as effective for collaborative learning, communication, and educational engagement.

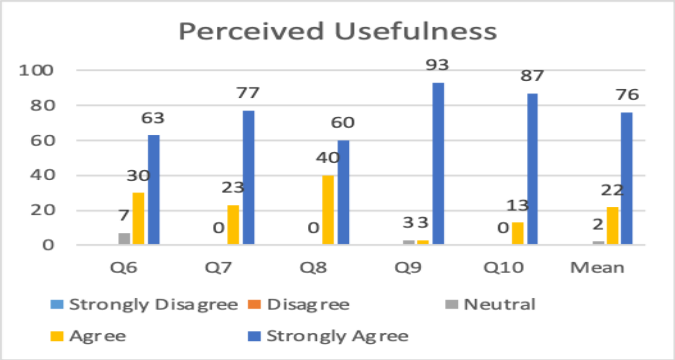

Fig. 22. Testing Result for Perceived Usefulness

Interface Adequacy

Results in Fig. 23 indicate that 76% strongly agreed**,** 22% agreed**,** and 2% were neutral regarding interface adequacy. This suggests that the layout, navigation, and overall design were effective and user-friendly.

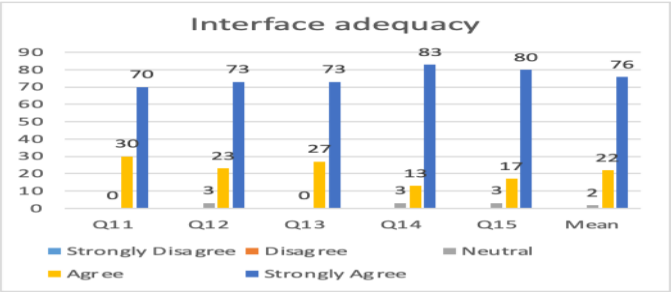

Fig. 23. Testing Result for Interface Adequacy

System Functionality

As presented in Fig. 24, 77% strongly agreed**,** 21% agreed**,** and 2% were neutral regarding system functionality. This demonstrates that the SSNSS effectively supported group discussions, collaborative learning, knowledge sharing, and access to educational resources.

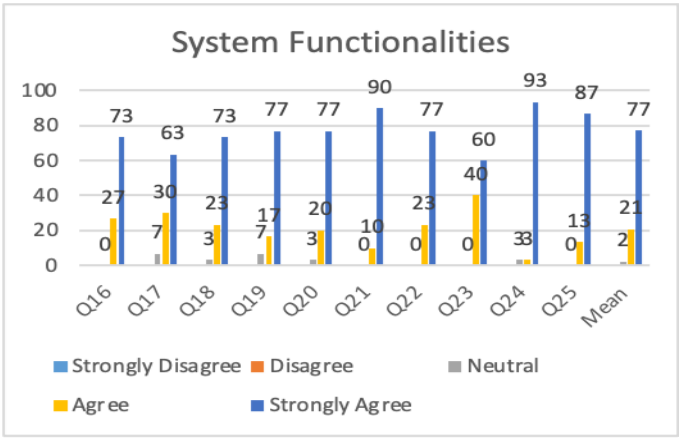

Fig. 24. Test Results for System Functionalities

Overall, the usability test results showed that the SSNSS met user requirements across all four constructs: ease of use, usefulness, interface adequacy, and functionality. The findings highlight a positive user perception, suggesting strong readiness to adopt the system for collaborative and educational purposes.

CONCLUSION AND FUTURE WORK

The Student Social Networking Site System (SNSS) was proposed as an educational platform designed to foster communication and collaboration between students and staff, support the exchange of ideas and information, present access to academic resources, and report on campus activities and events. As opposed to large-scale social networking platforms which have a general audience, the SNSS is designed specifically for use in academic settings. It allows for the interaction between students and academic staff, resource sharing, and a support structure in a secure and organised setting. By addressing the limitations of conventional social media tools, the SNSS gives higher education a dependable way to improve group learning.

The system carries several potential benefits, including increasing student engagement, enriching academic discussions, improving access to course materials, and making teaching and learning practices more efficient and effective. It creates an integrated space that promotes communication between students and instructors, facilitates the exchange of knowledge and information, and highlights academic achievements.

It should be noted despite its potential, there are a number of limitations. First, scalability of the system is still a major concern. A robust infrastucture, effective database management, and optimisation techniques to avoid lantency and downtime will be necessary to ensure dependable performance when scaled to thousands of users across multiple institutions, even though the prototype may work well within a single institution or with a small user base. Another difficulty is integrating with current learning platforms. The majority of universities already use well-known learning management systems (LMS), like Canvas or Moodle. For instructors and students to adopt SNSS features seamlessly, it will be crucial to align them with these platforms while preserving interoperability and avoiding redundancy. Third, organisational and policy-related challenges are introduced by cross-institution adoption. Widespread adoption may be restricted by differences in IT policies, privacy laws, and institutional goals among colleges. For wider adoption, it will be essential to develop a system that is adaptable, customisable, and can be used in many institutional contexts.

Future work will adopt an experimental approach using the SNSS prototype as a learning tool. The aim is to evaluate its impact on student engagement, academic performance, and overall educational results. This empirical validation will provide further evidence of the system's value and guide enhancements for broader adoption across educational institutions. Future developments will also look into governance models that facilitate inter-institution cooperation, scalable cloud-based solutions, and integration frameworks with existing LMS platforms. The SNSS may develop into a widely used, reliable educational tool that can transform collaborative learning in higher education by carefully addressing these issues.

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