The Mediating Effect of Online Learning Self-Efficacy on the Relationship between Social Presence and Engagement Among College Education Students

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ABSTRACT

This study determined the mediating effect of online learning self-efficacy on the relationship between social presence and engagement among college education students of three college schools in Davao del Norte, with 300 respondents. Specifically, this study aimed to determine the level of social presence, student engagement, and online learning self-efficacy; to determine the significant relationship between social presence and student engagement, social presence and online learning self-efficacy, online learning self-efficacy, and student engagement; to determine the mediating effect of online learning self-efficacy on the relationship between social presence and engagement. The researcher employed a stratified random sampling technique, utilizing Slovin's formula to determine the optimal sample size. This study employed a non-experimental quantitative research design using a descriptive correlational approach. The results indicated a strong correlation between social presence, student engagement, and online learning self-efficacy, suggesting that these factors frequently contribute to high levels of achievement. The results demonstrated a partial mediation. The rejection of the hypothesis suggests a significant relationship among the three correlational variables. Thus, this proves that online learning self-efficacy plays an important role in the relationship between social presence and student engagement in online learning. Students with high self-efficacy in online learning are more likely to be engaged in their studies, even under challenging circumstances.

Keywords: online learning self-efficacy, social presence, student engagement, mediating effect, college students, teacher, Philippines.

INTRODUCTION

Most recent studies on student engagement have used it as a predictor of academic achievement and found that disengagement from school is the root cause of poor academic performance. It can result in social withdrawal and a lack of interest in school, which can lead to lower grades, increased absenteeism, and, ultimately, dropping out of school. These circumstances create an unproductive learning environment (Bergdahl, 2020). Moreover, studies indicate that students who are passive participants in the learning environment and, as a result, do not gain from involvement can also affect the learning process (Rone, 2023). Since then, the study of student engagement has evolved and expanded on how the quantity and quality of student effort affect learning and the teaching-learning process carried out in the school (Delfino, 2019).

According to Constructivist Learning Theory, learning is more likely to occur when the learning experience and meaning are connected. Through constructivism, the students learn once they acquire new ones (Westover,2021). When constructivism is used in educational practices, it will create a positive mutual contribution for instructors and students(Qureshi,2021).This can be achieved by cultivating a sense of responsibility in students, which can only be accomplished through the implementation of strategies that foster positive attitudes toward school and learning. Therefore, it significantly influences learners' performance, helps them find solutions to problems, and equips them with the skills needed to face life's challenges (Abualrob, 2022).

Factors that have been identified to determine how student engagement has a significant relationship with social presence and online learning self-efficacy. Social presence has a notable and favorable impact on student engagement. According to Tumwesigye (2023), the greater the students' perception of increased levels of social presence, the greater their level of participation and engagement in their learning activities. He claimed that open communication was a more influential factor in predicting student engagement compared to affective expression and group cohesion. Furthermore, Krejins (2021) emphasized the importance of identifying strategies to enhance an individual's social presence in the learning environment. Thus, it is crucial to create a more interactive and supportive educational experience, leading to increased motivation and greater academic achievement for students.

Social presence also has a significant relationship with online learning self-efficacy. Online learning relies heavily on social presence, which refers to learners' perception of their active participation in the virtual environment. Odhiambo (2023) highlighted that social presence is effective if cognitive and affective are included in a learning community. Moreover, According to Garrison, Anderson, and Archer's (2000) Community of Inquiry (CoI) framework, social presence is an important component of meaningful online interactions. Nasir (2020) asserted in his study that students who perceive a high level of social presence possess a higher level of course satisfaction.

On the other hand, Online Learning Self-Efficacy significantly influenced student engagement. According to Andal (2020), Online learning requires specific skills to achieve high learning outcomes. Students should certainly have fundamental computer skills and knowledge about Information Technology before taking online classes. It supports the study of Wu (2023) that the increased levels of online learning self-efficacy had a positive impact on students' engagement in online learning, validating the importance of learners' confidence in effectively navigating and succeeding in virtual learning environments. Moreover, it helps to develop teaching and learning, research, support services, administration, and communication, as well as the need for students and faculty to acquire new (digital) skills for their current and future workplaces(Salie, 2023).

The Community of Inquiry (CoI) model provided support for the theoretical study. Garrison et al. (2000) developed CoI, a social constructivist model, to better understand student engagement in online learning experiences. CoI defines meaningful learning in online environments as the interaction of three essential presences: cognitive presence, social presence, and teaching presence. According to Tumwesigye's (2023) research, social presence in the CoI framework refers to learners' ability to perceive themselves as members of a learning community and interact effectively with their peers. It is central to the theory. A strong social presence promotes belonging, active participation, and a supportive learning environment, all essential for student engagement. When students feel socially present in the online classroom, they are more likely to interact with their peers, engage in discussions, collaborate on projects, and seek assistance when necessary.

Social Cognitive Theory (SCT), created by Albert Bandura, is a fundamental psychology theory. The SCT emphasizes social interactions and observational learning as fundamental to human behavior. According to Bandura's theory, people learn from both their own experiences and the behaviors, beliefs, and attitudes of others in their social environment. This is social modeling. According to Bandura's SCT, online students' behavior and engagement can be greatly influenced by their peers. Observing peers actively participating, contributing insights, and engaging in meaningful interactions in virtual classrooms helps students model these behaviors, leading to increased engagement.

Transactional Distance Theory (TDT), developed by Michael G. Moore (1973), addresses distance education dynamics, including online learning. TDT is based on "transactional distance," the psychological and communication gap between distance education students and instructors. As transactional distance between learners and instructors increases, learner autonomy becomes crucial to learning quality, according to the theory. Reduced transactional distance depends on social presence. Students in online courses feel more connected to their instructors and peers when they perceive a high social presence. Online learning environments often have psychological and communication gaps that this connection can bridge.

This section presented different views from various readings, related studies, and research on Online Learning Self-Efficacy with the Online Environment Time Management and Technology Use indicators. Another variable discussed in this section is social presence, which includes the indicators of affective expression, open communication, and group cohesion. The last variable that will be discussed is student engagement, which has three indicators: Behavioral, Cognitive, and Emotional.

The dependent variable of the study is student engagement (Delfino, 2019), which has three indicators: Behavioral, cognitive, and emotional. Behavioral. Student engagement has three dimensions: behavioral, emotional, and cognitive. Behavioral engagement refers to a student's involvement in academic and extracurricular activities. Emotional engagement encompasses students' positive and negative reactions to peers, teachers, and school. Cognitive engagement refers to students' thoughtfulness and willingness to learn difficult skills.

On the other hand, the independent variable of the study is social presence (Kupczynski,2010), which has three indicators: Affective expression, open communication, and group cohesion. Affective expression is the ability of online learners to project themselves through such text-based verbal behaviors as the use of para-language, self-disclosure, humor, and other expressions of emotion and values. Open communication is the mutual and respectful exchange of information, including purposeful and trustful interactions with other students and course discussions in the online environment. Group cohesion refers to the student's sense of collaboration within a learning community, where they can acknowledge different perspectives.

Lastly, the mediating variable of the study is online learning self-efficacy (Andal, 2020) with three indicators: the Online Environment, Time Management, and Technology Use. An online environment is an environment in which students study a digital curriculum taught by instructors who deliver lectures online via video or audio. Time management is planning and organizing time between the things that need to be done. This can include homework, projects, study groups, and activities outside of school. Technology use includes computers, multimedia materials, networks, and communication systems to support learning.

The purpose of this study was to address the following research objectives: (i) to ascertain the social Presence of college education students in terms of Affective expression, Open communication, and Group Cohesion; (ii) to find out the level of Engagement among college education students in terms of Behavioral Engagement, Cognitive Engagement, and Emotional Engagement; (iii) to assess the level of online learning self-efficacy of college education students; (iv) to determine the significant relationship between Social presence and Engagement among college education students, Social Presence and Online learning self-efficacy among college education students; Online learning self-efficacy and Engagement among college education students(v) to determine if Online learning self-efficacy significantly mediates the relationship between Social Presence and Engagement among college education students.

The null hypotheses were tested at a 0.05 significance level, indicating that (i) there is no significant relationship between social Presence and students' Engagement. (ii) there is no significant relationship between social Presence and online learning self-efficacy. (iii) there is no significant relationship between online learning self-efficacy and student engagement, and (iv) Online learning self-efficacy does not mediate the relationship between social Presence and Engagement among college students.

This study aims to determine whether online learning self-efficacy can mediate between social presence and student engagement. This would increase the level of understanding of online learning in light of social presence and student engagement. The present situation has led the researcher to understand effective strategies to maximize learning experiences.

Miao and Ma (2022) examined how social presence and online interaction affect learning engagement in online settings for 334 first-year students at a Chinese university. According to the results, interacting online changed social presence and, through social presence, changed learning engagement. O'Shea, Stone, and Delahunty (2020) investigated online student engagement experiences at a higher education institution in Australia. The study used a case study approach, following 24 online students over one academic year

through interviews, surveys, and learning analytics data. The findings revealed that online student engagement is a complex and dynamic phenomenon that requires a delicate balance of personal, academic, and professional commitments. According to the findings supported by the study conducted by Callo and Yazon (2020), respondents' familiarity and capability, preparation, device and access connectivity, self-efficacy, and technological experience account for 67.1% of the variation in the online teaching and learning readiness score in college respondents in the Philippines. Thus, it explores the factors that influence the readiness of students for online teaching and learning. In the researcher's locality, although there are some related studies about student engagement, the researcher has yet to find a study on the mediating effect of online learning self-efficacy on the relationship between social presence and student engagement.

The current study aimed to contribute new knowledge on social presence and student engagement. The researcher aimed to investigate the impact of online learning self-efficacy and social presence on student engagement to increase responsiveness to the study's target audience.

METHOD

This part of the study discussed how the study was conducted. This included the research participants, materials or instruments used, and research design incorporating the research protocol, description of the design, data gathering procedure, and statistical test to be used in this study.

Research Respondents

In this study, the targeted participants were college education students of three selected tertiary institutions of the University of Mindanao branches located in Panabo City, Tagum City, and Samal Island, all in Davao del Norte. The respondents were all first- to third-year education students. All students who were in the fourth year and who were not education students were excluded from the study. The total number of students who took part in the study was 300.The researcher used the stratified random sampling technique. One technique that researchers frequently employ is stratified random sampling, which allows them to ensure that every relevant subgroup is represented in the sample population and so best represents the whole population under study.

Additionally, Slovin's formula was used to determine the optimal sample size for the population. The maximum sample size of Slovin's Formula was used to determine the desired sample size. Slovin's Formula was used to compute the sample size (n) given the population size (N) and an error margin (e). It is a formula for estimating the sampling size used in sampling techniques. The researcher used the stratified random sampling technique to obtain the optimal population sample size.

The researcher distributed 33% to School A, 33% to School B, and lastly, 33% to School C using the data provided by the selected institution. If respondents believe they are unable to discuss certain facts related to the study, they are free to withdraw their participation. There was no punishment for respondents who refused to participate. The respondents were college education students who underwent a blended learning where the students encountered a teaching style that combines technology and digital media with traditional instructor-led classroom activities, allowing them to tailor their learning experiences from 18 years old and above, limited to no specific gender. However, students who were absent or unavailable at the moment the questionnaire was administered will be excluded as respondents.

This study was conducted within Panabo City, Tagum City, and Samal, Davao del Norte, to resolve concerns regarding online learning self-efficacy, social presence, and student engagement. Region XI's Panabo City is situated halfway between the two thriving cities of Tagum and Tibungco (Davao City). It lies within the latitude range of 1250 to 44" North and the longitude range of 7°,14" and 23" East. Its northwest and western boundaries are the municipalities of Carmen and Davao, respectively. On the other hand, Tagum City is located with an approximate latitude of 7° 27' North and longitude of 125° 49' East. The estimated elevation at these coordinates is 78.8 feet or 24.0 meters above mean sea level, while Samal Island is located with an approximate coordinate of 7° 4' North, 125° 43' East. The estimated elevation at these coordinates is

27.7 feet or 8.4 meters above mean sea level.

Materials and Instrument

The researcher used three sets of instruments to assess online learning self-efficacy, social presence, and student engagement. To determine the level of social presence as an independent variable, the researcher used the adopted standardized community inquiry survey instrument developed by Garrison et al. (2008), with the following indicators: affective expression, open communication, and group cohesion.

On the other hand, to determine student engagement as the dependent variable, the researcher used a standardized questionnaire developed by Delfino (2019) with the following indicators: Behavioral, Cognitive, and Emotional Engagement. Lastly, to measure the level of online learning self-efficacy as the mediating variable, the items in this scale were adapted from the study of Zimmerman and Kulikowich (2016). Rest assured that the instrument's contents were presented to a group of experts for validation.

The evaluation of the social presence, student engagement, and online learning self-efficacy involved the consideration of five distinct gradations. Each gradation was assigned a range of means and a corresponding description: 4.20- 5.00 with a descriptive equivalent of Very High and interpreted that the item means always manifested; 3.40- 4.19 with a descriptive equivalent of High, and analyzed as the item means often manifested; 2.60- 3.39 described as Moderate and the item implies sometimes manifested; 1.80- 2.59 described as Low and means that the item implies seldom manifested; and lastly, 1.00- 1.79 described as Very Low and interpreted.

As a component of the methodology, the three sets of instruments underwent pilot testing with a sample of 30 participants to ascertain the Cronbach Alpha values before the content validation conducted by experts. Upon the reliability test, the independent variable (social presence) generated a Cronbach Alpha of 0.91, higher than the required 0.70 of the reliability from the pilot testing of the scale given to the respondents. The dependent variable (student engagement) generated a Cronbach Alpha of 0.959, higher than 0.70 of the required Cronbach Alpha value, and the mediating variable (online learning self-efficacy) got 0.923, which is more significant than 0.70. All three variables generated an overall Cronbach Alpha of 0.0.930, higher than the required 0.70, which means that the item never manifested.

Design and Procedure

This study utilized a non-experimental quantitative research design, employing a descriptive-correlational technique. It used adopted standardized questionnaires to gather data from the respondents. This procedure determined the relationship between two or more variables and examined the level to which one or more relationships exist.

After the approval of the panel members, the researcher underwent the following steps and procedures in gathering data for the study:

The researcher asked permission from the Dean of Education of UM Panabo City, U.M. Tagum City, and UM Peñaplata to conduct the study. Then, the researcher secured a letter of approval from the director's office or school head's office. Upon approval, the letter of endorsement sought to accommodate the researcher in administering the survey questionnaire in printed form to the study respondents. Similarly, the researcher requested permission from the teachers at the school to deliver the survey questionnaire to their students along with the informed consent form. This was done to protect the confidentiality of the information.

Then, the researcher personally presented the questionnaire to the prospective respondents, discussed the research tool and its purpose, and provided a briefing and debriefing to them before administering the questionnaire. This was done to ensure that the respondents were fully informed of their right to withdraw. Afterward, the researcher retrieved the survey questionnaires once the respondents had completed all of the items on the questionnaire. Under the rules of Republic Act 9262, it was the researcher's responsibility to

ensure that the data were stored securely and protected from unauthorized access. Last but not least, the researcher compiled and tabulated all of the information that was received from the respondents. This was done by statistical analyses and under the direction of a certified statistician whom the institution recommended. An analysis and interpretation of the statistical results were carried out. With the use of the data, conclusions were reached, and recommendations were developed based on the findings of the study.

Several statistical techniques were used to analyze and interpret the data, including mean calculation, Pearson correlation coefficient (r), simple regression analysis, and the Sobel test. The mean was used to measure the level of social presence, student engagement, and online learning self-efficacy. Pearson (r) was used to determine the substantial association between social presence and student engagement, as well as the significant relationship between online learning self-efficacy and student engagement. A simple regression study revealed the impact of social presence and online learning self-efficacy on student engagement. Finally, the Sobel Test was utilized to examine how online learning self-efficacy influences the relationship between social presence and student engagement.

RESULTS AND DISCUSSION

This chapter presented the data and the conclusions drawn from the respondents' responses on online learning self-efficacy, social presence, and engagement among college education students in three selected tertiary institutions of the University of Mindanao in Davao del Norte. The tables have the following subheadings: level of social presence, level of student engagement, level of online learning self-efficacy, the significance of the relationship between social presence and student engagement, social presence and online learning self-efficacy, and online learning self-efficacy and student engagement, and test of the mediating effect of online learning self-efficacy on the relationship between social presence and engagement among college education students.

The Level of Social Presence

Table 1 presents the statistical findings for evaluating the degree of social presence, with an average of 3.67 and a standard deviation of 0.80. This level was rated as High, indicating that it was often observed among the respondents.

Open communication had the highest mean score of 3.70 among the three variables, with a standard deviation (S.D.) of 0.79, suggesting a high degree. The next factor to consider was group cohesion, which has a mean score of 3.66 and a standard deviation of 0.80. This factor was defined as high. Following that was affective expression, which has a mean score of 3.65 and a standard deviation of 0.80. This indicates that all three signs were commonly observed among the respondents.

Table 1. Level of Social Presence

Indicators	SD	Mean	Descriptive Level
Affective expression	0.8	3.65	High
Open Communication	0.79	3.7	High
Group Cohesion	0.8	3.66	High
Total Results	0.8	3.67	High

Table 1 indicated that the individuals had a high level of social presence. All the variables, such as affective expression, open communication, and group cohesion, clearly had an average score above 3.5, indicating a high social presence. The college education students were actively involved and likely made a beneficial contribution to the group's dynamics, potentially leading to more successful results.

According to Odhiambo (2023), when students feel socially present and supported in the online classroom, they are more likely to exhibit cognitive and affective engagement behaviors, resulting in a more holistic and meaningful learning experience. Moreover, developing a social presence in the course gives the

learners a greater sense of connection and promotes active communication with each other, the teacher, and the course. (Farrell and Brunton, 2020).

The Level of Student Engagement

Table 2 presents the statistical findings on evaluating student engagement. The overall mean was 3.70, with a standard deviation of 0.89. The respondents have often observed this level of engagement, which they characterize as "High."

Of the three measures, cognitive items had the highest mean score of 3.75 with a standard deviation (S.D.) of 0.83, suggesting a high level. The subsequent category was emotional items, with an average score of 3.72 and a standard deviation of 0.92. This category was also high. Following that, behavioral items had an average score of 3.62 and a standard deviation of 0.93. The results suggested that the respondents commonly observed all three signs.

Table 2. Level of Student Engagement

Indicators	SD	Mean	Descriptive Level
Behavioral items	0.93	3.62	High
Cognitive items	0.83	3.75	High
Emotional items	0.92	3.72	High
Total Results	0.89	3.7	High

The high degree of student engagement suggested that the teaching approaches employed in the classroom are efficient. Teachers who use a variety of instructional tactics, such as collaborative learning and hands-on activities, foster more student involvement rather than just relying on traditional lecture-based education.

Ben-Eliyahu (2018) emphasized that instructors can enhance student engagement by developing a multimodal strategy that addresses behavioral issues, emotional connections, and cognitive engagement with the subject matter. Moreover, students exhibit in acquiring knowledge or being taught, which impacts their drive to learn and their academic advancement. It also encompasses active involvement in various academic and extracurricular activities and dedication to achieving learning objectives (Kadir, 2022).

The Level of Online Learning Self-efficacy

Table 3 displays the statistical results of the assessment of online learning self-efficacy. The average student engagement score was 3.82, with a standard deviation of 0.83. Respondents often observed this level of participation, classifying it as "High.

Among the three variables, Technology use received the highest average score of 3.90, with a standard deviation (S.D.) of 0.80, indicating a significant level. The following category was Time management, with an average score of 3.86 and a standard deviation of 0.80. They also classified this category as high. Subsequently, the Online environment exhibited a mean score of 3.73 and a standard deviation of 0.85. These findings indicated that all three indicators were evident and often noticed among college education students.

Table 3. Level of online learning self-efficacy

Indicators	SD	Mean	Descriptive Level
Online environment	0.85	3.73	High

Time management	0.8	3.86	High
Technology use	0.8	3.9	High
Total Results	0.83	3.82	High

The results shown in Table 3 indicate that college education students strongly believe in their abilities to succeed in online learning. The high level of online learning self-efficacy among college education students may have prior experience in online learning, which has helped them develop the necessary skills and confidence to succeed. As the number of students participating in online education grows, understanding and promoting student participation will become increasingly crucial in assuring optimal learning results. Utilizing multimedia, interactive simulations, and content increases student engagement in online learning environments (Odhiambo, 2023). In addition, teachers and school administrators often manifest extensive support and advice, allowing pupils to overcome any challenges experienced during online learning.

The study's findings have significant consequences for educators and school administrators. Students receive the essential support and resources to ensure the success of online learning. These resources and support include access to technology, education on efficient time management, and training on navigating the complexity of the online learning environment. Furthermore, teachers provide frequent feedback to their students and foster a friendly and collaborative learning environment to encourage students to participate actively in their education. Working together, educators and school officials can help students build the self-confidence and skills required for success in online learning.

Correlation between Social presence, Student engagement, and Online learning self-efficacy

Table 4 shows the relationship between the independent (social presence, dependent (student engagement), and mediator (online learning self-efficacy) variables.

Table 4: Significance Relationship between Social Presence, Student

	Variables	**Correlation Coefficient**	**p-value**	**Decision**
IV and DV	Social presence and student engagement	.482**	0	Reject
IV and MV	Social presence and online learning self-efficacy	.529**	0	Reject
MV and DV	Online learning self-efficacy and student engagement	.440**	0	Reject

Correlation Analysis of the Variables

The relationships between the variables were evaluated using a bivariate correlation analysis with Pearson product-moment correlation. The initial zero-ordered correlation analysis between social presence and student engagement yielded a computed r-value of 0.482 with a p-value of 0.000, which is significant at a 0.05 level—the results show a favorable and robust relationship between the two variables. As a result, the null hypothesis was rejected.

Correspondingly, the second correlation analysis between social presence and online learning self-efficacy generated an r-value of 0.529 with a p-value of 0.000, which is significant at a 0.05 level. The finding implied that the two variables have a considerable and strong association. As a result, the null hypothesis was rejected.

The third correlational analysis of online learning self-efficacy and student engagement found an r-

value of 0.440 with a p-value of 0.000, which is a significant level of 0.05. The findings revealed a favorable and robust relationship between the two factors. As a result, the null hypothesis was rejected.

First, social presence significantly relates to student engagement. The finding implies that social presence has found a positive, strong relationship with student engagement. It supports the claim of Tumwesigye (2023) that the students will participate and engage in their learning activities to a greater extent if they perceive higher levels of social presence in their environment. Students will be more motivated and interested in actively interacting with their online learning activities if they experience a high level of connectedness through high-level interactions between peers, instructors, and content, a sense of networked community, and collaboration. For this reason, students will perceive a tremendous sense of connectivity. To strengthen the claim, (Jaradat,2020) mentioned that student satisfaction needs to focus more on social presence to perceived learning.

Similarly, social presence positively and significantly relates to online learning self-efficacy, which implies the impact of students' active involvement. The results indicate that increasing students' social presence can improve their perception of learning and satisfaction with online courses. Online course instructors promoted social presence among students by encouraging emotional expression, open communication, and group cohesion. Social presence is believed to be more strongly linked to learning outcomes than instructional and cognitive presence.

This agrees with the claim revealed by Nasir, 2020, that the social presence of students, which has been recognized as social interaction among students, is a critical component that maintains the effectiveness of the virtual learning approach. Moreover, Holmes, 2020, clearly expressed the importance of meaningful and intentional interventions in online learning classes, which can increase social presence. The presence of social interactions can contribute to an increase in engagement and connection with course material, resulting in a more extensive cognitive presence.

Lastly, online learning self-efficacy significantly correlates with student engagement. It indicates that the students' adaptable abilities are crucial for online learning since they must use multiple educational assistance technologies, learn independently, and connect with teachers and classmates. Furthermore, computer self-efficacy is critical when evaluating technology utilization in online education.

Students with a high level of computer self-efficacy will be more engaged during the lesson session since they will feel less apprehensive (Wolverton et al., 2020). Furthermore, the influence of self-efficacy in establishing academic flow, which in turn makes individuals more focused on learning, cannot be isolated from completing a task (Pantu, 2021). Therefore, for students to continue participating in the learning process under challenging circumstances, they need to have a high level of self-efficacy (Sriwiyante & Saefudin, 2021).

Mediation Analysis of the Online-learning Self-Efficacy, Social Presence, and Student Engagement

The data was subjected to linear regression analysis, and the med graph was generated using the results. Baron and Kenny's mediation analysis examines the mediating effect of a third variable in the relationship between two variables. Four steps must be completed before a third variable can mediate.

Table 5: Regression results of the variables in the four criteria of the presence of mediating effect

Step	Path	Beta (Unstandardized)	Standard Error	Beta (Standardized)
Step 1	c	0.455	0.048	0.482
Step 2	a	0.405	0.038	0.529
Step 3	b	0.316	0.072	0.256
Step 4	c'	0.327	0.055	0.347

Table 5 classifies the steps from 1 to 4. In step 1, social presence as the independent variable (IV) significantly predicts student engagement, the study's dependent variable (DV). In step 2, social presence significantly predicts online learning self-efficacy, the mediator (M). In step 3, online learning self-efficacy significantly predicts student engagement.

Since the three steps (paths a, b, and c) were significant, additional mediation analysis using the med graph, including the Sobel z test, was required to determine the mediation effect's significance. Complete mediation occurs when the impact of the independent variable on the dependent variable is statistically insignificant at the end of the analysis. This means that the mediator variable mediates all of the effects.

Furthermore, only partial mediation is obtained if the regression coefficient is significantly reduced in the final step but still significant. The findings imply that part of the independent variable (social presence) is mediated by the mediator (online learning self-efficacy). However, other parts are either direct or mediated by variables not included in the model. In this case, as shown in step 4 (c'), the effect of social presence on student engagement was enhanced after being mediated by online learning self-efficacy. Partial mediation occurred when the impact was significant at0.05.

Overall, the results suggest that Social presence, Student engagement, and Online Learning Self-efficacy are important variables to consider when designing and implementing online learning environments. Strategies aimed at enhancing these variables may lead to improved student outcomes in online learning contexts.

Figure 2 shows the result of the computation of mediating effects. The Sobel test yielded a z-value of 4.058 with a p-value of 0.0000, which is significant at 0.05. The result means that the mediating effect is partial, such that the original direct impact of social presence on student engagement improved with the addition of online learning self-efficacy. The positive value of Sobel z indicates that with the addition of online learning self-efficacy, students who feel socially connected in online learning environments are more likely to be engaged in their studies.

The figure also displays the results of the effect size calculation for the mediation test between the three variables. The effect size measures the portion of the indirect path that encompasses the effect of social presence. The total effect value of 0.455 is the social presence and student engagement. The regression included student engagement and found a direct effect value of 0.327 for online learning self-efficacy. This suggests that students engaged in their studies are more likely to have confidence in their ability to learn online. Thus, it indicates the importance of technology in online learning. The use of technology facilitates access to educational resources, encourages independent learning, and establishes virtual connections, all of which are considered critical components of online education.

The indirect effect value of 0.128 is the amount of the original beta between the social presence and student engagement that now goes through online learning self-efficacy to student engagement (a * b), where "a" refers to the path between IV and DV and "b" refers to the path between MV and DV.

According to the result, social presence plays a significant role in mediating student engagement. The study concurs with Ho et al. (2023), who state that the indirect effect must be statistically significant to establish the mediating effect. The study revealed that social presence had a notable impact on self-regulated learning, which had a robust correlation with learning satisfaction. The presence of others in a social context directly and indirectly affected the degree of satisfaction experienced during the learning process, which was mediated by the individual's ability to regulate their learning. Moreover, social presence can improve the overall environment of active community learning by promoting learner engagement and fostering increased learner interaction.

On the other hand, Social presence significantly mediates student engagement. It was found that there is a positive and significant relationship between social presence and student engagement, as demonstrated by the findings of Wilson (2018). He found that students in an online course who perceived a

higher social presence placed greater value on greater enjoyment and interest and a lower likelihood of dropping the online course. Furthermore, Maeda, Lv, and Caskurlu (2018) asserted that online courses with a robust social component positively impact students' engagement. The increased social presence among students enhances their sense of identification with their peers and the course material.

Lastly, Student engagement is influenced by online learning self-efficacy. The result also resonates with Singh's (2022) findings that online learning impacts students' level of engagement. Research has revealed a robust positive correlation between the two variables. The findings are further corroborated by previous research, which indicates that students exhibiting elevated levels of self-efficacy are more likely to demonstrate increased engagement and motivation. However, there has been a detrimental decline in student engagement during emergency online learning. The diminished students' positive attitude toward lessons is the driving force behind the lack of emotional engagement, as Wester et al. (2021) stated. Additionally, Sugden et al. (2021) emphasized boredom in online classes, which resulted in decreased cognitive engagement among students, leading to disengagement in maintaining focus on tasks and lessons.

CONCLUSION AND RECOMMENDATION

This section presents the conclusions reached after considering the study's findings. The college education students in three selected tertiary institutions of the University of Mindanao in Panabo City, Tagum City, and IGACOS Davao del Norte reported high levels of social presence, student engagement, and self-efficacy for online learning.

The findings also show a significant relationship between social presence and engagement among college education students in three selected tertiary institutions of the University of Mindanao in Panabo City, Tagum City, and IGACOS, Davao del Norte. Correspondingly, respondents reported a significant relationship between student engagement and online learning self-efficacy.

Similarly, the findings showed a significant relationship between online learning self-efficacy and engagement among the respondents. The study's results suggest that online learning mediates the relationship between social presence and student engagement. The mediation analysis revealed that online learning self-efficacy partially mediated the relationship between social presence and student engagement.

These results suggest that the mediator variable partially explains the relationship between social presence and student engagement and should be considered in the analysis and interpretation of the study's findings. The findings also suggest that the mediator variable plays a vital role in the relationship between social presence and student engagement, and future research should explore this relationship.

The study found a significant relationship between social presence and engagement among college education students at three selected tertiary institutions of the University of Mindanao in Panabo City, Tagum City, and IGACOS, Davao del Norte. In summary, the researcher recommends that students maintain and enhance active engagement in school activities like discussion forums, group projects, and other activities promoting student interaction and collaboration.

Moreover, the study revealed a significant relationship between social presence and online learning self-efficacy. The researcher recommends that educators should create discussion forums, group projects, and peer feedback activities that promote collaboration and communication among students. Instructors should also lead by example by participating in discussions and providing timely feedback to enhance the sense of community and social presence in the virtual classroom.

The study also revealed a significant correlation between online learning self-efficacy and engagement among college students. The researcher recommends that instructors design activities that require students to work collaboratively and provide constructive feedback to their peers. Peer review assignments, group projects, and discussion board activities can all serve as opportunities for students to interact and engage with one another.

Finally, the analysis of mediation reveals that the relationship between social presence and student engagement was partially mediated by online learning self-efficacy. Researcher recommends that instructors use surveys, self-assessments, or qualitative feedback to gauge how students perceive the social environment. This feedback can help identify areas where improvements are needed and guide adjustments to instructional strategies and course design.

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