Student Engagement in an Online Class

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Abstract

The present study used descriptive research design to assess student engagement in an online class of a city college in Southern Philippines. It underscored the critical role of student engagement in shaping the various educational outcomes in an online learning environment. A sample of 239 college students were randomly selected to respond to a researcher-made questionnaire, which was pilot-tested and passed the test of validity and reliability. With at least two years' experience of attending online classes that started during the COVID-19 era, the students' Internet profile was characterized as having used cellphones and phone Internet to attend online classes and having spent more than 2 to 4 hours daily on the Internet for non-academic purposes. The findings of this study have further shown that the students are engaged in the cognitive, affective, and behavioral domains of online learning. Using the Kruskal-Wallis test for Likert-scale data, no significant difference was found in student engagement in an online class when grouped according to access to Internet, time use of Internet for non-academic purpose, and types of gadgets used. Based on these findings, the study has recommended the following: a) the use and mastery of teaching strategies that promote active listening, asking direct questions to the teachers, greater talking time of the students, and more interaction between teacher and students; and b) the use of breakout rooms in an online classroom for small group discussions and greater collaborative learning among students.

Keywords: *student engagement, cognitive domain, affective domain, behavioral domain, online learning*

Introduction

Student engagement in an online class is a critical component towards the achievement of important educational outcomes. Literature abounds with a good number of studies showing various student outcomes of the use of online technology in a school's delivery of educational content. Some of these studies reported positive student outcomes of attending an online class like increased satisfaction of learning needs, more convenience, and greater interest to learn

(Sayem et al., 2017; Wang et al., 2018; Agarwal & Kaushik, 2020). However, other studies revealed otherwise. In these studies, college students reported that online learning experiences were not engaging and satisfying (Tang et al., 2020; Herman, 2020) and that such learning modality has spawned some social and affective challenges resulting to increased stress, anxiety, and difficulty to concentrate among online students (Lemay et al., 2021).

In the Philippines, a mixed methods study showed the quantitative outcomes indicating moderate to high levels of online learning fatigue among student respondents and the qualitative outcomes relating online learning fatigue with the students' decreased energy to perform academic tasks and absorb lessons taught (Dacillo et al., 2022). However, a local study reported a positive finding of students' high level of course satisfaction and engagement with the online learning delivery (Baloran et al., 2021).

The ambivalent results of the above literature show a need to replicate this kind of research in other places. Furthermore, with the present age of information, online learning is now an increasingly popular way forward in the delivery of educational content preferred by many schools and universities all over the world. Thus, there is an ongoing need to assess the extent of student engagement in an online class. Viewed from this lens, the researchers were challenged to conduct a similar study among college students from a premier institute of higher learning in Southern Philippines with the objective of assessing their extent of learning engagement in an online environment. Findings of the present study would inform important stakeholders of the college—especially the parents of online students—about how their students learn well in an online environment and how the college perform well in an online delivery of the educational content. Aside from contributing to the existing body of knowledge, the findings of this present study may also provide a basis in designing better lesson plans for online classes and crafting effective online curricular offerings which the college may offer with its existing Internet infrastructure and wealth of online teaching experiences of its staff.

Objectives

This study aimed to describe the learning engagement of college students in the online classes of a city college. Specifically, it sought to address the following questions:

1. What is the students' Internet profile according to access to Internet, time use on the Internet for non-academic purpose, and types of gadgets?
2. What is the level of learning engagement of the students in an online class according to cognitive domain, affective domain, and behavioral domain?
3. Is there a significant difference in the learning engagement of the students in an online class when grouped according to access to the Internet, time spent using the Internet for non-academic purpose, and types of gadgets?

Conceptual Framework

Student engagement is the level of attention, interest, curiosity, and passion of a student in the learning process. As conceptualized by Fredricks et al. (2004), student engagement has embraced three domains namely the cognitive, affective, and behavioral domains. The affective domain refers to a sense of belonging in the classroom as well as one's interest, curiosity, or enthusiasm on a specific task or topic (Fredricks & McColsky, 2012). Moreover, behavioral engagement consists of time-on-task and active participation in class activities (Fredricks, 2013) while cognitive engagement covers the use of metacognitive and self-regulated strategies (Parsons et al., 2014).

Internet users are characterized by the types of gadgets used, non-academic use of the Internet, and access to the Internet. Ellore et al. (2014) found cellphones as the main device learners use to access the Internet. With an ever-increasing technological capacity, there is a growing student use of mobile devices like cellphones and tablets (Chaffey, 2017; Chang et al., 2018). The devices and how they are being used are fast becoming providers of almost seamless continuity of formal learning for the growing population of mobile learners (Ally & Wark, 2018). Some studies suggest that mobile learning can enhance the online learning experience (Pawluk et al., 2018; Philip, 2017) while another study shows that student users of mobile phones may experience learning difficulties and distraction from their online classes, and struggle to meet mobile data expense (Giewrdowski, 2021; May & Elder, 2018). Moreover, Heflin et al. (2017) found that students who used computer keyboards were better critical thinkers than those who used mobile devices in the construction of paragraphs. The study of Dello Stritto & Linder (2018) also revealed that a large majority of American college students (73.1%) preferred laptops for their learning management system (LMS) homepage, and a miniscule 4.3% o preferred cellphones for the same purpose.

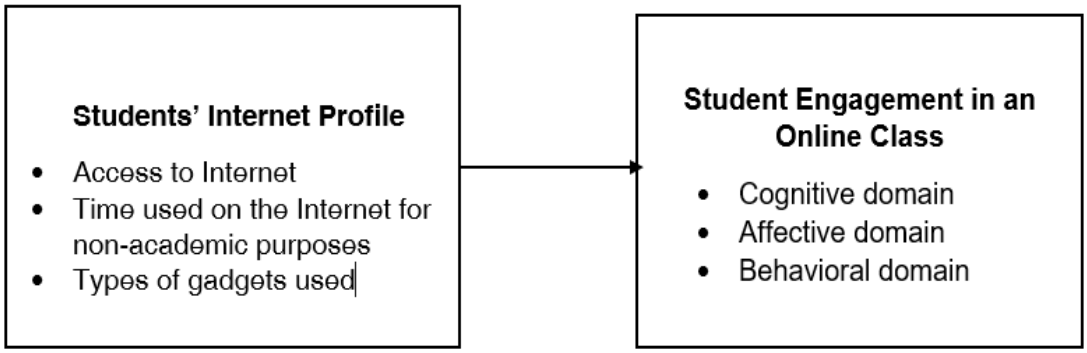
The use of the Internet for non-academic purposes has impacted student outcomes. The prolonged use of the Internet has adversely affected student learning outcomes, and encouraged sedentary and unhealthy lifestyles (Kolbar et al., 2021; Bekalu et al., 2019; Melchevik et al., 2015; Hameed, 2022). In contrast, Zarzycka et al. (2021) reported that students increasingly used social media like Facebook for academic discussion and collaboration in their distant learning courses. Moreover, the use of the Internet for electronic games was found to have detrimental effects on academic performance of adolescents, among others (Lawrence et al., 2016). But Internet and electronic games had also been viewed as a positive determinant not only of academic outcomes but also of self-expression, sociability, creativity, and entertainment for children and adolescents (Yu & Baxter, 2016).

In the conceptual framework, the student engagement in an online class was assessed based on the domain approach of Frederick et al. (2004). This approach consisted of assessing student engagement in the cognitive domain, affective domain, and behavioral domain. The Internet profile of the respondents of the present study were considered as variables that could create differences in the levels of student engagement in an online class when respondents were

grouped according to access to Internet, time used on the Internet for non-academic purposes, and types of gadgets. Figure 1 shows the framework below.

Figure 1

Conceptual Framework of the Study



Methodology

This section presents the research design of the study, as well as its respondents, measures, ethical considerations, data gathering procedure and data analysis.

Research Design

This study used descriptive research design. In this study, the quantitative method was used to characterize the respondents in terms of their Internet profile, determine the levels of student engagement in an online class, and to evaluate any significant differences in the levels of student engagement based on the students' Internet profile.

Respondents

The respondents of the study were taken from a sample of college students enrolled in the Business Entrepreneurship and Teacher Education Programs of a city college. They had at least two years' experience of attending online classes which started during the COVID pandemic era in 2019. Based on the Slovin formula, the sample size, with .05 margin of error, consisted of 239 college students. The sample came from students randomly selected from a population stratified by enrolled program and year level. As presented in Table 1, 66 percent of the respondents came from the Accountancy and Business Entrepreneurship Program and 34 percent from the Teacher Education Program. By year levels of both programs, 53 percent were senior students, 11 percent junior students, 13 percent sophomore students, and 22 percent were freshman students.

Table 1

Distribution of Respondents According to Academic Program and Year Level

Academic Profile	F	%
Business Education Program		
First year	19	8.0
Second year	20	8..0
Third year	16	7.0
Fourth year	103	43.0
Sub-total	158	66.0
Teacher Education Program		
First year	34	14.0
Second year	12	5.0
Third year	10	4.0
Fourth year	25	10.0
Sub-total	81	34.0
Grand total	239	100.00

Measures

This study used a researcher-made self-questionnaire described as "Student Learning Engagement Inventory." It is a 32-item, closed-ended questionnaire, with subscales on the cognitive domain, affective domain, and behavioral domain. The questionnaire was pilot-tested for content validity and reliability. As the pilot group, 31 college students, enrolled in the College of Accountancy and Business Entrepreneurship (CABE), were asked to respond to the questionnaire and identify words or phrases which were confusing or difficult to understand. None were identified by the pilot group as difficult or confusing words or phrases. The test for Cronbach's alpha was used to measure the reliability of the questionnaire. A reliability coefficient of 0.70 or higher for Cronbach's alpha indicates an internal consistency of responses between items (Salkind, 2015). The computation of the study showed a reliability coefficient of 0.89, indicating a good internal consistency of the 32-item questionnaire. Each item on the questionnaire was measured on a five-point Likert scale with the following rating scales: always (5), usually (4), sometimes (3), rarely (2), and never (1). These rating scales correspond to intervals and descriptive interpretations for an overall learner (*see Appendix A*) as well as for learners based on the 3 domains (*see Appendix B*).

Data Gathering Procedure

The data gathering procedure involved the following steps:

1. Secured an ethical clearance from the Research Ethics Committee of the college.
2. Sent a letter of permission and request to the Deans of the College of Accountancy and Business Entrepreneurship and College of Education and Arts and Sciences to conduct research among students enrolled in the

programs under their colleges and requested for email addresses of these respondents.
3. Emailed the questionnaires to the respondents of the study.
4. Retrieved these questionnaires a week after sending these questionnaires.
5. Tallied these results for analysis.

Data Analysis

Data analysis included the use of frequency tables, percentages, mean scores, and the Kruskal-Wallis test. The frequency tables and percentages were used to characterize the respondents according to their Internet use profiles. The levels of student engagement in the three domains were established by the mean scores. For the three independent samples measured on an ordinal scale, the Kruss-Wallis test was used to determine any significant differences in the medians of three or more independent samples (Akrong Hesse et al., 2018). This was used by the study to determine any significant differences in the medians of the three independent samples when grouped according to the Internet use profiles.

Ethical Considerations

In the conduct of this study, the researchers complied with all the requirements for ethical considerations. These were the following requirements:

Anonymity. The participants of the study were given an option not to write their names when providing responses to a closed-ended questionnaire. Should they opted to write their names, they were assured that such names would not appear in any part of the final report and that the questionnaires will be kept securely from any possible leak.

Confidentiality. The privacy of the participants shall always be respected, and the confidentiality of the information they provided in the questionnaire shall be strictly maintained. Toward this end, the first statement on the close-ended questionnaire is a confidentiality clause declaring any response to the various questionnaire items will be treated with utmost confidentiality.

Informed Consent. The participation of the college students in this research undertaking was done on a voluntary basis. They were informed of their right to quit at any time during the research period should they feel that their participation does more harm than good to them. Also, the participants were informed of the benefits as well as the risks involved in taking part in this research.

Results and Discussion

This section presents the quantitative results based on the objectives of the study with corresponding discussions.

Students' Internet Profile

Table 2 shows the Internet profile of the respondents. In terms of Internet

access, the largest proportion of the respondents, 50 percent, had Internet access through data SIM installed in their cellphones. The second largest group of respondents, 46 percent, were the home Internet users. At the tail end were student users of the school Internet at less than 1 percent.

Table 2

Respondents by Internet Access, Time Used on the Internet for Non-Academic Purposes, and Types of Gadgets Used

Students' Internet Profile		
Internet Access	f	%
Home Internet	110	46.0
Phone Internet	120	50.2
School Internet	2	0.8
Others	7	2.9
Total	239	100.00
Daily Time spent using the Internet for Non-Academic Purpose	f	%
2 hours or less	56	23.4
More than 2 hours – 4 hours	91	38.1
More than 4 hours	92	38.5
Total	239	100
Types of Gadgets Used	f	%
Personal Computers & others	9	3.8
Laptop	50	20.9
Cellphone	180	75.3
Tablet	0	0
Total	239	100

The present study shows that 50 percent of the respondents have Internet access through data SIM installed in their cellphones. This result is similar to the finding of Ellore et al. (2014) that showed most of the students had Internet access on their cellphones. Some studies have offered reasons on the preferred use of mobile devices (i.e., cellphones and tablets) which included the following: Internet accessibility of the device (Ellore et al., 2014), millennials being supportive of mobile devices for online courses (Wiley University Services, 2023), and the economic ability of low-income families to access the Internet only through these mobile devices (Adetunji, 2016).

Student users of the school Internet numbered less than 1 percent. As observed, the very low usage of the school Internet among the respondents can be explained by the following factors: first, respondents stayed at home and used their home Internet or phone Internet to attend all classes delivered online during the COVID pandemic era, and second, the Internet connectivity

of the school was not enough to service the demands of both students and teachers.

Table 2 displays the distribution of respondents by time spent using the Internet for non-academic purposes on a daily basis. A minority, 23 percent, spent 2 hours or less on the Internet for non-academic purposes. Next to the minority were 38 percent of the respondents with the time use ranging from more than 2 hours to 4 hours. Another 39 percent spent more than 4 hours for the same purpose.

By comparison, the time spent using the Internet for non-academic purposes of the 38 percent of the respondents of this study closely approximated the average daily time spent by Filipinos on the Internet for social media at 3.4 hours (Statista Research Department, 2021). There were also other activities of Filipino Internet users like watching television and listening to music streaming services. As of the third quarter of 2021, a large segment of the Filipino population was accessing the two most popular social media platforms–Facebook and Instagram with Tik Tok (Statista Research Department, 2021). Thus, it can be said that the greater non-academic use of the Internet by the respondents of the study was also accessing these highly popular social media platforms to connect with family and friends, listen to news, stream video content, or to find products and services for purchase. Moreover, a plurality of respondents, 39 percent, spent more than 4 hours on the Internet for non-academic use. This group may be susceptible to having difficulties in performing their academic tasks. According to Kolhar et al. (2021), longer Internet use for social media would have a negative impact on student learning outcomes. Other studies reported that prolonged use on social media adversely affected academic progress (Bekalu et al., 2019) and led to sedentary and unhealthy lifestyles (Melchevik et al., 2015).

By types of gadgets used, Table 2 shows that a large majority of the respondents, 75 percent, preferred cellphones as mobile devices for online learning. This is followed by 21 percent who used laptops to access their online classes. A minuscule 4 percent used personal computers for online learning and nobody used tablets for the same purpose.

The use of cellphones as the dominant technological device for online learning is supported by studies which found an increasing student use of sophisticated mobile devices, such as smartphones and tablets (Chaffey, 2017; Chang et al., 2018) and how these devices are fast evolving as tools for formal learning for the increasingly mobile learner (Ally & Wark, 2018). Worth noting in Table 2 was the respondents' non-use of tablets, which was found by other studies to have a greater number of users (Ally & Wark, 2018; Stritto & Linder, 2018).

Cognitive Domain

Table 3 shows the level of student engagement in the cognitive domain with a composite score of 3.86. By item results, the sixth item obtained the highest mean score of 4.36 and the seventh item got the lowest mean score of 2.15

Table 3

Student Engagement in the Cognitive Domain

Cognitive Domain	Mean Score
1. I understand the teacher's lecture in an online class.	3.81
2. I learn a lot from the lessons discussed during online classes.	3.87
3. I ask questions from my classmates or teachers for further understanding on the lessons during online classes.	3.72
4. I answer questions raised by our teachers during online classes.	3.64
5. I share my opinions or comments in an online class discussion.	3.38
6. I answer assigned exercises to check my understanding on a lesson in an online class.	4.36
7. I spend most of the online class time listening to a teacher's lecture.	2.15
8. I can discuss things related to our lessons with my classmates in an online class.	3.69
9. We work as small groups on assigned tasks in an online class.	3.82
10. I know what lesson objectives I need to achieve in an online class.	3.97
11. I organize my study time with online classes.	3.90
12. I reflect on what and how I learn from my errors committed in exercises/tests in an online class.	4.15
13. I can analyze well problems given as exercises in an online class.	3.77
14. I can solve problems given as exercises in an online class.	3.87
Composite Mean Score	3.86

The composite score of 3.86 indicates that the respondents of the study possess high levels of active learning, metacognition, and self-regulation. By item analysis, the highest scoring item, respondents doing the exercises in order to check their understanding of the lesson, indicates a very high level of metacognition, which is the ability to process one's thinking. This also implies that the respondents are highly aware of their cognitive processes and the need to regulate them. This result has a positive implication on student outcomes as research in educational sciences has gathered substantial evidence to show the importance of metacognition in learning and academic achievement (Fleur et al., 2021).

The item with the lowest mean score shows that the respondents spend most of the online class time listening to a teacher's lecture. This result implies a one-way student-teacher interaction and passive learning among the respondents. One consequence of a large-group lecture in higher education is passive learning which is not in tune with the current academic rhetoric (Roberts, 2019). This is another area for improvement to enhance student-teacher interaction. In the study of Martin and Bolliger (2018), online students in graduate school found student-teacher interaction to be more important than student-student interaction and student-content interaction. Thus, online teachers should have less talking time in course discussions (Dixson, 2010), timelier and more consistent feedbacks to the students (Martin & Bolliger, 2018), and have regular communication of announcements, reminders, graded rubrics, and expectations

by the online teacher (Martin & Bolliger, 2018).

Affective Domain

Table 4 shows the level of student engagement in the affective domain with a composite score of 3.24. By item results, the 8th item obtained the highest mean score of 3.91. Items 6 and 10 got the lowest mean scores of 2.45 and 2.25, respectively.

Table 4

Student Engagement in the Affective Domain

Affective Domain	Mean Score
1. I am inspired attending our online classes.	3.90
2. I prefer sitting in an online class than in a face-to-face class.	2.67
3. I am bored listening to lectures during online classes.	3.02
4. I am motivated to study during online classes.	3.30
5. I do not feel I belong as a member of an online class.	3.63
6. I have experienced technical difficulties joining our online classes.	2.45
7. I enjoy learning lessons in an online class.	3.45
8. I feel the caring and supportive presence of my online teacher.	3.91
9. I am satisfied with the learning materials used in an online class.	3.79
10. I experience physical discomfort (i.e. headache, eye strain, back ache, etc.) attending an online class.	2.25
Composite Mean Score	3.24

The composite score of 3.24 indicates that the respondents possess moderate emotional satisfaction in an online class. By item analysis, the 8th item with the highest mean score of 3.91 indicates high emotional satisfaction of the respondents on the caring and supportive presence of their online teachers. The result shows that online teachers of the respondents have nurtured a caring and supportive relationship with their students. Moreover, the result is similar to the study of Zaheer et al. (2015) that showed instructor support with the highest mean score, indicating that instructors were doing well in providing support and guidance for their online learners.

The low-scoring items (6 and 10) indicate emotional dissatisfaction of respondents due to their experiences of technical difficulties in joining the virtual platform and the physical discomfort during an online class. This experience of technical difficulties and physical discomfort, however, is not a unique case as this was also experienced by students attending classes in various Philippine universities in the wake of the COVID-19 crisis (Rotas & Cahapay, 2020).

Behavioral Domain

Table 5 shows the level of student engagement in the behavioral domain with

a composite score of 3.70. By item results, the 6th item obtained the highest mean score of 4.43 while items 2 and 8 got the lowest mean scores of 3.01 and 2.95, respectively.

Table 5

Student Engagement in the Behavioral Domain

Behavioral Domain	Mean Score
1. I am on time or earlier joining our online classes.	4.21
2. I browse other websites while an online class is ongoing.	3.01
3. I do not pay attention to the teacher's lecture during an online class.	3.66
4. I cheat in an online test.	3.80
5. I do not pay attention to my classmates who answer, discuss, or explain something during an online class discussion.	3.67
6. I make, complete, and submit my online assignments on time.	4.43
7. I play with my cellphones while an online class is ongoing.	3.89
8. I perform other lesson activities aside from listening to lectures in an online class.	2.95
Composite Mean Score	3.70

The composite score of 3.70 indicates that the respondents possess a strong sense of self-discipline, responsibility, and regard for others. By item analysis, the 6th item, with the highest mean score of 4.43, indicates that the respondents are very strongly responsible in making, completing, and submitting online assignments on time. This is an encouraging result as literature has shown a significant association between online submission of assignments and academic performance. Previous studies have reported that prompt submission of online assignments resulted in better online learning experience and higher academic performance (Akcapinar & Kokoc, 2020), and late submissions were associated with lower academic performance and procrastination tendencies (Cormack et al., 2020).

The 2nd item, a low-scoring one, indicates that the respondents' class attention is divided as they browse other websites while the online class is ongoing. Similarly, in the study of May and Elder (2018), students used Internet-connected devices for both academic and non-academic purposes, which was a source of distraction from their attention in an online class. The 8th item, another low scoring item, indicates that there are fewer lesson activities performed by the respondents aside from listening to lectures in an online class. According to Wu (2021), the online instructional behaviors often performed by college teachers were lectures with a presentation and a whole-class synchronous discussion. A whole-class discussion is not the most conducive format to encourage participation from a greater number of students. Thus, the students were likely to become passive and disengaged in a whole-class discussion as well as the online lecture of a teacher.

Student Engagement in the Three Domains

Table 6 shows the composite scores and overall mean score of student engagement in the cognitive, affective, and behavioral domains. The cognitive domain had the highest composite score of 3.86 and the affective domain got the lowest at 3.24. The overall score was computed at 3.63.

Table 6

Student Engagement in the Three Domains

Learning Domains	Composite Mean Score
Cognitive Domain	3.86
Affective Domain	3.24
Behavioral Domain	3.70
Overall Mean Score	3.63

An overall mean score of 3.63 indicates that the respondents of the study are engaged in the cognitive, affective, and behavioral domains of online learning. This result has a positive implication on the academic performance of online learners. Research literature abounds with studies showing outcomes of positive relationships between student engagement and academic performance (Rajabolee et al., 2019; Moubayed et al., 2018).

Student Engagement by Internet Use Profile

Based on the Internet use profile, the respondents of the study were grouped into three categories: according to access to the Internet, time spent using the Internet for non-academic purposes, and types of gadgets used. Table 7 shows the results of the test of difference of student engagement in these categories. Using the Kruskal-Wallis test, the computed p-values (i.e., .82014, .11164, and .33626) are all greater than .05.

Table 7

Test of Difference of Student Engagement by Internet Profile

Students' Internet Profile			
Access to Internet			
Access to Internet	H-statistic	p-value	Interpretation
Home Internet Phone Internet School Internet/Others	0.3966 (2, N=239)	.82014	Not significant
Time Spent Using the Internet for Non-Academic Purposes			
Daily Time Use	H-statistics	p-value	Interpretation
2 hours or less More than 2 – 4 hours More than 4 hours	4.385 (2, N=239)	.11164	Not significant
Types of Gadgets Used			
Types of Gadgets Used	H-statistics	p-value	Interpretation
Personal computers and others Laptop Cell phones	2.1797 (2, N=239)	.33626	Not significant

Table 7 shows all results to be insignificant. These indicate that the respondents of the study–regardless of their access to the Internet, time spent using the Internet for non-academic purposes, and types of gadgets used–have the same levels of engagement in the cognitive, affective, and behavioral domains. These further indicate that the Internet-related factors do not affect student engagement in an online class.

Conclusions and Recommendations

Conclusions

The following are the conclusions based on the objectives of the study:

1. The student uses a cellphone and phone Internet to access the online classroom and spends more than 2 to 4 hours daily on the Internet for non-academic purposes.
2. Student engagement in an online class is characterized by the following: high levels of active learning, metacognition, and self-regulation; moderate emotional satisfaction; and strong sense of self-discipline, responsibility, and regard for others.
3. There are no significant differences in the levels of student engagement when grouped according to academic program, Internet access, time spent

using the Internet for non-academic purposes, and types of gadgets used.

Recommendations

Based on the objectives and the above conclusions, this study makes the following recommendations:

1. Online teachers may attend training sessions in order to know and master teaching strategies that promote active listening among online learners, asking direct questions from the teachers, greater talking time of the students, and more interaction between teacher and students.

2. To encourage collaborative learning among online students, an online classroom may have the feature of a breakout room. This feature provides an online teacher the ability to provide spaces for small group discussions. A small group discussion provides students greater opportunity to share their ideas or opinions as well as to interact with the other group members.

3. Students may complement their online learning engagement with regular physical activities during their free time in order to alleviate the physical and mental strains spawned by prolonged screen time.

4. Future researchers may pursue further study on what factors could impact student engagement in an online class. In identifying these factors, consideration should be given to teaching strategies that help develop and promote student-teacher interaction in an online class.

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Appendices

Appendix A

Intervals, rating scales, and descriptive interpretations for an overall learner

Numerical Scale	Interval Range	Descriptive Range	Descriptive Interpretation
5	4.21 – 5.00	Always	Learners are fully engaged in the cognitive, affective and behavior domains.
4	3.41 – 4.20	Usually	Learners are engaged in the cognitive, affective and behavior domains.
3	2.61 – 3.40	Sometimes	Learners are less engaged in the cognitive, affective and behavior domains.
2	1.80 – 2.60	Rarely	Learners are disengaged in the cognitive, affective and behavior domains.
1	1.00 – 1.79	Never	Learners are fully Disengaged in the cognitive, affective and behavior domains.

Appendix B

Intervals, rating scales, and descriptive interpretations for cognitive learner, affective learner, and behavioral learner

Numerical Scale	Interval	Rating Scale	Descriptive Interpretation
5	4.21 6.00	Always	a cognitive learner with very high levels of active learning, metacognition, and self regulation an affective learner with very high emotional satisfaction a behavioral learner with a very strong sense of self discipline, responsibility, and regard for others
4	3.41– 4.20	Usually	a cognitive learner with high levels of active learning, metacognition, and self-regulation an affective learner with high emotional satisfaction a behavioral learner with a strong sense of self-discipline, responsibility, and regard for others
3	2.61– 3.40	Sometimes	a cognitive learner with moderate levels of active learning, metacognition, and self-regulation an affective learner with moderate emotional satisfaction a behavioral learner with a moderate sense of self-discipline, responsibility, and regard for others
2	1.80– 2.60	Rarely	a cognitive learner with low levels of active learning, metacognition, and self-regulation an affective learner with emotional dissatisfaction a behavioral learner with a weak sense of self discipline, responsibility, and regard for others
1	1.00 1.79	Never	a cognitive learner without active learning, metacognition, and self regulation an affective learner with strong emotional dissatisfaction a behavioral learner without self-discipline, responsibility, and regard for others