Student Engagement and Achievement of the Students in STS Parallel Classes

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ABSTRACT

The purpose of the study was to investigate Student Engagement and Performance in STS Parallel class. This was participated by the 1st year Shift A students who took STS subject of PHINMA Cagayan De Oro College, S.Y. 2nd Semester 2022-2023, Thus, it seeks to determine whether there is a significant relationship between Student Engagement in terms of Behavioral, Cognitive, and Emotional Engagement, in STS Parallel Class. This research used a quantitative research method. The researcher chose the 2nd semester S.Y. 2022-2023 as a respondents consisted of 317 students. In collecting the data, the researcher used adapted and researcher made survey questionnaire. Results showed that there is a significant relationship between Student Engagement and Performance in STS Parallel Class. Moreover, findings revealed that there is a significant relationship between Student Engagement and Performance in STS Parallel Class since the p-value (0.01) is lesser than the 0.05 level of significance. Furthermore, it was discovered that students' behavioral, emotional, and cognitive engagements were positively correlated with their academic performance.

INTRODUCTION:

Traditional class setting has been adopted for quite some time where students used to listen to the discussion presented by the teachers; in return teachers hold solely the information and occupies the 75% workload in the learning process. In a cited blog post of (agency 1 2022) defined traditional classroom instruction allowed teachers to be the primary source of knowledge, which promoted subject specificity and promoted one-way knowledge transfer. Students become passive, and limit their opportunities to engage. In the study of Joshi, N. (2022) mentioned that traditional learning involved Theory-Based Lessons and were based solely on lessons less likely to engage due to lack of time. Disadvantages of lectures as quoted from Bonwell (1996) who cited Cashin (1985) as the original author discussed that Students' attention wanes quickly after fifteen to twenty-five minutes. In connection with traditional learning Hart, Stewart, Jimerson, S. Kaitlyn, Shane. (2011) presented that traditional education identifies students' reliance on the teacher's input and are restricted to learn through books thus students are unable to learn new things.

There was a call in Mehta, 2022 to change teaching methods that are based on curriculum teaching and planning in order to keep the learners as the primary focus. Davis, M 2012 emphasized that the key to active learning is for students to engage in the learning process. Discussion of Finn (1989) on Student Engagement identified the model, that there was a linear association of participation to their academic achievement. Studies of Newmann et al. (1992) found that the involvement of students encouraged them to work hard. On the other

hand Modern classroom instruction promotes students to advance at their own pace (Arnett, T., & Arnett, T. 2019). The study of PHINMA-UPANG 2016 welcomes a new teaching method, wherein the dynamic learning program implements the student centered learning technique. A form of active learning, encourages parallel class to let students engage in an independent academic work that would require 75% of class time. This shifts now the phase of the teacher's role from sole lecturer to facilitator-coach (S, 2019).

The introduction of the parallel class scheme was anchored on the study of Bernido, C and Bernido M 2010 who started the CVIF Dynamic Learning Program (DLP), which limits teacher participation by devoting seventy percent of the class time to student activities with specific learning targets. The teacher discusses 20 minutes per classroom in parallel classes, and students must work independently without close supervision; this means that students are responsible for their own learning (Azuelo, J. 2018). In parallel class, teachers are assisted by student facilitators to help them monitor student's behavior and demeanors inside the classroom. Thus the use of parallel classes allows students to engage in a specific activity. This is very unique because students are given SAS or Student Activity Sheets every day in every subject, allowing teachers to monitor students' activities while they are roaming around for 4 classrooms. (J, 2021). Francis Larios stated in a remark related to an article published by PHINMA 2020 that the aim of AL is to support the teacher in becoming an active learning teacher. The idea is that students try to engage in learning on an individual basis while also reflecting on feedback and honing their skills inside the classroom. Student engagement is a significant concept that is used to understand student behavior in the context of learning and instruction. Understanding how students behave in academic institutions will provide information about how college instructions and educational procedures are carried out (Delfino, 2019).

In the study of Gleason, B. et al 2011, active learning was endorsed as an important element of pharmacy education by involving students in the learning process, it has been found out that their application of the knowledge they acquire was improved. Student engagement has three components: behavioral, emotional, and cognitive. The participation of students in academic and extracurricular activities is referred to as behavioral engagement. Students' emotional engagement refers to their good and negative reactions to their peers, teachers, and school. While cognitive engagement discusses students' consideration and readiness to learn challenging skills (Fredericks et al., 2004). Using active learning techniques, teachers can make the most of the 20 minutes they have with each class. Education research of (Freeman et al., 2014; Theobald et al., 2020) stated that active learning in a parallel class allows students to participate in their learning by thinking, discussing, and creating. The study carried out by Noemy M.S.,et al 2017 objective research is to study the role of these dimensions in the learning process and development of students, which may predict future performance. Based on the issues presented, the researcher conducted a study on Student Engagement and Performance in STS Parallel class to correlate their academic performance.

METHODOLOGY

The study used a quantitative research design that correlates the students' engagement and academic performance in STS parallel class. The research was conducted at PHINMA Cagayan De Oro College. College of Arts and Sciences. Letter of permission was sent to the Dean of College of Arts and Sciences, Letters of approval as well to the Human Resource

Officer and Chief Operations Officer of the school prior to the target of study. Universal sampling technique was utilized to aim higher reliability results. Remote coaching sessions were used to conduct the study online using Google Forms. Based on the number of participants, the study lasted for 7 days. During the 1 week duration, 318 out of 389 respondents took part. The survey questionnaire was used to assess the level of student engagement for study and an adapted survey questionnaire from the study of Delfino, 2019. Part 1 of the instrument requests respondents' personal information that includes name, age, gender, year level, and section and socio economic status. Part II of the instrument requests respondents to assess their performance level of engagement in STS parallel class. This section is divided into three indicators namely: Behavioral, Cognitive and Emotional Engagement. Each indicator has 10 questions that allow students' to assess their level of engagement in STS class. The results were analyzed using tools such as percentage, mean, standard deviation, and frequency and Pearson correlation.

RESULTS AND DISCUSSION

The Academic Performance of Science Technology and Society Students

Based on the result shown in Table 1, the Academic Performance of STS respondents revealed that in P1 majority of the respondents have grades ranging from 2.00 to 2.25 which correspond to 50.79% (161 out of 317) respondents while 0.32% (1 out of 317) gain an academic performance of 5.00 which is a failing grade. In P2 results 35.65% (113 out of 317) and 2.21% (7 out of 317). As an overall result in academic performance, 45.11% (143 out of 317) of the respondents were having grades of 2.00 to 2.25 while only 0.95% (3 out of 317) were having a 5.00 or failing grades of 2.00 to 2.25 while only 0.95% (3 out of 317) were having a 5.00 or failing grades. Academic performance was assessed based on self-reported grades in the latest internal examinations Masud, S et al., 2019. Conversely, academic performances are the test scores, academic grades, and GPA (Finn & Rock, 1997; Fredericks et al., 2004; Upadyaya & Salmeda-Aro, 2013). The academic success depends only in cognitive aspect as well as the emotional abilities (Nasir and Masrur, 2010). Those Teachers also who are passionate can influence the performance of the students (Mart, 2018).

Grades	P1		P2		Overall	
	f	*%*	*f*	*%*	*f*	*%*
1.00-1.25	4	1.26%	37	11.67%	10	3.15%
1.50-1.75	121	38.17%	113	35.65%	121	38.17%
2.00-2.25	161	50.79%	107	33.75%	143	45.11%
2.50-2.75	28	8.83%	47	14.83%	37	11.67%
3.00	2	0.63%	6	1.89%	3	0.95%
5.00	1	0.32%	7	2.21%	3	0.95%
Overall	317	100.00%	317	100.00%	317	100.00%

Table 1. The Academic Performance of STS students

Students Behavioral Engagement

Table 2 shows the level of student's behavioral engagement. The result reveals that the statement "I come to class everyday" obtained the highest mean of 4.75 (SD=0.61) described as very high which means that the indicator is more spread out. According to Romer's 1993 study, there is a significant impact on academic performance along with students' class attendance. It was also suggested that a required class attendance policy be implemented in order to improve academic achievement. Rodgers (2001), Stanca (2006), Cohn and Johnson (2006), and Latif and Miles (2013) denotes that these are important in the field suggesting its favorable effect of class attendance on the academic performance. According to current research of Kassarnig, V. et al 2017, attending classes is a good indicator of future course success. On the other hand the statement "I come to class without completing readings or assignments" obtain the lowest mean of 2.84 (SD=1.28) described as Moderate. There is a link between students' procrastination and academic achievement, according to several researches of Nordby et al., (2017) missing classes and assignments and postponing things can all lead to poorer grades. Falkner and Falkner (2012) found that assignment submission patterns could be an indicator for identifying at-risk students and increased rate of course withdrawals at an institution. As an overall result the level of students behavioral engagement were High (mean=3.94, SD=0.87).

Behavioral Engagement	Mean	SD	Qualitative Interpretation
1. I come to class everyday	4.75	0.61	Very High
2. I do my assignment in STS at home	4.60	0.68	Very High
3. I participate in or small group discussions	4.49	0.75	Very High
4. I keep eye on the reading sessions	4.28	0.82	Very High
5. I make sure I study on a regular basis	4.07	0.85	High
6. I am doing well on a test	3.98	0.81	High
7. I take good notes in every class	3.95	0.94	High
8. I ask questions in class or contribute ideas to class discussion	3.42	0.97	High
9. I raise my hand in class	3.02	0.97	Moderate
10. I come to class without completing readings or assignments	2.84	1.28	Moderate
Overall	**3.94**	**0.87**	**High**

Legend: 4.21-5.00= Very High   3.41-4.20=High   2.61-3.40= Moderate

1.81-2.60=Low   1.00-1.80=Very Low

Table 2 The Students Behavioral Engagement

Student Cognitive Engagement

Table 3 shows the level of student's cognitive engagement. The result reveals that the statement "I find ways to make the course relevant to my life" obtained the highest mean of 4.23 (SD=0.87) described as very high, this implies that Establishing was the most prominent and often cited student response as it helps students see that the content is worth knowing by showing how it fits into their current and future frame of reference. Briggs, S. (2022). On the other hand the statement "I discuss ideas from our classes with others outside the class." obtain the lowest mean of 3.49 (SD=1.14) described as High. Wieman (2007) additionally suggested giving students careful and clear opportunity to explore why a specific subject is important to learn, how it functions in the real world, why it makes sense, and how it relates to what they already know. As an overall result the level of students cognitive engagement were High (mean=3.93, SD=0.95).

Cognitive Engagement	Mean	SD	Qualitative Interpretation
1. I find ways to make the course relevant to my life	4.23	0.87	Very High
2. I work on a paper or project that requires integrating ideas or information from previous sources	4.21	0.87	Very High
3. I involve myself in a class participation	4.17	0.90	High
4. I look over class notes between classes to make sure I understand the lesson	4.10	0.89	High
5. I work harder to meet an instructors' standards or expectations	4.07	0.91	High
6. I apply the lessons in the course materials to my everyday life	4.01	0.92	High
7. I prepared two or more drafts of a paper or assignment before turning it in.	3.73	0.97	High
8. I consult with the professor to review assignments of tests, performing tasks, projects or to ask questions	3.68	1.00	High
9. I use an electronic medium to discuss or complete an assignment	3.63	1.03	High
10. I discuss ideas from our classes with others outside the class.	3.49	1.14	High
Overall	**3.93**	**0.95**	**High**

Legend: 4.21-5.00= Very High   3.41-4.20=High   2.61-3.40= Moderate

1.81-2.60=Low   1.00-1.80=Very Low

Table 3The Students Cognitive Engagement

Student Emotional Engagement

Table 4 shows the level of student's emotional engagement. The result reveals that the statement "I sincerely want to learn this subject" obtained the highest mean of 4.71 (SD=0.60) described as very high. This explains the research of Gbollie, C., and Keamu, H. P. (2017) about motivation and learning strategy use is vital to improve student learning outcomes. Hence success in academics is recognized to be significantly influenced by

achievement motivation, which energizes and guides behavior toward success (e.g., Robbins et al., 2004; Hattie, 2009; Plante et al., 2013; Wigfield et al., 2016). On the other hand the statement "I offer tutorial lessons or taught students with pay or voluntarily" obtain the lowest mean of 2.76 (SD=1.31) described as moderate. In a study of Glomo-Narzoles, D. T., and Glomo-Palermo, D. T. (2020) They noted that while a single tutorial did not increase the students' academic performance, numerous sessions had a cumulative effect. Therefore, students' academic performance is unaffected. As an overall result the level of students emotional engagement were High (mean=3.85, SD=1.01).

Emotional Engagement	Mean	SD	Qualitative Interpretation
1. I sincerely want to learn this subject	4.71	0.60	Very High
2. I am confident that I can learn and do well in the class	4.40	0.75	Very High
3. I am having fun in class	4.31	0.90	Very High
4. I worked with other students on projects during class	4.19	0.98	High
5. I do serious conversations with students who are different in terms of religious aspects, political, opinions, or personal values.	4.00	1.03	High
6. I worked with classmates to prepare class assignments	3.96	1.06	High
7. I Include diverse perspective in class discussions or writing assignments	3.89	0.89	High
8. I worked with faculty on activities other than course work	3.22	1.26	Moderate
9. I talk about career plans with a faculty member or to my adviser	3.09	1.32	Moderate
10. I offer tutorial lessons or taught students with pay or voluntarily	2.76	1.31	Moderate
Overall	**3.85**	**1.01**	**High**

Legend: 4.21-5.00= Very High   3.41-4.20=High   2.61-3.40= Moderate

         1.81-2.60=Low   1.00-1.80=Very Low

Table 4. The Students Emotional Engagement

The Relationship between Students Engagement and Academic Performance

Table 5 shows the relationship between student engagement and academic performance. The result reveals Students engagement in terms of Behavior (r=0.192, p=0.003), Cognitive (r=0.170, p=0.001) and Emotional (r=0.145, p=0.010) had significant relationship on academic performance. As an overall result students level of engagement (r=0.189, p=0.001) had significant relations on academic performance. Thus, the null hypothesis of this study is rejected and concludes that level of students engagement can positive affects the academic

performance of the respondents. A recent study by Bayoumy et al. (2001) found a relationship between students' engagement and academic performance, in addition to other variables such as facilitating conditions (e.g. engagement-fostering aspects) and students' motivation which also had a similar relationship. Another study of Dotterer and Lowe (2011) suggested that cognitive and emotional engagement and behavioural engagement predicted students' academic performance. Correlational analysis indicated that academic performance can be determine by overall engagement (r=.312, p<0.01), which supported previous findings by Casuso-Holgado et al. (2013).

Engagement		Academic Performance		
		P1	**P2**	**Overall**
Behavioral	r-value	0.166[**]	0.176[**]	**0.192[**]**
	p-value	0.003	0.002	**0.001**
Cognitive	r-value	0.185[**]	0.135[*]	**0.170[**]**
	p-value	0.001	0.016	**0.002**
Emotional	r-value	0.133[*]	0.129[*]	**0.145[**]**
	p-value	0.018	0.022	**0.010**
Overall	**r-value**	**0.182[**]**	**0.163[**]**	**0.189[**]**
	p-value	**0.001**	**0.004**	**0.001**

Table 5. The relationship between Students Engagement and Academic Performance.

The Level of Engagement of the Respondents

The study found out that the three dimensions of student engagement (behavioral, emotional and cognitive) were positively correlated to the academic performance of the students. Revealed that the statement among the three factors of engagement Behavioral were found to be the highest (mean=3.94, SD=0.087), followed by cognitive (mean=3.93, SD=0.95), while the last one is emotional (mean=3.85, SD=1.01). As an overall the students engagement of the respondents were High (mean=3.91, SD=0.94).

Engagement	Mean	SD	Qualitative Interpretation
Behavioral	3.94	0.87	High
Cognitive	3.93	0.95	High
Emotional	3.85	1.01	High
Overall	**3.91**	**0.94**	**High**

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CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to examine students' behavioral, cognitive, and emotional engagement and how it affected their academic performance in a parallel

1. Class. It sought to ascertain whether there is a link between student engagement and academic performance in Science Technology Society class. There were 317 takers that took part in the survey questionnaire out of 389 respondents.

2. In terms of Behavioral Engagement, "I come to class everyday" scored very high, "I come to class without having completed any readings or assignments," received a moderate rating. In Cognitive Engagement, "I find ways to make the course relevant to my life" received a very high rating and "I discuss ideas from our classes with others outside the class" received a high rating. In Emotional Engagement, "I sincerely want to learn this subject" received a very high rating and "I offer tutorial lessons or taught students with pay or voluntarily" received a moderate rating.

3. Furthermore results showed that the correlation of student engagement towards the academic performance of students in Science, Technology and Society class is positive thus suggesting measures to maximize student involvement that would aid in providing students with relevant learning experiences.

4. More than half of the students performed well in P1 (181 out of 317) of respondents received marks ranging from 2.00-2.25 in P1 while 35.65% (121 out of 317) received grades ranging from 1.50-1.75. Base on the level of Engagement results. It showed that it rated high in overall rating.

5. If researchers want to do more research on this topic, It is strongly advised that they will use the overall grade to gauge the amount of involvement of students in STS parallel class.

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