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Research Article

SHS Students' Engagement in Online Synchronous Collaborative Learning Activities: Correlations with Self-efficacy, Peer Social Support, Well-being and Academic Performance

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ABSTRACT

The pandemic of COVID-19 prompted several paradigm shifts throughout society, including in education. This study aimed to examine the relationships of students' engagement in online synchronous collaborative learning activities (OSCLA) with their self-efficacy (LSE), peer social support (LPSS), state of well-being (SWB), and level of academic performance (LAP). A total of 176 Filipino Grade 12 SHS students, 18 years old and older, from a private educational institution were purposively selected for this study. Data were generated using an online survey. Results show that collaborative learning activities are frequently conducted (median = 4) in their synchronous online classes. It also revealed that their LSE is high (median = 4), their LPSS is high (median = 4), their LE is moderate (median = 3), their SWB is high (median = 4), and their LAP is high (median = 94.85). The results showed a statistically significant correlation of their LSE ($r = 0.69$, $p = 0.001$) and LPSS with their OSCLA LE ($r = 0.438$, $p = 0.001$). A statistically significant positive moderate correlation between LE and SWB ($r = 0.536$, $p = 0.001$) was also found, however, no correlation was found between their OSCLA LE and LAP ($r = 0.065$, $p = 0.393$). Thus, the use of a well-designed OSCLA is strongly recommended as it positively impacts students' SWB but should be regularly reviewed for its effectiveness in sustaining improvement in the LAP of the students.

Keywords: *academic performance, online synchronous collaborative learning activities, self-efficacy, social support, student engagement well-being*

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Introduction

Collaborative learning (CL) is defined as "a coordinated, synchronous activity that results from a sustained effort to construct and maintain a shared conceptualization of a problem" (Roschelle & Teasley, 1995, p. 70). It enhances students' academic performance and assists learners in developing 21st-century learning skills that can be applied to any environment (Sulaiman & Shahrill, 2015). In 2020, the Novel Coronavirus Disease (COVID-19) shifted educational paradigms, leaving institutions, teachers, and students scrambling to convert instruction to online platforms without adequate preparation. This study contributes to the Engagement Theory by focusing on students' active engagement in collaborative learning via online social interactions and activities (Kearsley & Shneiderman, 1998). Additionally, it contributes to Self-determination Theory, which focuses on students' intrinsic and extrinsic motivations that correlate with the online synchronous collaborative learning activities (OSCLA) engagement level (Ryan & Deci, 2019).

Following a review of various CL activities, a definition of student engagement was developed based on the context in which it occurs (Vuori, 2014). Thus, OSCLA refers to the group activities conducted synchronously in breakout rooms by students with the assistance of their teachers. Self-efficacy and peer support groups are cited as determinants in the study. Technological self-efficacy refers to a student's perceived ability to use technological tools and activities effectively for learning purposes (Keengwe, 2007; Kanittha et al., 2021). Peer support groups are prevalent in students' CL activities. They are composed of classmates who share common interests and serve as positive role models, enabling students to work cooperatively to achieve high academic goals (Filade et al., 2019). During their OSCLA, the assistance of their student-peer was critical to the students' psycho-emotional and academic development.

Meanwhile, engagement in CL activities had a noticeable effect on a student's well-being and academic performance. Well-being refers to the student's assessment of their current

psycho-emotional and social health due to their participation in the specified activity. On the other hand, academic performance is regarded as a critical predictor of a student's school performance, which is typically quantified through their general weighted average (GWA).

This study aimed to determine the correlations between SHS students' engagement in online synchronous collaborative learning activities and their self-efficacy, social support, well-being, and academic performance from a private educational institution in Manila, Philippines.

Methods

Sampling

A total of 176 grade 12 SHS students from a private university participated in the online survey. They were purposively chosen based on the following criteria: officially enrolled as a Grade 12 student at the identified university, 18 years of age or older, used Online Distance Learning (ODL) as their primary mode of instruction for three terms during the academic year 2020-2021 and provided a written consent to participate in the study.

A great majority of the respondents were females (101, 58%). In terms of SHS strand representation, a little majority of the respondents (93, 53.4%) came from STEM, a little one-fifths (38, 21.8%) came from the ABM strand, 25 (14.4%) came from HUMSS, 13 (7.5%) from ADT and 5 (2.9%) from SPT.

Survey Questionnaire

A self-administered structured questionnaire was used to gather the data in the online survey, containing close-ended questions with 5-point Likert scales divided into six sections. The first section asked about the respondent's demographics. In the succeeding sections, items/questions were drawn from established questionnaires: Alhabeedi (2015) and Woolf (2021) for LE in OSCLA with a 0.89 Cronbach's alpha, the Online Learning Self-Efficacy Scale (Yavuzalp & Bahcivan, 2020), and the Academic Self-Efficacy and Efficacy for Self-Regulated Learning Scale (Zimmerman et al., 1992) for level of self-efficacy (LSE) with a 0.80 Cronbach's alpha, the Survey of Perceived

Organizational Support (SPOS) of Eisenberger et al. (1986) for the level of peer social support (LPSS) with a 0.89 Cronbach's alpha, the Psychological Wellbeing Scale (Ryff, 1989), the Social-Emotional Health Survey-Secondary (SEHS-S) (Furlong et al., 2014), and the Social Well-Being (Radzyk, 2014) for the state of well-being (SWB) with a 0.82 Cronbach's alpha. According to Cronbach's alpha table of George and Mallery (2003), the values are interpreted as good ($\geq .8$). The student's level of academic performance (LAP) was determined through their general weighted average (GWA) for the first three terms of their senior high school. As mentioned in the study of Lamas (2015), it attests to their achievements in class.

Data Analysis

The study processed and analyzed the gathered data, descriptive and inferential statistics, using JASP (JASP Team, 2022). The respondents' level of engagement in online synchronous collaborative learning activities, their level of self-efficacy, their level of social support, their state of well-being, and their academic performance were all described using descriptive statistics. The Spearman's Rho correlation test determined correlations between their level of engagement in online synchronous collaborative learning activities and their self-efficacy, social support, well-being, and academic performance.

The level of significance was set to $p < 0.05$. Levin and Fox's (2014) crude estimates for

interpreting the variables' strengths were used: 0.00-0.29 indicates a weak correlation, 0.30-0.59 indicates a moderate correlation and 0.60-0.99 indicates a strong correlation.

Results and Discussion

Level of Engagement

Their OSCLA level of engagement, with its domains - cognitive, emotional, and behavioral - is presented in Table 1. Cognitive engagement refers to mental processes to comprehend and confirm knowledge acquired during OSCLA participation. With an average median score of 3.00, respondents indicated ambivalence about improving their learning through OSCLA. Emotional engagement is centered on affective states, mainly when working with peers, mentors, and finished products. With a median score of 3.00, respondents appear to be indecisive about OSCLA participation. Learners who engaged in these activities disclosed higher satisfaction levels than those who did not (Sarkar et al., 2021), confirming the high level of contentment demonstrated in the OSCLA works created in this study. Behavioral engagement is a collective term that encompasses participation, productivity, and accountability. With an average median score of 3.00, respondents indicate a lack of enthusiasm for OSCLA participation.

The moderate overall LE indicates that learners engage in an average amount of collaborative learning in terms of their cognition, sensibilities, and demeanor.

Table 1. OSCLA Level of Engagement of the Grade 12 SHS Students (n=176)

Level of Engagement in Synchronous Class Activities	1	2	3	4	5	Median	Qualitative Interpretation
Cognitive							
<i>I validate my learnings from class discussions more in online synchronous collaborative activities.</i>	9	26	44	74	21	4.00	High
<i>I learn more when I participate in online synchronous collaborative activities.</i>	6	22	68	52	26	3.00	Moderate
<i>I understand complex topics better when engaged in online synchronous collaborative activities.</i>	10	34	45	61	24	3.00	Moderate
Median Score						3.00	Moderate

Emotional

<i>I feel satisfied with the outputs produced in online synchronous collaborative activities</i>	4	29	49	68	24	4.00	High
<i>I feel excited to work with my classmates on online synchronous collaborative activities</i>	21	42	52	38	21	3.00	Moderate
<i>I am pleased with the amount of time the teachers spend monitoring us during online synchronous collaborative activities</i>	6	37	71	48	12	3.00	Moderate

Median Score

3.00

Moderate

Behavioral

<i>I focus more on the tasks at hand during online synchronous collaborative activities</i>	11	32	38	69	35	4.00	High
<i>I participate more in online synchronous collaborative activities</i>	15	37	50	46	26	3.00	Moderate
<i>I am more productive when engaging in online synchronous collaborative activities</i>							
<i>I am more productive when engaging in online synchronous collaborative activities</i>	17	33	47	57	20	3.00	Moderate

Median Score

3.00

Moderate

Overall Median Score

3.00

Moderate

Legend: 3.35 - 5.00: High; 1.68 - 3.34: Moderate; 1.00 - 1.67: Low

Self-Efficacy of Respondents

The LSE in utilizing technology and online platforms for performance outcomes, vicarious learning, and current state are summarized in Table 2. The performance outcome reflects familiarity, comfort, and a preference for groupings. With a median score of 4.00, it is clear that respondents' ability to work in a team determines their LE in OSCLA. Students who have a higher sense of self-efficacy believe they can complete online activities (El-Sayad et al., 2021). Vicarious learning is a term that refers to the concept of observational learning, efficiency, and inspiring influence. With a median score of 4.00, it is clear that respondents' conscious processes dictate their OSCLA compliance. By implying that students can achieve similar outcomes, examining the performance

of others can influence self-efficacy (Gebauer et al., 2020). The term "current state" refers to the plans and struggles associated with performing OSCLA. With a median score of 4.00, respondents' resilience influences their ability to complete OSCLA. Individual and group self-efficacy are positively associated with the proclivity and willingness to confront challenges (Du et al., 2019), which explains why the vast majority of people have such high levels in the current state.

Overall, there were inconsistencies in the findings across the majority of domains, indicating that each student's experience is unique. However, this corroborates that self-efficacy in technology use positively affects self-efficacy in an online learning setting (Heo et al., 2021).

Table 2. Self-efficacy of the Grade 12 SHS Students (n=176)

Self-efficacy in using technology and online platforms	1	2	3	4	5	Median	Qualitative Interpretation
Performance outcome							
<i>I am used to joining groups when accomplishing tasks during online synchronous collaborative activities</i>	9	23	39	62	41	4.00	High
<i>I can quickly work with other students in accomplishing activities assigned in online synchronous collaborative activities</i>	3	14	44	80	33	4.00	High
<i>I prefer online synchronous activities when working in groups to produce outputs</i>	27	42	49	40	16	3.00	Moderate
Median Score						4.00	High
Vicarious learning							
<i>I am motivated by others' achievements to perform better during online synchronous collaborative activities</i>	15	22	30	68	41	4.00	High
<i>I work faster to keep pace with my group mates' work ethics during online synchronous collaborative activities</i>	9	13	44	73	35	4.00	High
<i>I learned how to navigate the course materials because I have observed it from my group mates during online synchronous collaborative activities</i>	24	22	35	73	20	4.00	High
Median Score						4.00	High
Present state							
<i>I know whom to contact for support when encountering technical difficulties during online synchronous collaborative activities</i>	9	12	36	71	46	4.00	High
<i>I can handle technical difficulties on my own during online synchronous collaborative activities</i>	4	14	44	68	44	4.00	High
<i>I can efficiently schedule my time to accomplish my tasks during online synchronous collaborative activities</i>	12	26	50	56	30	3.00	Moderate
Median Score						4.00	High
Overall Median Score						4.00	High

Legend: 3.35 - 5.00: High; 1.68 - 3.34: Moderate; 1.00 - 1.67: Low

Level of Peers' Social Support

Table 3 displays the LPSS received with three domains: emotional, academic, and relationship with peers. Emotional support is the thoughtfulness and sensitivity of students' peers in OSCLA. A high median score of 4.00 suggests that the respondents agree that their peers assist them with their feelings. Academic support signifies the open-mindedness of

students' peers; with a high median score of 4.00, the respondents seem to agree that their peers' intellectual skills aid them in OSCLA. Relationship with peers is the concept of easiness, receptiveness, and responsibility of students' peers, with a high median score of 4.00. The respondents agree that their social interactions with their peers help in OSCLA. Consistency is observed in all responses for

each factor, garnering a high level of peer support with similar medians (4.00). The overall findings were congruent with Yates et

al. (2021), who argue that students collaboratively conversing in the class had to access to their peers and received support.

Table 3. Support Received of Grade 12 SHS Students from their peers (n=176)

Student Peer Group Support	1	2	3	4	5	Median	Qualitative Interpretation
Emotional support							
<i>My student peer group would understand my absence due to a personal problem</i>	0	1	15	69	88	4.00	High
<i>My student peer group considers my goals and values when collaborating for online synchronous activities</i>	2	8	43	79	42	4.00	High
<i>My student peer group takes pride in my accomplishments</i>	2	8	61	68	35	4.00	High
Median Score						4.00	High
Academic support							
<i>My student peer group acknowledges creative freedom when working in online synchronous collaborative activities</i>	0	3	23	66	82	4.00	High
<i>My student peer group assists each other in creating better results in online synchronous collaborative activities</i>	1	9	21	66	77	4.00	High
<i>My student peer group for online synchronous collaborative activities explains concepts that I find difficult to understand</i>	2	7	40	69	66	4.00	High
Median Score						4.00	High
Relationship with peers							
<i>My student peer group welcomes healthy discussions when different opinions arise during online synchronous collaborative activities</i>	1	2	26	71	74	4.00	High
<i>My student peer group makes me feel comfortable when working in online synchronous collaborative activities</i>	1	7	39	64	63	4.00	High
<i>My student peer group balances the time for accomplishing tasks and socialization in online synchronous collaborative activities</i>	2	9	39	69	55	4.00	High
Median Score						4.00	High
Overall Median Score						4.00	High

Legend: 3.35 - 5.00: High; 1.68 - 3.34: Moderate; 1.00 - 1.67: Low

State of Well-being

Table 4 exhibits the student's SWB. Psychological well-being refers to the student's ability to psychologically function effectively in school. A high median score of 4.00 implies that

the respondents agree that their psychological well-being is positive when engaged in OSCLA. Emotional well-being refers to their capability to have positive feelings and confront stressful circumstances. The high median score of 4.00

signals that their state of emotional well-being is positive when involved in OSCLA. In agreement with the data, students who work with peers and teachers during OSCLA attain more positive emotions (Smith et al., 2021). Social well-being refers to the student's evaluation of their relationship with fellow students, especially their group mates and

teachers. A high median score of 4.00 suggests that the respondents agree that their state of social well-being is positive when engaged in OSCLA. Concurrent to the result, OSCLA better satisfies the social well-being of students as students feel more competent and socially relevant amid the current ODL setup (Fabrizz et al., 2021).

Table 4. State of the well-being of Grade 12 SHS Students(n=176)

Student's Well-being	1	2	3	4	5	Median	Qualitative Interpretation
Psychological well-being							
<i>I accept who I am, with both my strengths and limitations, in online synchronous collaborative activities</i>	4	8	36	69	57	4.00	Positive
<i>I handle my responsibilities well in online synchronous collaborative activities</i>	4	10	34	77	49	4.00	Positive
<i>I have the sense that I have developed a lot as a person through working with others during online synchronous collaborative activities</i>	7	17	34	78	38	4.00	Positive
Median Score						4.00	Positive
Emotional well-being							
<i>My student peer group acknowledges creative freedom when working in online synchronous collaborative activities</i>	0	3	23	66	82	4.00	Positive
<i>My student peer group assists each other in creating better results in online synchronous collaborative activities</i>	1	9	21	66	77	4.00	Positive
<i>My student peer group for online synchronous collaborative activities explains concepts that I find difficult to understand</i>	2	7	40	69	66	4.00	Positive
Median Score						4.00	Positive
Social well-being							
<i>I respect people's time, especially when they are busy</i>	1	0	8	56	109	5.00	Positive
<i>I created a strong rapport with my classmates in online synchronous collaborative learning activities</i>	5	11	40	65	53	4.00	Positive
<i>I can easily approach my teacher when I need assistance during online synchronous collaborative activities</i>	7	20	40	67	40	4.00	Positive
Median Score						4.00	Positive
Overall Median Score						4.00	Positive

Legend: 3.35 - 5.00: Positive; 1.68 - 3.34: Moderate; 1.00 - 1.67: Negative

Level of Academic Performance

With the respondents' GWA for A.Y. 2020-2021, a median score of 94.85 (high) was found, including their averages for three terms. The finding disclosed that a great majority of the respondents had a high LAP. It was observed that as the school year progresses, the median of the students' GWA decreases. Engzell et al. (2021) suggest that learning losses are even larger with the longer closure of schools.

Correlations of their Level of Self-Efficacy and Level of Peer Social Support with their OSCLA Level of Engagement

Previous studies (De Souza et al., 2021; Arcinas et al., 2022) showed that the more engaged students are in their educational environment, the greater the likelihood of resulting in outcomes. This current study aimed to validate the mentioned study, mainly focusing on their state of well-being and their academic performance.

Table 5 shows that there is a strong correlation between LSE and LE, $r(174) = .69, p < .001$; while there is a moderate correlation between LPSS and LE, $r(174) = .438, p < .001$. Results suggest that as their level of LSE and LPSS increases, their LE in increases. The results further reaffirm the findings by Singh and Abdullah (2020) that self-efficacy is a critical determinant of students' LE in OSCLA. The high LE can be witnessed in situations where students have a high LSE; for instance, when a student is knowledgeable about online platforms, they have more confidence in contributing their ideas and engaging.

Furthermore, the data also supports the findings of Borup et al. (2020) that peer support is also a vital determinant of students' LE in OSCLA. Students receiving a high level of peer support are more likely to have a high OSCLA LE. Students who regularly receive assistance from their peers become active participants in online synchronous collaborative activities.

Table 5. Correlations of Self-efficacy and Peer Support with their OSCLA Level of Engagement (n=176)

		Spearman's rho	p-value
Level of Self-efficacy	- Level of Engagement	0.690***	< .001
Domains	Cognitive	Emotional	Behavioral
Performance Outcome	0.450***	0.575***	0.501***
Vicarious learning	0.510***	0.614***	0.481***
Present state	0.263***	0.410***	0.351***
Level of Peer Support	- Level of Engagement	0.438***	< .001
Domains	Cognitive	Emotional	Behavioral
Emotional support	0.289***	0.479***	0.402***
Academic support	0.272***	0.392***	0.279***
Relationship with peers	0.292***	0.408***	0.258***

Legend: * $p < .05$, ** $p < .01$, *** $p < .001$

Correlations of OSCLA Level of Engagement with State of Wellbeing and Level of Academic Performance

Table 6 shows the correlations of their OSCLA LE with their SWB and LAP. There is a statistically significant moderate correlation between their OSCLA LE and SWB, $r(174) = .536, p < .001$. This data suggests a direct relationship between these two variables, i.e., as

their LE increases, their SWB also increases. Contrastingly, their LE and LAP were found not to be statistically significant, $r(174) = .065, p = .393$.

The result of the correlation test OSCLA LE and SWB agree with the findings of Upadyaya and Salmela-Aro (2021). They found that students' SWB was a significant outcome of their

participation in OSCLA. When students establish a strong rapport with their peers by actively engaging with them, it has a positive impact on their SWB. Creating a learning activity that allows them to interact with their classmates online actively has a positive impact on their overall SWB. When it comes to specific aspects of their well-being, their social health benefited the most, followed by their emotional and psychological health. In this pandemic, where students were forced to stay at home due to the health risks posed by COVID-19, OSCLA allows them to connect with their classmates, reducing the negative impact on their

person, specifically on their growth and development, brought by long isolation.

The current study's results on the correlation between their OSCLA LE and LAP, on the other hand, contradict Delfino's (2019), who found a statistically significant correlation between their LE and LAP. This implies that a student's presence in OSCLA and/or an increase in LE in OSCLA do not always imply quality engagement in OSCLA, which will result in significant improvements in their grades. The importance of quality engagement in OSCLA in achieving higher grades cannot be overstated (Alanya-Beltran, 2021).

Table 6. Correlations of OSCLA Level of Engagement with their State of Wellbeing and Level of Academic Performance (n=176)

		Spearman's rho	p-value
Level of Engagement	- State of well-being	0.536***	< .001
Domains	Psychological	Emotional	Social
Cognitive	0.354***	0.342***	0.442***
Emotional	0.450***	0.513***	0.539***
Behavioral	0.352***	0.381***	0.414***
		Spearman's rho	p-value
Level of Engagement	- Level of Academic Performance	0.065	0.393

Legend: * p < .05, ** p < .01, *** p < .001

Conclusion

Grade 12 SHS students frequently experience OSCLA, with a moderate level of OSCLA engagement. They have strong self-efficacy, peer support, and academic performance. Also, maintain a positive state of well-being.

LSE and LPSS have a statistically significant relationship with their LE. Furthermore, there is a strong correlation between LSE and LE, while LPSS and LE have a moderate correlation. As a result, having higher levels of SE and PSS leads to a higher OSCLA LE. Vicarious learning and emotional engagement have the strongest correlation with the domains of SE and PSS. When students can learn from observing the actions of others, they are more likely to participate in OSCLA. The relationships of SWB and LAP with LE are not the same. LE and SWB had a statistically significant positive moderate correlation, indicating a direct relationship between variables. However, there was no statistically significant relationship between LE and

LAP. As a result, the LE had no relationship with their academic performance. Finally, emotional and social well-being has the strongest correlation with the domains of LE and SWB. It implies that when students feel more at ease with their peers, they will be better able to evaluate their relationships.

Overall, the results showed that higher levels of SE and PSS resulted in a higher LE, and a higher LE resulted in a positive SWB. On the other hand, a high LE does not always imply a high LAP. As a result, it is strongly recommended to implement a well-designed OSCLA because it positively contributes to students' SWB but needs to be regularly reviewed or evaluated for effectiveness in increasing their LAP.

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