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Article

Effectiveness of social media-based collaborative learning on student engagement and learning outcomes: a field study

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Abstract: This study aims to analyse how social media-based collaborative learning affects learning outcomes and student involvement in higher education in Odisha, India. Using a mixed-methods approach, 200 undergraduate students from four different colleges were selected randomly. Over the course of a semester, participants used well-known social media platforms for collaborative learning activities. Semi-structured interviews, academic performance records, social media activity logs, and pre- and post-intervention questionnaires were used to collect data. The findings revealed a strong positive association ($r = 0.68$, $p < 0.001$) between student engagement and social media-based collaborative learning. In addition, compared to a control group, students who engaged in social media-based collaborative learning shown a 15% increase in their academic performance. Qualitative data showed that students were more motivated, had better digital literacy, and engaged with social media activity. Challenges including possible distractions and privacy issues were also noted by the research. These results imply that, with the right policies and support systems in place, incorporating social media-based collaborative learning into Odisha's higher education might enhance student engagement and learning outcomes.

Keywords: Social media, collaborative learning, student engagement, learning outcomes, higher education

1. Introduction

Because of shifting pedagogical methods and significant technology breakthroughs, higher education is changing quickly. Among these modifications, the use of social media into teaching methodologies has surfaced as a potentially effective means of augmenting student involvement and cultivating cooperative learning settings. This tendency is especially important in developing nations like India, where access to social media is growing yet conventional educational resources may be few. With a population of nearly 45 million, Odisha is a state on India's east coast with a developing higher education industry. But the state's educational system is beset with serious problems, including as inadequate facilities, big class sises, and unequal access to high-quality education. Odisha's Gross Enrollment Ratio (GER) in higher education is 22.1%, which is less than the national average of 27.1%, according to the All India Survey on Higher Education (AISHE) 2019-2020 report. This figure highlights the need for creative solutions to improve the quality and accessibility of higher education in the region.

It has been shown that collaborative learning, an instructional strategy that prioritises student engagement and joint knowledge creation, improves critical thinking, problem-solving abilities, and general academic achievement. In contrast to competitive or individualistic learning techniques, collaborative learning has been shown in the key work of Johnson and Johnson (2009) to result in better accomplishment and increased productivity. Beyond the walls of typical classroom settings, social media integration into collaborative learning methods creates new potential for student involvement and knowledge exchange (Ansari & Khan, 2020).

Social media platforms provide a special chance to support collaborative learning because of their built-in characteristics of connection, information sharing, and real-time communication (Zheng et al., 2015). Since many students already use social media sites like Facebook, WhatsApp, and Twitter in their daily lives, these platforms have the potential to be very effective teaching tools (Mnkandla, & Minnaar, 2017). According to a 2017 research conducted in Malawi by Chawinga, the usage of blogs and Twitter in university courses improved students' critical thinking skills and

motivated more reserved pupils to engage in conversation. Notwithstanding the possible advantages, empirical studies on the efficacy of social media-based collaborative learning within the particular framework of Odisha's higher education system are few. Although research has been done in other developing nations and other regions of India, a targeted study in Odisha is necessary due to the region's distinct socioeconomic and cultural characteristics.

This study intends to give a thorough knowledge of the potential of social media-based collaborative learning in improving educational results in Odisha by addressing these concerns. The research's conclusions may influence educational practices and policies not only in Odisha but also in other areas with comparable higher education difficulties. The subsequent segments will expound on the methods used in this investigation, showcase the outcomes of our analysis, deliberate on the consequences of our discoveries, and culminate with suggestions for forthcoming research and implementation in this domain.

1.2. The primary research questions guiding this study are:

- What is the impact of social media-based collaborative learning on students' engagement and learning outcomes?

- How do students perceive the effectiveness of social media as a tool for collaborative learning?

- What are the challenges and barriers to implementing social media-based collaborative learning in the context of Odisha's higher education system?

1.3. Literature review

Over the past ten years, academic attention in social media integration into educational environments has grown steadily. The body of current research on social media-based collaborative learning, student participation, and learning outcomes in higher education is systematically reviewed in this part.

Characterised by their interactive and user-generated content elements, social media platforms have changed the way people exchange knowledge and communicate. In learning environments,

these tools present special chances for community building, knowledge exchange, and teamwork (Selwyn, 2012). Studies have indicated that social media can improve student-teacher contacts (Tess, 2013), encourage active learning, and help information flow (Greenhow, & Lewin, 2016). Social constructivist ideas of learning help one to understand the theoretical foundations of social media-based collaborative learning. Emphasising the need of social interaction in cognitive development, Vygotsky's (1978) idea of the Zone of Proximal Development suggests that learners can accomplish more by means of peer and teacher cooperation than by means of solo effort. With their affordances for real-time communication and content sharing, social media channels offer a digital environment where such group learning might take place (Rambe & Chipunza, 2013). Many studies have looked at how particular social media sites might be used in the classroom. For example, Junco et al. (2011) observed that using Twitter in a classroom raised student involvement and raised grades. Their study showed that social media could be used deliberately to help to spread classroom discussions and support student-faculty interactions. Many studies have centred on the relationship between social media use and student involvement (Hamid et al., 2015). Based on time spent on educationally relevant activities, Junco (2012) noted a positive correlation between Facebook use and student engagement. Likewise, Dyson et al. (2015) noted higher student involvement and interaction in big lecture halls using Twitter. These results imply that social media can help to create an interesting classroom.

Still up for argument, though, is how social media influences learning results. While some studies have reported positive effects on academic performance (Al-Rahmi et al., 2018), others have found mixed or negligible impacts (Lau, 2017). This inconsistency in findings underscores the need for further empirical research to better understand the conditions under which social media-based collaborative learning can effectively enhance learning outcomes.

The integration of social media into collaborative learning practices has been explored in various contexts. Al-Rahmi et al., (2018) investigated the use of social media for collaborative learning

among Malaysian university students and found positive influences on academic performance and satisfaction. Their study highlighted the potential of social media to facilitate knowledge sharing and enhance collaborative learning experiences. Despite the potential benefits, challenges associated with social media use in educational settings have also been identified. These include issues of privacy, digital distraction, and unequal participation among students (Manca & Ranieri, 2016). Additionally, concerns have been raised about the digital divide and varying levels of technological proficiency among students, which may impact the effectiveness of social media-based learning activities (Sobaih et al., 2016).

The existing literature provides valuable insights into the potential of social media-based collaborative learning. However, there remains a need for comprehensive studies that examine its effectiveness across different educational contexts and disciplines. The present study aims to address this gap by conducting a rigorous empirical investigation into the impact of social media-based collaborative learning on student engagement and learning outcomes in a diverse sample of undergraduate students. By examining the effects of social media-based collaborative learning on student engagement and learning outcomes at higher education institutions in Odisha, this study seeks to close this research gap. By doing this, it hopes to add to the expanding corpus of research on technology-enhanced learning and provide insightful information to educators and decision-makers in Odisha and related settings.

2. Methodology

2.1 Research Design

A mixed-methodologies strategy was used in this research to gather and analyse data, integrating quantitative and qualitative methods. To compare the outcomes of social media-based collaborative learning with conventional teaching techniques, a quasi-experimental methodology was used. This approach was used in order to provide a thorough comprehension of the effects of social media-based collaborative learning, collecting both quantifiable results and profound insights into the experiences of

participants. The research was carried out in the academic year 2023–2024 over the course of one semester (16 weeks). The following stages made up the research design:

- Pre-intervention assessment (Week 1)
- Implementation of social media-based collaborative learning for the experimental group (Weeks 2-15)
- Post-intervention assessment (Week 16)
- Data analysis and interpretation (post-semester)

2.2. Participants

The study included 200 randomly selected undergraduate students from four degree colleges of Odisha, India. The institutions were chosen to reflect a wide variety of rural and urban higher education contexts found across the state. The sample consisted of 118 female students (59%) and 82 male students (41%), with an age range of 18 to 23 years old (M = 20.3, SD = 1.4).

Announcements were made at each college to recruit participants, who had to fulfill certain requirements in order to be considered. These included being willing to participate in social media-based learning activities, having access to a computer or smartphone with internet connection, and being enrolled full-time as an undergraduate student. In order to guarantee that ethical standards were maintained, the study was authorised by the institutional review boards of the involved institutions and all participants gave informed permission. The 200 participants were randomly assigned, stratified by institution, to either the experimental group (n = 100) or the control group (n = 100) in order to guarantee equitable representation. While the experimental group engaged in social media-focused collaborative learning activities, the control group continued to receive standard classroom-based training.

2.3 Data Collection

In order to collect both quantitative and qualitative data, a thorough data collecting approach was put into place. Surveys were used in the first approach, and they were given out before and after the intervention. These questionnaires were intended to gauge

perceptions of social media's usefulness in the classroom, attitudes toward collaborative learning, and student participation. The survey questions allowed for both structured and more nuanced input from the participants since they included Likert-scale items with open-ended replies.

Data on academic achievement was gathered in addition to questionnaires. This included the academic standing and performance of the pupils both before and after the intervention on standardised examinations. To quantify any changes in academic success, specific grades on course assignments, midterm and final test scores, and other data were reviewed. A subgroup of twenty students from the experimental group participated in semi-structured interviews to get an in-depth understanding of their experiences. The audio recordings of these interviews were transcribed for in-depth examination thereafter, offering a deeper comprehension of the viewpoints of the participants. The observation and examination of participants' social media activity logs was a crucial component of data collecting as well. Metrics like the quantity of posts, comments, and responses as well as the nature of these interactions were the main focus of the tracking of interactions on the chosen social media sites. This information was useful in determining how involved students were in the social media-enabled collaborative learning process. Lastly, observations of the experimental and control groups in the classroom were made. In order to supplement the other data sources, these observations attempted to evaluate student engagement and interaction patterns in a more direct and realistic context.

2.4 Intervention

The experimental group took part in a semester-long intervention that included social media-based collaborative learning exercises intended to supplement the current curriculum rather than to replace it. Several essential elements of the intervention were included with the goal of encouraging student participation and interaction.

Students were invited to contribute their ideas, pose questions, and participate in debates on a range of discussion subjects in a Facebook group that was created specifically for the purpose of facilitating online conversations each week. Students used Google

Workspace features for document sharing and collaboration while working in small groups on course-related collaborative projects in addition to these talks. They were able to collaborate effectively and contribute to the creation of joint initiatives as a result. The intervention's focus on peer input was a key component. It was mandatory for students to provide critical feedback on their classmates' work via social media postings and shared documents, encouraging a culture of ongoing development and engagement. In an effort to facilitate cooperation even beyond school hours, WhatsApp groups were established for every subject, allowing students to establish online study spaces where they could exchange materials, pose queries, and provide mutual assistance.

Frequent Facebook Live Q&A sessions allowed teachers to respond to any queries or worries students may have had, offering more advice and explanations. In order to encourage creative engagement with the subject, students were also given the chance to produce and distribute instructional materials relevant to their courses, such as blog entries, short movies, and info graphics. Both teachers and students received a short training session to guarantee the efficient and successful execution of these tasks. In order to ensure that every participant was ready for the intervention, this training addressed both the best practices for online collaboration and the use of social media for educational objectives.

2.5 Data Analysis

Quantitative data from surveys and academic performance records were analysed using IBM SPSS Statistics software. The analysis included:

Descriptive statistics to summarise participant characteristics and overall trends.

Paired t-tests to compare pre- and post-intervention scores within groups.

Independent t-tests to compare outcomes between the experimental and control groups.

Pearson correlation analysis to examine relationships between variables.

Qualitative data from interviews, open-ended survey responses, and social media interactions were subjected to thematic analysis.

3. Results

Results of the study are discussed in the following headings.

3.1 Social media-based collaborative learning and student engagement

Significant new information on the efficacy of social media-based collaborative learning in the setting of higher education in Odisha, India, was obtained via the analysis of both quantitative and qualitative data. The results are arranged in this part according to the primary study questions.

Table 1. *Mean student engagement scores (pre- and post-intervention)*

Group	Pre-Intervention	Post-Intervention	Change
Experimental	3.2 (SD = 0.8)	4.1 (SD = 0.6)	+0.9
Control	3.3 (SD = 0.7)	3.4 (SD = 0.7)	+0.1

The experimental and control groups' post-intervention engagement levels differed statistically significantly ($t= 7.32$, $p < 0.001$), according to an independent t-test. On a 5-point Likert scale, the experimental group's mean engagement score rose from 3.2 (SD = 0.8) to 4.1 (SD = 0.6), but the control group's score hardly changed from 3.3 (SD = 0.7) to 3.4 (SD = 0.7).

Subsequent examination of the engagement subscales revealed that the experimental group exhibited the greatest gains in the areas of cognitive engagement (mean increase of 0.9 points) and peer interaction (mean increase of 1.2 points).

These quantitative results were corroborated by qualitative interview data. The experimental group's members reported more motivation, improved peer interaction, and more engaged engagement in class activities. "The online discussions made me feel more connected to my classmates and the course material," said one student. Even outside of class, I found myself thinking about the subjects." Another student noted, "I used to be shy about asking questions in class, but the WhatsApp group made it easier for me to seek help and clarify doubts."

3.2 Social media-based collaborative learning and Learning outcomes

The grades of the experimental group were significantly higher than those of the control group, according to an analysis of academic performance data. The average course grades of the experimental group increased by 15%, but the control group only saw a 3% gain.

This pattern was also shown in the standardised test results, where the experimental group showed an average increase of 12 percentile points, whereas the control group only showed an improvement of 4 percentile points. A Pearson correlation analysis was carried out to look at the link between social media use and academic achievement in more detail. Improvements in course grades were shown to be somewhat positively correlated with the frequency of social media activity (as indicated by the quantity of posts, comments, and responses) ($r = 0.58$, $p < 0.001$).

Qualitative findings provide light on the processes behind this enhanced academic achievement. Numerous students said that the social media activities' collaborative character improved their comprehension of the material covered in class. "It helped me solidify my own understanding to explain concepts to my peers in the Facebook group," one participant said. It resembled teaching and learning simultaneously.

3.3 Perceived Effectiveness of Social Media as a Collaborative Learning Tool

The majority of experimental group members, according to survey data, thought social media was a useful tool for group learning. On a 5-point Likert scale, respondents were asked to assess how beneficial social media is for several elements of learning. The results were overwhelmingly positive (Table-2).

Table 2. Perceived effectiveness of social media for collaborative learning

Aspect	Mean Rating (out of 5)	SD
Accessibility to course materials	4.6	0.6
Peer support and collaboration	4.3	0.7
Communication with instructors	4.2	0.8
Engagement with course content	4.1	0.7
Opportunities for self-expression	3.9	0.9

Thematic analysis of interview data and open-ended survey responses revealed several key benefits perceived by students:

Enhanced Accessibility: Students appreciated the ability to access course materials and engage in discussions at any time and from any location. This flexibility was particularly valued by students from rural areas who often faced long commutes to their institutions.

Increased Peer Interaction: The social media platforms facilitated more frequent and informal interactions among peers, leading to a stronger sense of community within the class.

Improved Digital Literacy: Participants reported feeling more confident in their ability to use digital tools for academic purposes, a skill they viewed as valuable for their future careers.

Diverse Learning Resources: The ability to share and access a variety of content formats (text, images, videos) catered to different learning styles and enhanced overall engagement with the course material.

However, some challenges were also noted by participants:

Potential for Distraction: 45% of participants reported that they sometimes found themselves distracted by non-academic content while using social media for learning purposes.

Privacy Concerns: 38% expressed concerns about the privacy of their personal information and academic discussions on social media platforms.

Internet Connectivity: 22% of students, particularly those from rural areas, reported occasional difficulties in participating due to unreliable internet connections.

3.4 Social Media Usage Patterns

Social media activity log analysis revealed information on how students used the platforms for group education. The characteristics that were most often utilised were:

Posting comments on the blogs of peers (each student typically leaves 8.5 comments a week)

Resource sharing (3.2 shares per student each week on average)

Post-reactions (on average, 15.7 responses per student per week)

It's interesting to note that gains in engagement ratings ($r = 0.62$, $p < 0.001$) and academic achievement ($r = 0.58$, $p < 0.001$) were positively correlated with the frequency of these encounters.

68% of postings were directly relevant to course material, 22% dealt with general academic assistance and guidance, and 10% were social or community-building in character, according to a content study of social media interactions.

4. Discussion

The results of this research provide compelling proof of the beneficial effects of social media-based collaborative learning on learning outcomes and student engagement at Odisha, India's higher education institutions. It is possible to improve the entire learning experience by incorporating social media into collaborative learning methods, as shown by the experimental group's members' notable improvements in engagement scores and academic achievement. The increase in student involvement that has been shown is consistent with other studies on technology-enhanced collaborative learning. Al-Rahmi et al. (2018), for example, discovered that students' academic performance and engagement were favorably impacted by social media usage in Malaysian higher education. Our research applies these conclusions to the unique situation of Odisha, where social media usage in the classroom is still relatively new. But the findings are against the view that social media usage and academic achievement were negatively correlated (Karpinski et al 2013).

Considering the difficulties the Odisha higher education system faces, the experimental group's considerable gain in academic performance is very impressive. This shows that social media-based collaborative learning can be an affordable way to improve learning results in settings with limited resources (Balasubramanian et al., 2014, Kimmerle et al., 2015) . Active involvement in online collaborative activities may be a major contributor to this academic progress, as seen by the positive association found between social media use and grade improvement (Gikas & Grant, 2013).The interviews yielded qualitative data that sheds light on the ways in which social media-based collaborative learning improves student engagement. Participants' enhanced enthusiasm and active involvement were probably influenced by

their stated sense of connection to the course topic and their peers (Veletsianos, & Navarrete, 2012). This is consistent with the social constructivist view of learning (Vygotsky, 1978), which highlights the role that social interaction plays in the creation of knowledge. Social media's perceived advantages as a medium for collaborative learning—like improved accessibility and more peer interaction—highlight these platforms' potential to solve some of the problems that Odisha's higher education system is now facing. Social media's adaptability may be especially helpful in addressing the state's major problem of educational gaps between urban and rural communities. But the difficulties that the participants pointed out—like possible diversions and privacy concerns—showcase the need of cautious application and direction when using social media into teaching methods (Manca, & Ranieri, 2016). These results highlight issues brought up in earlier research on the use of educational technology (e.g., Manca & Ranieri, 2016) and emphasise how crucial it is to create thorough policies and support systems for instructors and students alike. A major side effect of this intervention is the participants' perceived increase in their digital literacy. Beyond academic success, developing students' digital abilities via educational practices might offer significant advantages as India, especially Odisha, evolves towards increasing digitisation in numerous industries.

6. Conclusion

In higher education institutions in Odisha, India, this research offers empirical support for the efficacy of social media-based collaborative learning in raising student engagement and learning outcomes. The results indicate that the incorporation of social media into collaborative learning methodologies may result in heightened student involvement, better academic outcomes, greater peer communication, and the acquisition of digital literacy competencies. These findings have significant ramifications for practice and policy in education in Odisha and related areas. Social media-based collaborative learning techniques should be taken into account by educators and policymakers when creating curricula and implementing instructional methodologies. To guarantee fair and efficient implementation, it is necessary to address issues like digital literacy, internet accessibility, and privacy concerns.

This analysis yields many recommendations:

Development of Guidelines: Academic institutions have to create explicit policies that include matters of academic integrity, acceptable online conduct, and privacy when it comes to students using social media in the classroom.

Faculty Training: To provide faculty members with the abilities and information required to successfully incorporate social media into their teaching methods, extensive training programs should be put in place.

Infrastructure Development: To guarantee fair participation in social media-based learning activities, efforts should be undertaken to enhance internet connection and access to digital devices, especially in rural regions.

Customised Platforms: To solve certain privacy issues and lessen distractions, think about creating or modifying social media platforms expressly for educational use.

Continuous Assessment: To improve strategies and handle new issues, a regular assessment of the success of social media-based collaborative learning should be carried out.

Future studies need to examine the long-term effects of collaborative learning facilitated by social media on students' skill development and preparedness for the workforce. Furthermore, examining the efficacy of certain social media platforms and collaborative learning techniques may provide educational practitioners more focused insights. To sum up, our research adds to the increasing amount of data that supports the use of social media in education and provides insightful information for enhancing higher education procedures in Odisha and elsewhere. Odisha's higher education establishments can boost learning outcomes, increase student engagement, and better prepare students for the digital age by using the potential of social media-based collaborative learning initiatives.

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References

All India Survey on Higher Education Final Report (2019-20), https://cdnbbsr.s3waas.gov.in/s392049debbe566ca5782a3045cf300a3c/uploads/2024/02/20240214752661331.pdf

Al-Rahmi, W. M., Alias, N., Othman, M. S., Marin, V. I., & Tur, G. (2018). A model of factors affecting learning performance through the use of social media in Malaysian higher education. *Computers & Education*, 121, 59-72.

Ansari, J. A. N., & Khan, N. A. (2020). Exploring the role of social media in collaborative learning the new domain of learning. Smart Learning Environments, 7(1), 1-16.

Balasubramanian, K., Jaykumar, V., & Fukey, L. N. (2014). A study on "Student preference towards the use of Edmodo as a learning platform to create responsible learning environment". *Procedia-Social and Behavioral Sciences*, 144, 416-422.

Chawinga, W. D. (2017). Taking social media to a university classroom: teaching and learning using Twitter and blogs. *International Journal of Educational Technology in Higher Education*, 14(1), 3.

Deng, L., & Tavares, N. J. (2013). From Moodle to Facebook: Exploring students' motivation and experiences in online communities. *Computers & Education*, 68, 167-176.

Dyson, B., Vickers, K., Turtle, J., Cowan, S., & Tassone, A. (2015). Evaluating the use of Facebook to increase student engagement and understanding in lecture-based classes. *Higher Education*, 69, 303-313.

Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *The Internet and Higher Education*, 19, 18-26.

Greenhow, C., & Lewin, C. (2016). Social media and education: Reconceptualizing the boundaries of formal and informal learning. *Learning, Media and Technology*, 41(1), 6-30.

Hamid, S., Waycott, J., Kurnia, S., & Chang, S. (2015). Understanding students' perceptions of the benefits of online social networking use for teaching and learning. *The Internet and Higher Education*, 26, 1-9.

Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365-379.

Junco, R. (2012). In-class multitasking and academic performance. Computers in Human Behavior, 28(6), 2236-2243.

Karpinski, A. C., Kirschner, P. A., Ozer, I., Mellott, J. A., & Ochwo, P. (2013). An exploration of social networking site use, multitasking, and academic performance among United States and European university students. *Computers in Human Behavior*, 29(3), 1182-1192.

Kimmerle, J., Moskaliuk, J., Oeberst, A., & Cress, U. (2015). Learning and collective knowledge construction with social media: A process-oriented perspective. *Educational Psychologist*, 50(2), 120-137.

Lau, W. W. (2017). Effects of social media usage and social media multitasking on the academic performance of university students. *Computers in human behavior*, 68, 286-291.

Manca, S., & Ranieri, M. (2016). Facebook and the others. Potentials and obstacles of social media for teaching in higher education. *Computers & Education*, 95, 216-230.

Mnkandla, E., & Minnaar, A. (2017). The use of social media in e-learning: A metasynthesis. *The International Review of Research in Open and Distributed Learning*, 18(5).

Rambe, P., & Chipunza, C. (2013). Using mobile devices to leverage student access to collaboratively-generated resources: A case of WhatsApp instant messaging at a South African University. *International Conference on Advanced Information and Communication Technology for Education* (ICAICTE 2013).

Selwyn, N. (2012). Social media in higher education. *The Europa World of Learning*, 1-10.

Sobaih, A. E. E., Moustafa, M. A., Ghandforoush, P., & Khan, M. (2016). To use or not to use? Social media in higher education in developing countries. *Computers in Human Behavior*, 58, 296-305.

Tess, P. A. (2013). The role of social media in higher education classes (real and virtual)–A literature review. *Computers in Human Behavior*, 29(5), A60-A68.

Veletsianos, G., & Navarrete, C. C. (2012). Online social networks as formal learning environments: Learner experiences and activities. *The International Review of Research in Open and Distributed Learning*, 13(1), 144-166.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Massachusetts: Harvard University Press.

Zheng, B., Niiya, M., & Warschauer, M. (2015). Wikis and collaborative learning in higher education. Technology, *Pedagogy and Education*, 24(3), 357-374.