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Exploring the Impact of Collaborative Learning and Student Engagement on Student Learning Performance: A Comprehensive Analysis of Influencing Factors

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Abstract

This research deepens how social factors influence collaborative learning and student engagement, ultimately influencing student learning performance. This research is a type of quantitative research with a causality approach. The research population is economics education students. The sampling method uses a proportional random technique and the number of samples used was 206 students. The data collection instrument uses a questionnaire. The data analysis technique used was a structural equation model (SEM-PLS). The research results showed that interaction with peers had a positive effect on collaborative learning, student-lecturer interaction had no effect on collaborative learning, social presence had a positive impact on collaborative learning, use of social media had no effect on collaborative learning, cooperative learning had a positive impact on student engagement, Student engagement has a positive influence on student learning performance, Collaborative learning mediates the relationship between social factors (i.e. social interaction (with peers), student-lecturer interaction, social presence, use of social media) and student engagement, Student Engagement mediates the relationship between factors social, collaborative learning, and student learning performance. This research has several limitations, research considers four social factors that influence active collaborative learning; therefore, future research should include other variables, such as student involvement or use learning outcomes as the dependent variable.

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INTRODUCTION

Educational institutions continue to combine technological innovation with learning practices and continually strive to develop new information systems to support learning. Today, social networking services are becoming online platforms for sharing knowledge and engaging in collaborative learning (Rau et al., 2008). These social networking services can help students form better social relationships and are also used to develop creativity and communication skills (Kabilan et al., 2010). In recent years, various studies have highlighted the importance of collaborative learning, which has proven to be an effective learning method (Lin et al., 2010) because collaborative learning can develop self-efficacy, increase learning motivation, active learning attitudes, and lead to better learning outcomes (Lin et al., 2010) (Hernández-Sellés et al., 2019).

In higher education institutions, conventional learning is replaced by active learning designed to facilitate student-centred learning. (D. Lee et al., 2018). The development of active classroom learning is part of the broader educational hope that students can be actively involved in their learning(Brooks, 2011). According to Chan et al., collaborative learning is the most essential active learning method. Cooperative learning is an approach lecturers use to facilitate learning and improve student learning performance. Collaborative learning can also enhance students' critical thinking skills(Garrison et al., 2001). Cooperative learning involves students participating and interacting in a group environment, managing relationships within the group and developing learning content (SM Lee, 2014). In a collaborative learning environment, students serve as learning resources for each other by talking to each other, observing others' work, sharing ideas, and making decisions together. (Strebe, 2018).

A part from the factors influencing active learning, much literature states that the critical factor is social interaction(Kuo et al., 2014). Based on sociocultural learning theory, people can gain knowledge due to social interaction, ideas and sharing of experiences. Furthermore, due to social processes, cognitive changes occur through social interactions. According to Sims, (2003), interaction not only motivates students to learn but also encourages them to be focused, participative, and dedicated to exchanging ideas with each other. Two types of interaction are discussed in this research: interaction with peers and interaction between students and lecturers (Vuopala et al., 2016). In addition to interaction, it is essential to study the influence of social presence, as it helps in explaining how social media influence student behavior (Kreijns et al., 2007). Interaction is related not only to active learning but also to engagement (Blasco-Arcas et al., 2013).

Social media can potentially facilitate learning outcomes through collaboration to become visible (Brown, 2012) (Novak et al., 2012). There is much research that focuses on the use of social media in terms of health, culture, society, and collaborative learning (Al Omoush et al., 2012) (Al-Rahmi et al., 2015) (W. Lee et al., 2013). Even though it has a positive effect, the use of social media also hurts learning such as cyberbullying and cyberstalking(Al-Rahmi et al., 2018) (Qureshi et al., 2021) (Waters et al., 2020). Despite this, there still needs to be more research focusing on the use of social media as an effective tool for collaborative learning in higher education. Therefore, to fill this gap, this study aims to investigate collaborative learning factors that engage students and influence their learning performance.

This research will deepen the literature on how social factors (interaction, social presence, and use of social media) influence collaborative learning and student engagement which increases student learning performance. Despite the recognition that social factors play an important role in collaborative learning, few studies have analyzed their overall impact in the context of social web-based collaborative learning (Manca & Ranieri, 2016). There-

fore, evaluating the impact of these variables in one model not only allows us to analyze their influence on collaborative learning and student engagement but also highlights their relative importance. Second, this research is unique because it examines dual mediation (i.e. the effects of collaborative learning and engagement) on student learning performance which has never been investigated in previous research. Third, this research uses constructivism theory to measure student learning achievement. Fourth, because online learning is becoming more common in higher education today, this research attempts to reduce the gap in the literature by focusing on how collaborative learning can improve student learning performance.

Constructivism has greatly influenced the modern teaching and learning process as a leading educational philosophy. It is based on the idea that "meaningful learning occurs when people actively try to understand the world" that is, when they construct an interpretation of the how and why of things, by filtering new ideas and experiences through existing knowledge structures (Qureshi et al., 2021). Approaches related to constructivist learning methods are influenced by the theories of Piaget and Vygotsky (Tzuo, 2007). Based on constructivism theory, in active learning methods students act as information processors and play an active role(Erbil, 2020). As a paradigm, constructivism refers that learning is a dynamic and relative process of developing new understanding by using existing information for social interaction (Sarwar et al., 2019). The main assumption of this theory is that people construct their rational definition of reality based on their personal perceptions and experiences. The information created is related to their previous knowledge. Constructivism is a theory about people's learning behavior based on scientific observations and studies.

Constructivism explains how people learn by acquiring knowledge. Knowing procedures are also influenced by social interactions with other people and therefore need to be supported by culture and supported by the community. According to Vygotsky, cognitive growth occurs first at the social level and then at the individual level. In constructivist classes, students are advised to work in groups to create an interactive learning environment. Constructivism theory reports the influence of interaction on collaborative learning and engagement and is also used to measure student learning performance. This shows that interactivity is an important stage in achieving collaborative learning and engagement (Graham et al., 2007). According to the constructivist approach, interaction with peers and learning is supported intensely by collaborative learning because it allows lecturers and students to work together and create mutual contributions (Al-Rahmi et al., 2022). Therefore, to achieve the research objectives, constructivism theory was adopted to measure student learning performance by focusing on the factors that influence collaborative learning to improve overall student learning performance.

Social interaction is the basis for achieving active learning (Blasco-Arcas et al., 2013) and is the main key to achieving success in education (Blasco-Arcas et al., 2013). Interaction is a two-way communication process. Several types of interaction have been defined as important factors for successful collaborative learning (Vuopala et al., 2016). Peer interaction can increase students' motivation and interest, and help them pursue ideas in depth and improve their learning outcomes (Kuo et al., 2014). Kuo et al., (2014) in their study examining the impact of interactions; emotional support in learning and found a significant positive relationship between student interaction in work groups and collaborative learning. In addition, students, who study collaboratively, perceive that they learn more, than studying independently. According to Chan & Ko, (2019) interactions can increase interactivity by enhancing collaborative learning and thereby improving student performance. Furthermore, Qureshi et al., (2021) states that interaction with peers motivates students to discuss and share ideas and information. Thus, inte-

raction with peers is significantly related to collaborative learning, so the hypothesis proposed in this research is:

H1: Social interaction with peers has a significantly positive effect on collaborative learning

Various studies have investigated the influence of interactivity on students' collaborative learning(McDonough & Foote, 2015). Interaction with lecturers can influence student learning success. Interacting with lecturers increases and stimulates student interest in collaborative learning. This provides additional opportunities for students to contribute to class discussions. Students also receive feedback from lecturers which helps them to improve their learning performance. Then obeyRaza et al., (2020)Two-way communication between students and lecturers plays an important role in student learning performance.Chan & Ko, (2019)shows that the relationship between interaction, collaborative learning, and student learning performance is significant. Interactivity also allows lecturers to respond to student input in learning, encouraging collaborative learning, participation and engagement among students. Thus, the second hypothesis proposed in this research is:

H2: Student-lecturer interaction has a significant positive effect on collaborative learning

Social presence is another key factor in collaborative learning. Social presence is where individuals feel that they are actively connected (Chan & Ko, 2019). According toMayer et al., (2009) a student's social presence in a collaborative work group influences the extent to which a student is motivated to learn and exert greater individual effort. Therefore, it can be said that through social presence a sense of togetherness is built which inspires students to develop learning by collaborating with peers. Various studies have shown that social presence positively influences learning outcomes (SM Lee, 2014). The greater the social presence, the more active a person will be in learning (Cho et al., 2015). According to Hrastinski (2008), students' learning style preferences and their satisfaction depend on the level of social presence and collaborative learning. The outcome of the learning process is highly dependent on social presence (Prince, 2004), therefore, it can be said that social presence is an important driver of learning. Based on the discussion above, the third hypothesis proposed in this research is:

H3: Social presence has a significant positive impact on collaborative learning

Social media refers to networks for transmitting information and knowledge between communities and students. According to Rahmi (Al-Rahmi & Zeki, 2017) using social media for collaborative and engaging learning is a major force influencing the development of technology utilization models. According toAl-Rahmi & Zeki, (2017) revealed in their research that, students are very satisfied with social media-based collaborative learning because it leads to better performance. In this case,Yoder & Hochevar, (2005) also reported that the interest of most students increased when they were exposed to collaborative learning via social media. Using technology for learning purposes can form a collaborative learning environment. Furthermore,Sarwar et al., (2019) states that using social media for learning purposes encourages more creative thinking, increases collaborative work, and increases independent learning among students. Social media acts as a tool to accelerate the development of the learning environment by encouraging communication and collaboration between students which strengthens learning behavior and learning outcomes (Sarwar et al., 2019). Social media is an influential instrument in developing and improving educational settings. Thus the fourth hypothesis proposed in this research is:

H4: The use of social media has a significant positive effect on collaborative learning

Collaborative learning is defined as anything that involves students doing something and being aware of what they are doing (Erbil, 2020). According to Hamouda & Tarlochan (2015), collaborative learning requires a high level of student involvement in the learning process and is not only limited to reading, listening to information but also in-

cludes student participation in class meetings, presentations, promoting real life experiences and other activities. According to generative learning theory, students will learn better when they actively participate in cognitive processes (Prince, 2004). Gainor et al., (2014) in their research stated that collaborative learning increases student incorporation, their attitude towards courses, and their commitment to their education and academic institution, which reduces dropout rates, and creates a competitive learning environment. Al-Rahmi et al., (2015) also revealed that collaborative learning is related to student involvement. Collaborative learning is a method that involves students to actively participate in the learning process (McDonough & Foote, 2015). Cooperative learning involves students working collaboratively, so the hypothesis proposed in this research is:

H5: Collaborative learning has a significant positive effect on student engagement

Engagement is another crucial factor that influences student learning and academic success. Students engaged in their work are more motivated and willing to interact with course content, strengthened through computer-mediated collaborative work (Sims, 2003). Student involvement in collaborative learning can involve using ideas, sharing, and understanding different points of view (Barron, 2003). Students who engage in appropriate cognitive processes can learn better, which influences their academic success (Mayer et al., 2009). According to Baird & Fisher (2005), Collaborative learning provides resources, increases commitment in the curriculum, and provides a system for transferring knowledge. Involvement motivates students and creates a learning environment that leads to their better learning performance (Baird & Fisher, 2005). In their study, Jones & Carter (2019) revealed that students' perceptions of classes predict student engagement, which in turn predicts their learning performance. Thus, based on the discussion above, the sixth hypothesis proposed in this research is:

H6: Student engagement has a significant favourable influence on student learning performance

According to research, interaction with students and lecturers increases collaborative learning and student learning performance (Blasco-Arcas et al., 2013). Collaborative learning inspires students to read, listen, write, and reflect on their work together. Students who collaborate actively in the learning process have greater attention and commitment. Interaction, use of social media, and social presence facilitate successful collaborative learning and, therefore, improve student learning performance. Evidence in higher education shows support for collaborative learning as a method that supports student activity and engagement and positively affects student problem solving, critical thinking, social interaction, and persistence. Thus, the seventh hypothesis proposed in this research is:

H7: Collaborative learning mediates the relationship between social factors (i.e. interaction with peers, student-lecturer interaction, social presence, use of social media) and student engagement

Engagement is a multidimensional psychological construct. According to Schaaufeli et al., student engagement involves dedication and passion. Engagement is an interaction between the environment and individuals, which causes social and academic changes that change student perceptions and involvement. Jones and Carter (2019) said that student engagement mediates the influence of instructional changes on learning performance and student achievement. Students learn best when they engage in appropriate cognitive processes; therefore, engagement is an important variable that explains student success (Mayer et al., 2009). High engagement is a reliable predictor of high scores and student achievement. According to Barron, collaborative activities involve using ideas, sharing, and understanding different points of view. Chen et al. (2018) found that student engagement mediates the perspectives of individual students and lecturers and improves student learning performance. (2005) state that acti-

ve collaborative learning provides resources, maximises student involvement, provides a network for knowledge transfer, and improves overall learning performance. Therefore, the eighth hypothesis proposed in this research is: H8: Student Engagement mediates the relationship between social factors, collaborative learning, and student learning performance.

METHODS

The model in this research is the influence of social interaction (interaction with peers, interaction with students and lecturers, social presence and use of social media) as the independent variable, collaborative learning and student engagement as the mediating (intervening) variable, while the dependent variable is student learning. Performance. This research was conducted at the Faculty of Economics and Business, Semarang State University. The reason for choosing this place was because it was found that there were problems that were appropriate to what would be researched regarding student learning performance. In contrast, this research lasted for six months, namely from May–October 2023. This research is a type of quantitative research. The method used in this research is a survey method with a causality approach, which aims to determine the relationship between variables.

The population in this study were students majoring in economics education consisting of accounting education, cooperative education and office administration study programs. The sampling method uses random sampling, where all individuals in the population, individually or together, are given the same opportunity to be selected as sample members. The population in this study were Economic Education students from the 2020 and 2021 classes. Based on the Slovin formula, the sample size was 206 students. The data collection instrument uses a 5-point Likert scale ranging from "strongly disagree" to "strongly agree" for all variables except for social presence, which uses a seven-point Likert scale. Data were collected using a "questionnaire" containing a series of closed-ended questions about interactive factors and demographic items to analyse the characteristics of the targeted sample. This study has a total of seven variables. Questionnaire items were adapted from previous research. The data analysis technique used in this research is structural equation modelling (SEM-PLS) to analyse path models, including reliability, convergent and discriminant validity.

RESULTS AND DISCUSSION

Test Outer Model

Table 1. Outer Model Test

Variable	Indicator	Loading Factors	AVE	Composite Reliability
Peer Interaction	IS1	0.708	0.540	0.785
	IS2	0.661		
	IS3	0.760		
	IS4	0.817		
	IS5	0.718		
Lecturer-student interaction	ID1	0.750	0.607	0.784
	ID2	0.792		
	ID3	0.795		
	ID4	0.778		

Variable	Indicator	Loading Factors	AVE	Composite Reliability
Social Presence	KS1	0.840	0.619	0.790
	KS2	0.806		
	KS3	0.851		
	KS4	0.628		
Use of Social Media	PMS1	0.871	0.712	0.795
	PMS2	0.899		
	PMS3	0.754		
Interactive Learning	PK1	0.742	0.630	0.804
	PK2	0.828		
	PK3	0.791		
	PK4	0.812		
Student Engagement	SE1	0.718	0.502	0.750
	SE2	0.755		
	SE3	0.690		
	SE4	0.750		
	SE5	0.621		
Students Learning Performance	SLP1	0.855	0.652	0.821
	SLP2	0.835		
	SLP3	0.750		
	SLP4	0.787		

Source: Processed Primary Data, 2024

Loading factor meets (>0.7 or 0.4<x>0.6 with AVE 0.5), Composite reliability meets (>0.7) and AVE meets (>0.5)

Table 2. Discriminant Validity Test

	IS	ID	K.S	PSM	PK	S.E	SLP
IS	0.735	0.574	0.607	0.414	0.575	0.409	0.472
ID	0.574	0.779	0.475	0.351	0.468	0.393	0.407
K.S	0.607	0.475	0.787	0.461	0.742	0.659	0.608
PSM	0.414	0.351	0.461	0.844	0.409	0.415	0.408
PK	0.575	0.468	0.742	0.409	0.794	0.664	0.557
S.E	0.409	0.393	0.659	0.415	0.664	0.709	0.605
SLP	0.472	0.407	0.608	0.408	0.557	0.605	0.808

Source: Processed Primary Data, 2024

The discriminant test meets (the discriminant validity test by comparing the correlation of the AVE in each construct with the correlation value between the constructs in the model. A good value of the correlation between the constructs in the model is in the form of a diagonal.)

Inner Model

Table 3. Inner Model Test

Criteria	PK	S.E	SLP
R-squared	0.597	0.455	0.372
Adjusted R-squared	0.589	0.452	0.369
Square predictive relevance	0.597	0.457	0.373

Source: Processed Primary Data, 2024

Table 4. Summary of Model Criteria

No.	Model fit and quality indices	Fit Criteria	Analysis Results	Note
1	Average Path Coefficient (APC)	p < 0.05	0.365, P<0.001	Accepted
2	Average R-squared (ARS)	p < 0.05	0.475, P<0.001	Accepted
3	Average Adjusted R-squared (AARS)	p < 0.05	0.470, P<0.001	Accepted
4	Average block VIF (AVIF)	Accepted if <= 5 Normally <= 3.3	1.629	Accepted
5	Average Full collinearity VIF (AFVIF)	Accepted if <= 5 Normally <= 3.3	2.122	Accepted
6	Tenenhaus GoF (GoF)	small >= 0.1, medium >= 0.25, large >= 0.36	0.537	Large
7	Sympson's Paradox ratio (SPR)	>= 0.25, large >= 0.36 is accepted if >= 0.7 Ideally = 1	1	Accepted
8	R-squared Contribution Ratio (RSCR)	Accepted if >= 0.9 Ideal = 1	1	Accepted
9	Statistical Suppression Ratio (SSR)	Accepted if >= 0.7	1	Accepted
10	Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	Accepted if >= 0.7	1	Accepted

Source: Processed Primary Data, 2024

Table 5. Hypothesis Testing

	P values						
	IS	ID	K.S	PSM	PK	S.E	SLP
PK	0.007	0.099	<0.001	0.096			
S.E					<0.001		
SLP						<0.001	

Source: Processed Primary Data, 2024

Table 6. Path Analysis

	Path Coefficients						
	IS	ID	K.S	PSM	PK	S.E	SLP
PK	0.168	0.089	0.559	0.090			
S.E					0.674		
SLP						0.610	

Source: Processed Primary Data, 2024

Based on the results of statistical tests, the conclusions of hypothesis testing are as follows:

H1: Social interaction (with peers) has a significantly positive effect on collaborative learning (accepted 0.007 < 0.05, positive 0.168)

H2: Student-lecturer interaction has a significant positive impact on cooperative learning (rejected 0.099 > 0.05, positive 0.089)

H3: Social presence has a significant positive impact on collaborative learning (accepted <0.001 <0.05, positive 0.559)

H4: The use of social media has a significant positive effect on cooperative learning (rejected 0.096 > 0.05, positive 0.09)

H5: Collaborative learning has a significant positive impact on student engagement (accepted <0.001 <0.05, positive 0.674)

H6: Student engagement has a significant favourable influence on student learning performance (taken <0.001 <0.05, positive 0.61)

H7: Collaborative learning mediates the relationship between social factors (i.e. social interaction (with peers), student-lecturer interaction, social presence, use of social media) and student engagement (accepted <0.001 <0.05, positive 0.485)

H8: Student Engagement mediates the relationship between social factors, collaborative learning, and student learning performance (accepted <0.001 <0.05, positive 0.4)

The Influence of Social Interaction (with peers) on Collaborative Learning

Collaborative learning is a learning approach in which students work in groups to achieve shared learning goals. Social interactions between peers have a significant influence in the context of collaborative learning. Social interaction with peers can increase students' learning motivation (Prastika Damayanti et al., 2021). When interacting with peers, they feel more motivated to participate in learning activities and contribute to their group. This can increase student involvement in the learning process. Discussing with peers allows students to explain concepts and ideas to each other, which can help better understand because they have to formulate and present their ideas to others. Lalufiansyah & Ariyanto (2023). In this process, students can also understand different points of view.

Social interaction in collaborative learning helps students develop social skills such as communication, cooperation and negotiation. These essential skills can be useful in everyday life and future careers. In collaborative learning, students often have to divide tasks and responsibilities. Social interaction with peers can help them agree on how to divide the work efficiently. It also allows them to leverage individual skills and strengths.

Peers can provide emotional support to each other during the learning process. They can encourage each other when faced with difficulties or confusion. Peers can also help reduce stress and increase students' self-confidence. Interaction with peers also opens the door to different points of view, experiences, and backgrounds. This can enrich students' discussions and understanding of the topics studied (Prastika et al., 2021).

Social interactions with peers can trigger critical thinking. Through peer discussions, students can ask questions, challenge ideas, and seek a deeper understanding of the material. However, it is essential to remember that effective collaborative learning also requires guidance and supervision from the lecturer. Lecturers can help direct students' social interactions to be more productive and focused on the learning goals that have been set. Additionally, collaborative learning must be well organised so that it does not become mere chatter or distraction. Overall, social interaction with peers has great potential to enhance collaborative learning by motivating students, increasing their understanding, and developing important social skills, and this is in line with research conducted by Prastika et al. (2021)And Alcalá et al..

The Influence of Student-Lecturer Interaction on Collaborative Learning

Student-lecturer interaction in collaborative learning does not affect collaborative learning, in contrast to peer interaction, which has an effect on collaborative learning. Lecturer-student interaction does not affect collaborative learning because the lecturers' roles are different. In cooperative learning, the lecturer's role is usually more as a facilitator than a dominant leader or instructor (Weinberger & Shonfeld, 2020). Lecturers provide guidance, direction, and support when needed, but they give students more autonomy in decision-making and carrying out assignments (Grimmett et al., 2018). Because the lecturer's role is more passive, direct interaction between lecturers and students is more limited than interaction between peers, so it has no effect on collaborative learning.

Collaborative learning usually emphasises joint learning between students, where they contribute actively in groups. Lecturers may focus more on facilitating student learning than interacting directly with individual students. Therefore, there may be less student-faculty interaction in this context. Students involved in collaborative learning are often required to develop social skills, such as effective communication, cooperation, and problem-solving. This aims to make them more independent in learning. In this case, students rely more on interactions with peers than lecturers (Maheni, 2019).

Based on class size and time constraints, lecturers have limitations in interacting intensively with each student in classes with a large number of students or with strict time constraints. This makes student-lecturer interaction more limited. However, student-lecturer interaction still has a vital role in collaborative learning. Lecturers still play a role in providing guidance, assessing student progress, and providing feedback. However, the main focus in collaborative learning is on interactions between students to build shared understanding, active learning, and development of social skills.

The Influence of Social Presence on Collaborative Learning

Social presence has a significant favourable influence on collaborative learning, both in online and offline learning environments. Social presence creates an environment supporting more effective student collaboration

(Chen et al., 2018). Social presence in collaborative learning has an impact on improving communication. Social presence can improve collaborative student communication (Molinillo et al., 2018a). When students feel that they are socially present and cared for by their friends, they tend to communicate more actively, share ideas, and discuss learning topics.

In addition, students who feel a social presence are more likely to feel motivated to collaborate well. They think that their peers value their contributions, which can increase their enthusiasm and engagement in collaborative tasks. Social presence can also increase student involvement in the collaborative learning (Nam, 2017). They feel more involved in planning, implementing, and evaluating joint projects, which leads to better results.

In collaborative groups, social presence can help divide roles and responsibilities more efficiently. Students who feel close to each other are more likely to work together in organising assignments and sharing tasks according to their respective skills and interests. Social presence helps in developing trust between students in collaborative groups. This trust is an essential foundation for successful collaboration because students feel comfortable sharing their thoughts, ideas, and problems they face.

A strong social presence can help reduce conflict in collaborative groups. Learners who feel that they have positive relationships with their peers are more likely to resolve differences of opinion constructively. In cooperative learning, the main goal is to achieve mutual understanding (Xu et al., 2020). Social presence allows students to feel they are working together as a team, promoting a deeper understanding of the material and learning objectives. Creating and maintaining a positive social presence is very important in the context of collaborative learning. This can be achieved through open interactions, respect for the contributions of each group member, and using appropriate communication tools to support effective collaboration. Social presence not only influences group dynamics but can also improve learning outcomes and shared understanding in collaborative learning (So & Brush, 2008).

The Influence of Social Media Use on Collaborative Learning

The use of social media in collaborative learning has little influence on collaborative learning. One of the reasons why this happens are because of the quality of the interaction. Social media is often used for more casual, unstructured interactions. This can lead to less focused and less in-depth communication than with collaborative learning platforms explicitly designed for specific learning objectives. Learners may be more inclined to share irrelevant information that does not support learning objectives.

Social media also causes distraction (Agarwal et al., 2021). Social media is often full of content that invites distraction, such as notifications, news, or posts from friends (Koessmeier & Büttner, 2021). This can disrupt learners' concentration during collaborative learning sessions and reduce productivity. Social media may have limitations in supporting the collaboration tools necessary for collaborative learning tasks. For example, tools for sharing documents, doing projects together, or creating follow-up plans may not be as effective as those on dedicated learning platforms.

Not all students may have the same access to social media or different preferences in their use. This can create inequities in participation and collaboration among students. In using social media, monitoring and controlling student interactions may be more difficult compared to learning platforms controlled by educators. Social media use leads to potential risks and behavioural problems that are difficult to overcome. Social media is generally designed for social interaction and entertainment rather than structured learning (Eid & Al-Jabri, 2016) (Whiting & Williams, 2013). This may not align with collaborative learning objectives that focus more on achieving specific learning objectives. Although social media can be a valuable tool in various contex-

ts, including learning, its use in collaborative learning needs to be considered carefully and well integrated into learning design. In many cases, using more specialized and controlled collaborative learning platforms may be more effective in supporting vital collaborative learning goals.

The Influence of Collaborative Learning on Student Engagement

Collaborative learning positively affects student engagement for various reasons, and it creates a more dynamic and engaging learning environment. There are several reasons collaborative learning influences student engagement; the first is social interaction. Cooperative learning involves active interaction between students. Students work together in groups, discussing and sharing ideas and providing feedback to each other (Herrmann, 2013). These social interactions create a strong sense of community and involvement because students feel connected to their peers.

Additionally, in collaborative learning, students often feel responsible not only to themselves but also to their group peers. This encourages them to participate actively and make meaningful contributions so as to satisfy their group members. Collaborative learning also encourages students to be active in the learning process (Qureshi et al., 2021). They have to think, talk, and act in groups, which makes learning more exciting and meaningful. More activities in this lesson help maintain student attention.

Through discussion and collaboration with their peers, students can understand the material in more depth. They can explain concepts to peers, ask questions, and seek better understanding, all of which increase engagement in the learning process. Collaborative learning also helps students develop social skills such as communication, cooperation, and negotiation (Chan et al., 2019). These skills are precious in real life and can motivate students to actively participate in learning.

Students in collaborative groups can provide emotional support to each other. They may feel more comfortable talking about challenges or confusion, and their friends can provide the necessary support. Engagement in collaborative learning often increases student motivation. They feel that they have an essential role in achieving the group's goals, which provides an additional motivational boost to participate well.

Collaborative learning creates a more dynamic, interactive, and student-focused environment, which, in turn, increases student engagement in the learning process. This can help students become more active in seeking understanding, collaborating with their peers, and gaining more profound knowledge. The results of this research align with the findings carried out by (2013) and Hernández (2012), which state that collaborative learning has a positive effect on student engagement.

The Influence of Student Engagement on Student Learning Performance

Student engagement has a positive influence on student learning performance. This is because student involvement creates a positive learning environment and improves their ability to understand, remember, and apply information. Students who are actively involved in learning tend to have higher motivation. They feel encouraged to learn and participate in learning activities. This motivation allows them to focus more on the subject and strive to achieve better results (Delfino, 2019).

Engaged students tend to participate actively in class by asking questions, discussing, or contributing to group activities. Active participation helps them better understand the subject matter because they are involved in learning. When students are engaged in learning, they are more likely to seek a deep understanding of the studied topic. They don't just receive information passively but actively seek answers, find solutions, and connect the concepts they learn. Students actively invol-

ved in learning are more likely to remember the information they have learned. This is because they engage in active processing and repetition of material, which helps strengthen long-term memory.

Student involvement also increases their ability to solve problems. They learn to identify problems, formulate hypotheses, and find solutions. This ability is essential in the learning process and everyday life. Student involvement encourages the development of critical thinking skills. They are invited to assess information, test assumptions, and make decisions based on critical thinking. These skills influence their ability to analyse information better.

As a result of all these factors, students actively involved in learning tend to achieve better learning outcomes (Bakker et al., 2015). They are better prepared to face tests, assignments, and projects because they have mastered the material better. Thus, student involvement is important not only for creating a positive learning environment but also for improving student learning performance. Students who are actively involved in learning tend to achieve better understanding, better retention, and higher overall learning outcomes; these results are in line with the findings of research conducted by Bakker et al. (2015) and Carini et al.

Collaborative Learning Mediates the Relationship Between Social Factors (Social Interaction with Peers), Student-Lecturer Interaction, Social Presence, and Use of Social Media) and Student Engagement

Collaborative learning can mediate the relationship between social factors, such as social interaction with peers, student-lecturer interaction, social presence, and use of social media, and student engagement. Collaborative learning may influence the extent to which these social factors influence students' levels of engagement. Social interaction with peers is a social factor that can increase student involvement. When students interact with peers in a collaborative learning context, they feel more engaged because they feel connected to their peers (So & Brush, 2008). These interactions allow them to share ideas, discuss topics, and solve problems together. Collaborative learning becomes a forum that facilitates this social interaction; through this interaction, students feel more involved in the learning process.

Positive interactions between students and lecturers also influence student engagement. In collaborative learning, the lecturer's role as a facilitator or mentor can guide and provide feedback that motivates students to participate actively in working groups. Lecturers who support and actively participate in collaborative learning can encourage students to be more involved and contribute generously.

Social presence refers to community and connection between students in a group or class (Chen et al., 2018). Collaborative learning naturally creates a social presence as students work together in groups. This sense of community can increase student engagement because they feel part of a supportive learning community. The use of social media in learning contexts can influence student engagement, but its role may be complex. In some cases, social media can be used to facilitate student interaction and collaboration. However, in other cases, social media can be a distraction or superficial interaction. Social media use should be guided wisely in collaborative learning to support student engagement rather than disrupt it.

Collaborative learning plays a mediating role because it creates an environment that supports social interaction, social skills development, and active student engagement. In the process, collaborative learning helps link social factors to student engagement. It is important to remember that these mediating effects may vary depending on how collaborative learning is implemented and integrated with other social factors in the learning context.

Student EngagementMediating the Relationship Between Social Factors, Collaborative Learning, and Student Learning Performance

Student engagement can mediate the relationship between social factors, collaborative learning, and student learning performance. This means that student involvement is an intermediary that connects social factors with cooperative learning and ultimately influences student learning performance. Social factors include various aspects, such as social interaction with peers, interaction with lecturers, social presence, and use of social media in the learning context (Molinillo et al., 2018b). These factors influence student engagement because they create a social environment that affects student motivation and engagement in the learning process.

Collaborative learning is a learning approach in which students work together in groups to achieve shared learning goals. This learning creates opportunities for students to interact, collaborate, and actively participate in learning. Collaborative learning improves students' understanding and social skills (Qureshi et al., 2021). Student engagement includes active participation, motivation, deep knowledge, and problem-solving. When students are actively engaged in collaborative learning, they participate in discussions, share ideas, and contribute to group projects. This engagement creates a better learning experience. Student learning performance includes learning outcomes, achievement of learning objectives, and students' ability to apply the knowledge and skills acquired in authentic contexts. Students' engagement in collaborative learning can positively influence their learning performance because they are more likely to achieve deep understanding, retain information, and apply knowledge.

In this context, student involvement is an intermediary that connects social factors with collaborative learning and, ultimately, student learning performance. Social factors influence students' level of engagement in collaborative learning, which in turn affects their learning performance. In this case, student involvement plays a vital role as a mediating factor that connects all these elements in the learning context. Supporting and encouraging active student engagement in collaborative learning is important to improve their overall learning outcomes.

CONCLUSION

The research results showed that social interaction (with peers) had a significantly positive effect on collaborative learning, student-lecturer interaction had no impact on collaborative learning, social presence had a significant positive impact on collaborative learning, use of social media had no impact on collaborative learning, collaborative learning significant positive impact on student engagement, Student engagement has a significant positive effect on student learning performance, Collaborative learning mediates the relationship between social factors (i.e. social interaction (with peers), student-lecturer interaction, social presence, use of social media) and student engagement, Student Engagement mediates the relationship between social factors, collaborative learning, and student learning performance.

This research also has several limitations. First, responses were collected from cross-sectional survey analysis. Future research should collect data from longitudinal research (i.e. surveys and observations) to validate the model further. Second, this research was conducted at the Universitas Negeri Semarang of Economic Education. Therefore, the results will only be limited to certain areas. Therefore, future research can take a broader sample to increase the generalizability of the results. Third, this research considers four social factors that influence active collaborative learning; therefore, future research should include other variables, such as student involvement or use learning outcomes as the dependent variable.

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