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KEMENTERIAN PENDIDIKAN TINGGI



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CFSync: Buddy Study Hub

Che Sufieya Mohd Nazrie, Wan Irdina Wan Mohammad Termizi, Kamaril Azlah Teruk, Nik Syakirah Auni Mohd Zulkifli, Hannah Hadirah Mohd Noor

Centre for Foundation Studies, International Islamic University Malaysia, 26300 Gambang, Pahang, Malaysia

*kamaril@iium.edu.my

ABSTRACT

Students frequently encounter barriers to effective learning outside the classroom, including hesitation to ask questions, difficulties in maintaining independent study, and limited opportunities for peer collaboration. These challenges can undermine both academic performance and self-confidence. To address these issues, this study introduces CFSync: Buddy Study Hub, a structured digital platform designed to strengthen peer-to-peer learning. The platform integrates four key features: a Subject Hub for resource access, a Discussion Board for peer interaction, a Progress Tracker to monitor academic development, and Volunteering Options to encourage community engagement. The study examines students' engagement, perceived usability, and overall satisfaction with CFSync. A mixed-methods design was employed using convenience sampling. Data were collected through a structured questionnaire that combined Likert-scale items with open-ended questions, enabling both quantitative measurement and qualitative insights. Quantitative data were analyzed using descriptive statistics, while qualitative feedback provided a deeper context by highlighting students' experiences. By integrating statistical evidence with student perspectives, the findings demonstrate that digital peer-learning environments can effectively enhance academic success and foster greater motivation.

Keywords: collaborative knowledge-building, digital platform, student engagement, motivation, thematic analysis

1. INTRODUCTION

Students often face barriers to effective learning beyond the classroom, such as reluctance to ask questions, difficulty sustaining independent study, and limited peer-learning opportunities. These challenges weaken collaboration and self-confidence. At the same time, digital communication tools have become central to education, enabling asynchronous discussions and cross-location collaboration that make peer learning more inclusive and sustainable. The scope of this study is to evaluate students' engagement, perceived usability, and satisfaction with CFSync: Buddy Study Hub, a digital platform designed to support peer-to-peer learning.

Grounded in Vygotsky's (1978) Social Constructivism, with the Zone of Proximal Development emphasizing collaborative learning, this study embeds these principles into a digital ecosystem (Cutcliffe et al., 2024). CFSync integrates a Subject Hub, Discussion Board, Progress Tracker, and Volunteering Options to foster academic collaboration, confidence, and social responsibility. Recent scholarship highlights the importance of peer learning and digital platforms. Collaborative learning improves participation and motivation (Li, 2025; Akpen et al., 2024), peer activities enhance employability (Christie et al., 2024), and platform

effectiveness depends on infrastructure and support (Brugliera, 2024). These findings underscore the relevance of structured ecosystems like CFSync in modern education.

A mixed-methods research design was employed, using convenience sampling to recruit participants. Data were collected through a structured questionnaire combining Likert-scale items and open-ended questions. Quantitative data were analyzed with descriptive statistics, while qualitative responses provided contextual depth. The results reveal that students reported positive engagement, found the platform usable, and expressed overall satisfaction. Quantitative analysis showed improved motivation and collaboration, while qualitative insights emphasized reduced hesitation to seek help and a stronger sense of community. Together, these findings demonstrate that digital peer-learning environments can effectively enhance academic success, confidence, and collaborative learning. By situating peer learning within a digital ecosystem, this study contributes to SDG 4 (Quality Education) by promoting inclusive, equitable, and engaging learning opportunities, and to SDG 10 (Reduced Inequalities) by enabling accessible collaboration across diverse student groups.

2. METHODOLOGY

2.1 Research Design

Buddy Study Hub. Mixed-methods designs are increasingly recognized for their ability to capture both measurable outcomes and nuanced perspectives, thereby strengthening the validity of educational research (Bakhsh et al, 2024).

2.2 Website Design and Development

The CFSync platform was designed as a web-based application to facilitate peer-to-peer learning. The design process followed user-centered design (UCD) principles, ensuring that student needs guided the development of features and interface (Hernández, 2024). To enhance accessibility and visual appeal, the platform's layout and interactive elements were developed using Canva, a widely adopted design tool that supports collaborative prototyping and responsive design. Canva allowed for the creation of intuitive dashboards, discussion boards, and progress trackers with consistent visual themes, ensuring usability across devices.

The platform incorporated: a) Subject Hub: A structured repository for resources and materials; b) Discussion Board: Interactive forums for asynchronous communication; c) Progress Tracker: Visual dashboards to monitor academic growth and d) Volunteering Options: Modules encouraging community engagement and service learning. Iterative prototyping and pilot testing were conducted with small student groups to refine usability and functionality before full deployment (Christie et al, 2024).

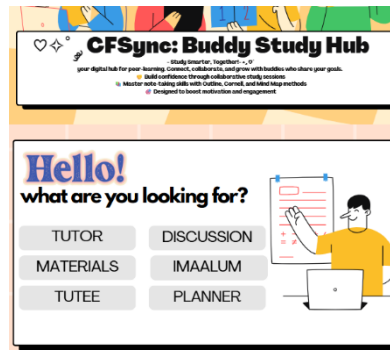


Figure 1. Front Interphase of Cfsync

2.3 Sampling and Data Collection

A convenience sampling strategy was employed to recruit participants. This approach ensured accessibility and feasibility within the study's timeframe, while still capturing diverse student backgrounds. Although convenience sampling may limit generalizability, it remains a practical choice for exploratory studies in digital learning contexts (Zhang et al, 2024). Data were collected through a structured questionnaire comprising two components: a) Quantitative items: Likert-scale questions measured students' engagement, perceived usability, and satisfaction, and b) Qualitative items: Open-ended questions invited students to share personal experiences, challenges, and reflections on peer collaboration through digital communication.

The questionnaire was distributed online to align with the digital nature of the study and to maximize participation. Online surveys remain effective for capturing student perspectives in technology-enhanced learning contexts (Mertens, 2024).

2.4 Data Analysis

Quantitative data were analyzed using descriptive statistics (means) to identify patterns in engagement, usability, and satisfaction. While the qualitative responses were not subjected to formal thematic analysis. Instead, they were used as supportive narrative evidence to complement the statistical results. Open-ended comments provided illustrative examples that reinforced trends observed in the quantitative data, such as convenience, collaboration, and confidence-building. This approach aligns with recent studies that employ qualitative feedback primarily as contextual support for quantitative findings in digital learning research (Zhang et al, 2024; Mertens, 2024).

3. RESULTS AND DISCUSSION

Prior to the main study, a pilot test was conducted with 30 students to evaluate clarity, usability, and item relevance. Feedback from the pilot test was used to refine the questionnaire, ensuring that the items were well understood and aligned with the study objectives. Following this, the real study involved another 30 students, selected from the wider student population to provide relevant feedback on the effectiveness of the platform in supporting learning. The reliability analysis showed that the instrument demonstrated a very high level of internal consistency (Cronbach's alpha = 0.958), consistent with recent findings on the application of Cronbach's alpha in educational research (Dorsah, 2026). Descriptive analysis indicated that students gave positive evaluations of three main aspects of the CFSync platform: engagement, usability, and satisfaction.

- a) **Student Engagement;** The mean score for engagement was $M = 3.99$, indicating a high level of student involvement when using the CFSync platform. This finding is consistent with Brugliera (2024), who highlighted that interactively designed digital learning platforms enhance student engagement. Supporting this, students expressed that “the website fosters better communication among all students,” reinforcing the platform’s role in promoting collaborative learning.
- b) **Platform Usability;** The results for usability showed a mean score of $M = 4.11$, indicating that students perceived the platform as easy to use and user-friendly. This finding is consistent with the systematic review by Al Fraihat et al (2020), which emphasized that perceptions of usability play a crucial role in the acceptance and effectiveness of digital learning systems. Supporting this, students noted that “this website provides a conducive environment for more practical learning,” reinforcing the idea that usability not only enhances ease of access but also creates meaningful conditions for applied learning experiences.
- c) **Student Satisfaction;** The highest mean score was recorded for student satisfaction, $M = 4.22$, indicating that students were generally very satisfied with their learning experience through the platform. This result is consistent with the findings of Che Ab Adziz et al (2025), who reported that positive user experiences and high levels of satisfaction are closely linked to the effectiveness of digital platforms in contemporary education. Supporting this, students expressed that “I enjoy viewing the progress statistics displayed on the website,” highlighting how features such as the progress tracker contribute to satisfaction by providing clear insights into learning development and reinforcing a sense of achievement.

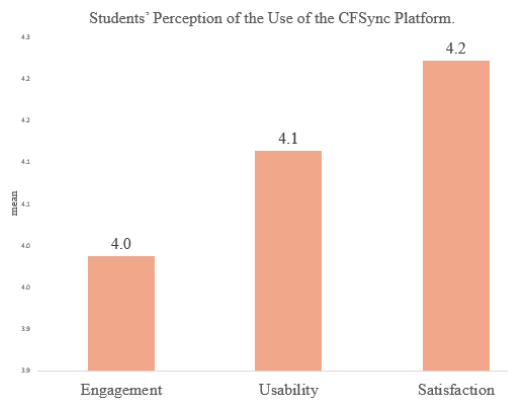


Figure 2. Mean Score for Students' Perception of The Use of The Cfsync

4. CONCLUSION

CFSync: Buddy Study Hub has proven to be an effective digital learning platform, fostering proactive and independent learning while enhancing student motivation, performance, and collaboration. With high engagement, usability, and satisfaction scores, the platform demonstrates strong potential for continuous use and future development. Aligned with SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 17 (Partnerships for the Goals), CFSync contributes to equitable access to innovative learning tools, supports sustainable educational practices, and encourages collaboration between students, educators, and institutions. Future recommendations include expanding interactive features, integrating adaptive analytics, and broadening accessibility through multilingual and mobile support. Beyond its academic impact, CFSync shows clear commercial viability as a

scalable product for schools, universities, and training institutions, offering opportunities for subscription-based services or institutional licensing. By combining educational effectiveness with market potential, CFSync positions itself as a future-ready solution for digital peer learning, while also fostering partnerships that strengthen educational ecosystems.

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