



## Students' Social Interaction, Collaborative Learning, and Perceived Learning in an Online Learning Environment

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### **Abstract**

Learning is a social process, but limited studies have explored the degree of social interaction and collaborative learning in an online learning environment and whether these variables foster students' perceived learning. This descriptive-correlational research determined the level of students' social interaction, collaborative learning, and perceived learning in the online learning environment and analyzed the relationships between these three (3) variables. The data were gathered using online survey questionnaires distributed to 288 conveniently sampled teacher education students from a state university in an eastern province of the Philippines. Descriptive and inferential statistics were used to analyze the data. Results revealed a high level of social interaction, collaborative learning, and perceived learning in an online learning environment, and a significant relationship among the variables was also noted. Thus, teachers should encourage social interaction and collaborative learning among students to foster learning in an online learning environment.

**Keywords:** *Education; Social Interaction; Collaborative Learning; Perceived Learning; Descriptive Correlational; Philippines*

### **Introduction**

Learning is a social process. Teacher-student interactions and student-student interactions or collaborations are critical elements of students' motivation, achievement, and success (Nugent, 2009). But with the threat of the COVID-19 virus, educational institutions were forced to migrate to remote learning modalities like online learning (Teymori & Fardin, 2020; Torres Martín, Acal, El Honrani, & Mingorance Estrada, 2021) in compliance with government restrictions aimed to contain the rapid transmissibility of the virus (Atalan, 2020; Talabis et al., 2021). Although online education has become a new norm in almost all higher education institutions (HEIs), it is still at an early age, especially for those HEIs that have been used to traditional face-to-face classes. Consequently, there remains a need for teachers and school administrators to understand how social interaction, collaborative learning, and learning itself take place in an online learning environment.

Social interaction is defined as “an interaction between learners and instructors that occurs when instructors adopt strategies to promote interpersonal encouragement and social integration”

(Jung, Choi, Lim, & Leem, 2002, p. 153). Several studies have pointed out that a high level of social interaction in an online learning environment results in higher learning engagement among students. Spears (2012), for example, found out a significant correlation between social interaction and collaborative learning in online courses and even in courses offered face-to-face. Hara et al. (2000) also elucidated that social interaction in the online learning environment is essential in keeping students feel connected with others despite space barriers.

Moreover, a strong correlation between and social interaction and learner's achievement has also been established. Pacciano (2002), in his study, in particular, concluded that a quality social interaction in an online learning environment results in positive student performance in an online course and a high level of satisfaction. Likewise, Richardson and Swan (2003) explained that classroom interaction is vital in an online learning environment to promote student learning and retention. Hence, Bali and Liu (2018) emphasized that social learning should be present in a learning environment to foster productive and meaningful experience for students, and thus it should be considered as one of the essential elements in online learning (Jung, Choi, Lim, & Leem, 2002).

Collaborative learning, on the other hand, is "an instructional approach in which a small number of learners interact together and share knowledge and skills to reach a specific learning goal" (So & Brush, 2008, p. 322). Like social interaction, several studies have also identified the positive effects of collaborative learning in students' achievement in particular and in the teaching-learning process in general. For instance, the study of Balta and Awedh (2017) postulated that online collaborative learning positively predicts students' academic performance. In addition, it also stimulates active learning and knowledge construction among learners (Gomez-Sanchez et al., 2009).

Moreover, Zhaobin et al. (2013) postulated that cloud-supported collaborative learning could effectively facilitate the teaching and learning process. As mentioned by Zeng (2016), collaborative learning helps develop advanced thinking among students. Thus, it is essential in an online learning environment it enables learners to understand the lesson's content that they have difficulty understanding on their own (Mende, Proske, & Narciss, 2020).

The preceding literature has underscored the importance and positive effects of social interaction and collaborative learning in a learning environment. This adds to how important it is to study students' perception of these variables in an online learning environment and how it influences their perceived learning. This is especially important for universities that have just migrated to online learning.

In the Philippines, higher education institutions (HEIs) specifically use flexible learning (Cervantes, 2020). FL is a learner-centered pedagogy that gives instructors and students equal freedom in terms of learning pace, location, procedure, and outcome (Huang, Liu, Tlili, Yang, & Wang, 2020; Joan, 2013) by integrating technologies (Cassidy, Fu, Valley, Lomas, & Jovel, 2016). In the case of Biliran Province State University (BiPSU), the university has been primarily utilizing a Moodle-based learning management system in facilitating the teaching-learning process, which is used by both faculty and learners at the onset of the COVID-19 pandemic in the academic year 2020-2021 until the present academic year 2021-2022.

In BiPSU's flexible learning framework, the delivery of the lesson is purely online, and the students are based at home or in a setting far from the school due to constraints like border lockdowns and other government restrictions. In this case, technology is integrated with most of the lessons. The pedagogy is also blended where the various combination of strategies is facilitated through an online mode. The university technically used synchronous and asynchronous e-learning or online learning. In asynchronous learning e-learning or online learning, students and teachers need not be online

simultaneously. Teachers will upload the learning materials in the LMS, and the students can log on and download the materials anytime and submit their answers using the platform (Hrastinski, 2008). On the other hand, synchronous e-learning or online learning requires teachers and students to be online at the same time. Classes are held through video conferencing through Google Meet or the ZOOM platform, allowing real-time interaction between teachers and students (Hrastinski, 2008).

However, due to internet connectivity issues in developing countries like the Philippines, synchronous e-learning became less attractive among teachers and students (Lagat, 2020; Gering & Kiraly, 2020). Thus, teachers and students usually use asynchronous e-learning or online learning. In this scenario, the facilitator of learning would be the parent, guardian, tutor, or any adult who can assist the learner. On the other hand, the teacher monitors the learner at scheduled times using various platforms such as FACEBOOK Messenger, email, and the university's learning management system. This interaction between students and teachers is purely online.

However, to date, no studies have explored the level of social interaction and collaborative learning in the university's online learning environment and whether the type of social interaction and collaborative learning in an online learning environment fosters perceived learning of the students. Moreover, being a higher education institution that just migrated in the said modality, there is a need for teachers and school administrators to understand how social interaction, collaborative learning, and learning itself take place in an online learning environment.

In this context, the researchers sought to determine the level of students' social interaction, collaborative learning, and perceived learning in the online learning environment. Moreover, this research investigated the relationships between these variables. The results of this current study are intended to improve the quality of the teaching and learning process in an online learning environment.

### ***Theoretical Framework of the Study***

This study is chiefly anchored on Collaborative Learning Theory. This theory is rooted in Lev Vygotsky's idea on Zone of Proximal Development (Vygotsky, 1978). Collaborative learning theory postulates that critical thinking can be fostered through peer-to-peer learning. In collaborative learning, students are given opportunities to organize, clarify, elaborate, or practice information. Thus, learners become active participants in the learning process rather than passive recipients of information (Udvari-Solner, 2012).

Studies have shown the beneficial effect of social interaction and collaborative learning on the academic achievement of students (Zhaobin, Wenzhi, & Caidong, 2013; Spears, 2012). Moreover, they are essential in an online learning environment as they enable learners to understand the lesson's content that they have difficulty understanding on their own (Mende, Proske, & Narciss, 2020). Thus, the aforementioned pieces of literature offer a framework to investigate students' perception of social interaction and collaborative learning and their relationship with their perceived learning in an online learning environment.

### ***Methodology***

This quantitative study utilized a descriptive-correlational research design. This design is helpful in this study since it describes the variables and their relationship (Sousa, Driessnack, & Mendes, 2007). The descriptive approach determined the level of social presence, social interaction,

and collaborative learning in an online learning environment, while the correlational approach analyzed the relationship between these three (3) variables.

The respondents of this study were 288 students from the School of Teacher Education of Biliran Province State University enrolled in the second semester of Academic Year 2020-2021. These respondents were identified through a convenient sampling method due to complications or restrictions in face-to-face interaction and the threat of the COVID-19 virus.

In this research, the items on perceived learning included in the Student Learning and Satisfaction in Online Learning Environments Instrument (SLS-OLE) by Gray and DiLoreto (2016) were taken to assess the level of students' perceived learning in an online learning environment. While the 7-item Collaborative Learning subscale (CLSS) developed by So and Brush (2008) and the 6-item social interaction instrument of Picciano (2002) were used to assess the level of collaborative learning and social interaction, respectively. The reliability of these instruments in the present study was tested by conducting pilot testing on 30 students in the same school in which the result yielded a reliability index of 0.900 for the Collaborative Learning instrument, 0.924 for the Social Interaction Instrument, and 0.864 for Perceived Learning instrument using Cronbach's Alpha, importing the reliability of the instruments used in this study. All the research instruments were organized and prepared in 5-point Likert Scale.

Before the study commenced, the respondents' informed consent, institutional review, and approval were requested and secured first. The researchers alone had the access to the responses of the respondents. All information and data gathered in this study were treated with confidentiality pursuant to Republic Act 10173 or Data Privacy Act of 2012 of the Philippines.

Following the approval of informed consent and the institution, respondents' responses were collected by sending a google form where the instruments were attached to the FACEBOOK messenger or email of the respondents due to restrictions on face-to-face meetings.

The researcher utilized mean, standard deviation, and Pearson r product-moment correlation to analyze the data.

## ***Results and Discussion***

Table 1 presents the level of Social Interaction, Collaborative Learning, and Perceived Learning in an online learning environment. The results showed that in an online learning environment students experienced a high level of social interaction ( $M= 3.47$ ,  $SD= 0.802$ ), collaborative learning ( $M= 3.61$ ,  $SD= 0.716$ ), and perceived learning ( $M= 3.74$ ,  $SD= 0.691$ ). This means that the online learning environment in the university promotes social interaction, collaborative learning, and perceived learning among students.

**Table 1.** *Level of Social Interaction, Collaborative Learning, and Perceived Learning*

<b>Variables</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Interpretation</b>
<b>Social Interaction</b>	3.47	0.802	High
<b>Collaborative Learning</b>	3.61	0.716	High
<b>Perceived Learning</b>	3.74	0.691	High

*Note:*

*Range Means*

<i>Point Values</i>	<i>Statistical Limit</i>	<i>Descriptive Interpretation</i>
5	4.20-5.00	Very High
4	3.40- 4.19	High
3	2.60- 3.39	Moderate
2	1.80-2.59	Low
1	1.00- 1.79	Very Low

This result backs up findings of Bali and Liu (2018), which noted a high level of social interaction, social presence, and satisfaction in an online learning environment. Although compared to face-to-face courses, they found out that online courses have lower-level learning perception, social presence, and satisfaction (Bali & Liu, 2018).

The high degree of perceived student learning can be attributable to a number of variables, which could include the high level of social interaction and collaborative learning recorded in this study. Gray and DiLoreto (2016) reported that learners' social interaction in an online learning environment has a significant effect on the perceived learning of students. Other determinants of high perceived learning in the online learning environment that this study might have failed to capture include; student motivation, course structure, instructor knowledge, and facilitation (Baber, 2020).

Nevertheless, it is also important remember that other studies have documented that learners, especially those from economically disadvantaged households, reported otherwise regarding perceived learning and achievement (Rotas & Cahapay, 2020; Cullinan, Flannery, Harold, Lyons, & Palcic, 2021). Factors identified for this include; lack of access to learning resources and limited guidance in remote learning. (Kalil, Mayer, & Shah, 2020; Jæger & Blaabæk, 2020).

The high level of social interaction and collaborative learning in the online learning environment that were recorded in this study could also be attributed to various online tools and applications or technologies used by the faculty members in facilitating the teaching and learning process, which include Moodle-based LMS, google classroom, online forums, FACEBOOK messenger, etc. These technologies provide an avenue for learning interaction by engaging learners in the acquisition and sharing of new ideas or knowledge and exercising reflective and analytical thinking to develop the self-learning capacity of students (Aldholay, Abdullah, Ramayah, Isaac, & Mutahar, 2019).

Table 2 shows the relationship between Social Interaction, Collaborative Learning, and Perceived Learning. Based on the Pearson r product-moment correlation results, there is sufficient evidence that a significant relationship exists between social interaction and collaborative learning ( $r=0.778$ ,  $p = <.001$ ). This means that a higher level of social interaction in an online learning environment results in a higher level of collaborative learning. These results supplement the findings of Spears (2012), which found that social interaction and collaborative learning in online courses and even in face-to-face courses are highly correlated. Thus, teachers should encourage an interactive

learning environment to foster collaborative learning as well. Online collaborative learning is crucial as it helps learners feel connected with other students and the teacher despite their distance (Hara, Bonk, & Angeli, 2000).

**Table 2.** *Relationship of Social Interaction, Collaborative Learning, and Perceived Learning*

	<b>Social Interaction</b>	<b>Collaborative Learning</b>	<b>Perceived Learning</b>
Social Interaction	—		
Collaborative Learning	0.778***	—	
Perceived Learning	0.734***	0.799 ***	—

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Results found in the correlation matrix also revealed conclusive evidence that social interaction and perceived learning are significantly correlated ( $r = 0.734$ ,  $p = <.001$ ). This result established a strong positive relationship between social interaction and perceived learning in an online learning environment, meaning learning could be fostered in an online learning environment when teaching and learning activities facilitate interaction among students and teachers. These findings support the results in other studies which pointed out that a significant relationship between students learning or achievement and social interaction. The study of Pacciano (2002), for example, denoted that the quantity and quality of interaction between students and teachers is a determinant to perceived performance in an online course and satisfaction. Thus a high-quality interaction in an online course results in a high level of student satisfaction and perceived performance.

Similarly, Richardson and Swan (2003) also elucidated that active learning and interaction between instructors and students is imperative in an online learning environment to increase student learning and retention. Social interaction is also considered an essential element of learning as it provides a productive and meaningful experience (Bali & Liu, 2018). Indeed, social interaction is one of the most important things to consider in an online learning modality (Jung, Choi, Lim, & Leem, Effects of different types of interaction on learning achievement, satisfaction, and participation in Web-based instruction, 2002). With this, teachers may employ strategies that promote student interaction in online courses, which include: encouraging critical thinking, providing relevant and engaging lessons, offering feedback about student work, and allowing flexibility (Muirhead, 2004).

The same significant relationship was noted between collaborative learning and perceived learning ( $r = 0.799$ ,  $p = <.001$ ). This result implies that a high level of collaborative learning in an online learning environment yields a higher level of perceived learning among students. An identical result was also determined by the study of Balta and Awedh (2017), which suggested that online collaborative learning through a response system is a predictor of students' academic performance. Gomez-Sanchez et al. (2009) also concluded that collaborative learning encourages students' active learning and knowledge construction.

Moreover, the result also affirms the findings of Zeng (2016) which found out that collaborative learning allows students to develop advanced thinking. Teachers may use cloud-



supported collaborative learning tools to aid the teaching and learning process (Zhaobin, Wenzhi, & Caidong, 2013).

Thus, teachers should be encouraged to use various learning management systems (LMS), such as the Moodle-based LMS, Google Classroom, private FACEBOOK group forums, etc. that provide or facilitate access to knowledge resources, sharing files, and forums for discussions, since they are helpful tools in fostering collaborative learning among students (Boettcher, 2003). This is essential in an online learning environment, as collaborative learning provides learners with opportunities to understand the content that they could not achieve on their own (Mende, Proske, & Narciss, 2020).

Nevertheless, it should also be noted that in planning the design and implementation of collaborative learning practices both in online and face-to-face learning modalities, teachers' beliefs or perspectives on collaborative learning must be considered. Miranda et al. (2015) said that collaborative learning could only contribute to student learning outcomes if it is designed and implemented by teachers effectively.

### **Conclusion**

In general, the study found a high level of social interaction, collaborative learning, and perceived learning among students in the online learning environment. Moreover, this paper also supported previous studies that claimed that social interaction, collaborative learning, and perceived learning are significantly correlated even in an online learning environment. As a result, it is suggested that instructors be trained on how to design and facilitate social interaction and collaborative learning in an online learning environment. Future research may explore factors affecting collaborative learning and social interaction teaching strategies among teachers in an online learning environment.

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