Research Paper
Open Access

A linear correlation analysis of student engagement and level of understanding among Grade 11 Humanities and Social Sciences Students

Jenika Gi-An C. Nero, Beatrice Jubilee Orbiso,
Eureka Alra Mahusay, Tracy Paulyne Suan, Alainna Regil Cui
Flordeliza Soroño-Gagani,LPT.,MA.,PhD(c)
University of San Carlos, Basic Education Department-Senior High School, South Campus
Cebu City, Philippines

ABSTRACT: Students are usually left silent and confused when they are asked to participate in class when they do not know or understand the lesson being discussed. This is why this correlational study was conducted in order to determine if there is a significant relationship between student engagement and level of understanding among the randomly chosen 30 Grade 11 Humanities and Social Sciences students of the University of San Carlos –Senior High School – South Campus in Cebu City Philippines. Adapted questionnaires on student engagement and level of understanding were utilized and went through the face and content validity and pilot testing to obtain validity and reliability. Simple mean, standard deviation, and Pearson's r correlation were used to treat the interval data. Based on the findings, the students' level of student engagement was rated high ($\overline{X} = 3.84, SD = 0.75$) and their level of understanding was found to be high as well ($\overline{X} = 3.69$; $SD = 0.09$). The researchers also discovered that there is a significant relationship between the two variables, **r(28) = 0.63, p < 0.05 among the 30 respondents.** These findings imply that the students participate in school activities and learn different ideas based on their comprehension of the different subjects and courses. The moderately high correlation between the variables also denotes that when the students understand the topics being discussed, he/she will most likely engage in class as well.

KEYWORDS: Student engagement, level of understanding, descriptive correlation

I. INTRODUCTION

For a child to succeed in their education they must have a certain level of engagement that can help them. There are many factors that can contribute to their level of engagement like their surroundings and the people around them. When students show interest in what is being taught in school, they learn and retain more. Students immersed in their work exert more effort in finishing the task at hand. They also find the work more enjoyable than those who are unconcerned with the schoolwork.

One of the primary elements that are alluded to student engagement is the relationship between the effort, time, and other significant

One of the primary elements alluded to student engagement is the relationship between the time, effort, and other significant means devoted by schools and their students that are destined to enhance the learning and development of students, as well as the institution's performance and reputation. Majority of writings regarding student engagement mostly address the need to improve student learning. According to Coates[1], student engagement does rely on the number of educational activities that a student immerses in. This participation, as shown in past researches, likely lead to high-quality learning.

'Student engagement' originated from a body of work pertained to student involvement particularly in North America and Australasia, where annual large-scale national surveys are established and conducted. George Kuh and Hamish Coates, two of the most prolific authors regarding student engagement, have connections with the organizations that helped develop and implement the aforementioned surveys which are based within various universities and private companies.

To determine the level of engagement one of the factors to consider is if the subject the student is taking entices them: if it is intellectually stimulating, has been taught properly, and many more. Another factor is the curriculum or the educational system they are in. If they feel like they are inspired to go to school or do school works.

In an article by Wang and Degol [2], their knowledge and definition of student engagement are innovated as they take into account the factors that affect how a student engages in class. According to Wang and Eccles[3], students are able to focus their attention and energy on finishing tasks, persist when problems arise and connect with their school when they are engaged in learning. Appleton, Christenson, and Furlong[4] then state that: "therefore, student engagement is critical for successful learning". It is also mentioned in the article that context molds student engagement. When they have positive learning experiences and reaffirmations in terms of their development in a learning context, then they are most likely to engage more in class.

Student engagement has been raising the education lexicon over the last decade. Engagement refers to the involvement of the students with their school works and other school activities. Such activities may range from the time spent working in the campus or studying, to the learning experiences inside and outside the classroom that encourage students to educationally connect with peers.

The work that students perform during their time in school is more significant in the long run than who they are or which university they choose to attend. This basic formula has been agreed upon by the extensive background of student experience research in the United States. Astin's [5] theory of student involvement claims that being involved does lead to student learning and positive developments like satisfaction, persistence, academic success, and achievement.

Schools from around the globe have been improving student engagement. Universities and other schools have been doing many things to cater to the needs and interests of their students to enhance the student involvement. With the rise of information and communication technologies in education, more options become available for institutions to further enhance student engagement not just within university premises but also in online environments. The increasingly marketized and competitive environment in mass higher education propels schools to make student engagement a pivotal focus of attention in their institutions. Intervention and enrichment programs were introduced to raise the level of engagement of students. In the study of Soroño – Gagani and Bonotan [6] there is enough evidence that the more the students are engaged in a series of enhancement activities, the more are the chances of self-improvement. Furthermore, the more engaging, the more meaningful the lessons it becomes and the more chances for transfer of learning.

Theoretical Framework

This research is anchored on two theories, namely, Vygotsky's Social Learning Theory and Astin's Student Development Theory.

Social Learning Theory. Vygotsky's [7] theory on social learning focuses on the role of social interaction to cognitive growth. In his theory, he suggests that learning takes place when students communicate and relate with their peers, teachers, and even with fellow students. As cited by Soroño – Gagani, and Bonotan [6] in their article, Vygotsky received strong support from other theorists who advocated the idea that social interaction plays a significant role in cognition development. Even Bandura [8] states that "full cognitive development requires social interaction." Hence, teachers also consequently play a huge role in building a solid learning environment in the classroom. By having class activities such as group discussions and collaborations, students are able to deliberate among themselves the things they've learned and understood in class. They will be able to engage more once they play as mentors, coaches or tutors to their classmates. The conversation theory of G.Pasks [9] as cited by Scott [10] explains that students learn more if they "teach back" what they have learned by engaging themselves in a conversation about the subject matter.

Vygotsky fundamentally apprehends that "learning always occurs and cannot be separated from a social context". [8] In this research, the aspect of social interaction among the respondents does greatly affect their understanding and engagement in class. The respondents do attend school activities and study with friends which increase their level of student engagement. By deepening one's learning and understanding through social interaction, students are motivated to also participate and engage more in class.

Student Development Theory. Alexander Astin's [7] Theory of Student Involvement articulates that when students are more involved in co-curricular tasks, they receive more desirable results than those who are less engaged. There are three elements that compose the core concepts of the theory. First, the "inputs" of a student like their background, demographics, and previous curricular experiences; second, the student's "environment", which refers to all of the student's experiences during college in and out of class; and lastly, the "outcomes" that persist within students even after they have graduated college which includes their knowledge, characteristics, attitudes, values, and beliefs.

Astin states that a continuous investment of psychosocial and physical energy is needed in student involvement He also mentions that such aspects of involvement may either be quantitative or qualitative. The outcomes that a student receives from being academically involved is directly proportional to the lengths to which were involved. Finally, academic performance is closely associated with student involvement. Moreover, students who participate more in student organizations, leadership positions, and other co-curricular activities has led positive correlation to the academic performance of the students. This is the reason why universities encourage their students to be more involved and committed to school activities.

These theories wanted to be validated by the researchers if this is also true to the current settings – to the Humanities and Social sciences students who will be taking social sciences courses.

II. OBJECTIVES OF THE STUDY

This study aimed to determine the relationship between student engagement and level of understanding among Grade 11 Humanities and Social Sciences (HUMSS) students. Specifically, this study wanted to answer the following questions: (a) What is the level of student engagement among Grade 11 Humanities and Social Sciences students? (b) What is the level of understanding among Grade 11 Humanities and Social Sciences students? (c) Is there a significant relationship between student engagement and level of understanding?

This study hypothesized that there is no significant relationship between student engagement and level of understanding among the Grade 11 Humanities and Social Sciences students. Additionally, the researchers also presumed that the level of student engagement is average and the level of understanding is high among the students. This study is only limited to the Grade 11 students in the University of San Carlos –Basic Education Department – Senior High School, South Campus in Cebu City, Philippines for the school year 2017 – 2018.

Obtaining the correlation between the two variables is of great importance to teachers to help them gain more knowledge on how to help their students engage further in class and to know more about student-approach techniques. This research will also aid teachers to be more aware of their students' weaknesses in terms of class participation. Students, on the other hand, will be made aware of how they can use their understanding and comprehension by engaging more in their classes. This is also a chance for future researchers to look into the ways that students learn and engage more in their subjects and courses.

III.   METHODOLOGY

Method

This study utilized a quantitative non-experimental descriptive correlational research in order to describe the phenomenon on the relationship between student engagement and understanding level of students. This is based dependently on numerical data to effectively complete the study. Furthermore, this research solely deals with describing the characteristics of the population or phenomenon being studied. It does not answer the questions "how/why/when" but rather gives answers to the "what" questions. The purpose of descriptive research is to observe, describe, and document the data collected from the instrument used. Simple descriptive statistics and Pearson's Product moment correlation were used to treat the data. The statistical tool of correlation was used since it dealt with two variables from the same population or sample which was under study and it determined whether or not the variables have a relationship. The variables being studied also showed a relationship between an independent and dependent variable.

Respondents

The sampling frame was taken from the list of all Senior High School students enrolled in the University of San Carlos in the S.Y. 2017-2018. Thirty (30) senior high school students were chosen as the respondents of the study. These students were selected through stratified proportionate sampling which was applied to each block in the Grade 11 Humanities and Social Sciences students in the University of San Carlos – South Campus then samples were taken based on simple random sampling. Table 1 presents the demographic profile of the respondents.

Table 1. The respondents of the study

Section	f	%	GENDER	F	%	AGE	f	%
A	6	20.00	MALE	7	23.33	16	2	6.67
B	6	20.00	FEMALE	23	76.67	17	22	73.33
C	6	20.00				18	6	20.00
D	6	20.00						
E	6	20.00						
TOTAL	30	100		30	100		30	100

The researchers chose to take a sample from the total population for the convenience and accessibility of reaching the intended respondents for the research study. The researchers were aware that conducting a survey of the whole population is costly and time-consuming. Contacting the whole population is also unattainable since there will be respondents who are unavailable or who'll choose not to respond during the time of the researchers' surveying.

Environment

The study was conducted at the University of San Carlos (USC) – South Campus. The school is a Catholic private university managed by the University President Fr. Dionisio M. Miranda, SVD. USC offers Basic Education (Kindergarten, Grade School, Junior High School, and Senior High School) and higher education courses. Prospective students may choose from 57 undergraduate and 74 graduate programs such as business, engineering, and humanities courses. This environment was picked because of the convenience it provided for the researchers to gather the data needed for the study. This means that the researchers can avoid unnecessary expenses in terms of fares since the venue where the survey was conducted does not require them to travel far.

Instrument

The instrument that was used to gather the data for this research was an adapted survey questionnaire. The survey has two parts, which were both adapted and modified surveys that were answered through levels or ratings with one (1) standing for the answer **Strongly Disagree** and five (5) for the answer **Strongly Agree**. In order for this research to be valid, it passed through content and face validity by letting the Statistics teacher who is also a Research teacher check the survey instrument. For the reliability of the survey tool, procedures were done by conducting a pilot test to other respondents who are not included in the sampling frame but are part of the target population. The questionnaire was pilot tested to 30 Grade 11 Arts & Design students through Simple Random Sampling. Reliability Test using Cronbach's alpha was used to obtain a 0.82 reliability coefficient which is acceptable in educational sciences. This means that the items in the questionnaire were highly consistent and thus ready for the final data gathering of the study.

Statistical Treatment of Data

In order to analyze and interpret the data gathered, simple mean, and standard deviation were used to solve the level of students' engagement and understanding of lessons and activities in school. To determine the significant relationship between the student engagement and level of understanding among Grade 11 Humanities and Social Sciences students, a statistical test of correlation was applied using Pearson's Product moment correlation ratio in which it follows the principle that the closer r is to +1 or -1, the more closely the two variables are related.

Data Gathering Procedures

In order to realize the project, the researchers sought the approval from the Strand Coordinator by submitting a letter of intent. Though the sampling procedure of this research used the stratified random sampling process, all respondents still had the freedom to participate or not. The researchers also ensured to fully inform the respondents regarding the whole procedure of the research project to protect the confidentiality and anonymity of the subjects. In analyzing and interpreting the gathered data, the researchers used accessible technology to neatly organize the procedure and results of the study. The software Microsoft Excel is the most efficient application to statistically treat the data gathered and to also display the results in graphs, charts, and tables. Statistical software for Social Sciences was also used in order to check the reliability of all results.

IV. RESULTS AND DISCUSSIONS

This chapter presents the results and discussions of the level of student engagement and understanding among the Grade 11 Humanities and Social Sciences students in the University of San Carlos – South Campus (USC-SC). The researchers have also determined the relationship between the two variables through analysis and interpretation of the gathered data using Pearson's r correlation. Table 2 presents the level of student's engagement in Grade 11 Humanities and Social Sciences students of USC-SC.

Table 2: The level of student engagement

Items	Mean	SD	Description
1. I feel that my schoolwork is important	4.27	0.63	Very High
2. I am praised for doing good work at school.	3.43	0.84	High
3. I am interested in what I am learning in school.	3.57	0.92	High
4. My teachers believe that I can do well in school.	3.27	0.68	Average
5. I try to do my best in school every day.	3.87	0.81	High
6. I go to school so I can get a good job.	4.07	0.63	High

7. I want to graduate from high school so that I can go to college.	4.57	0.5	Very High
8. I attend school activities with friends.	4.03	0.87	High
9. I often study or do assignments with friends to practice.	3.57	0.80	High
10. My classes are teaching me the skills that I need to be successful in life outside of school.	3.8	0.83	High
Overall Mean Rating	3.84	0.75	High

Interval: 1 – 1.8 (Very Low); 1.81 – 2.6 (Low); 2.61 – 3.4 (Average); 3.41 – 4.2 (High) 4.21 – 5 (Very High)

Table 2 shows that most of the items received a high rating ($\bar{X} = 3.84, SD = 0.75$). This means that the Grade 11 Humanities and Social Sciences students of the University of San Carlos – South Campus have a high level of student engagement. There are two items that were rated very high by the students ($\bar{X} = 4.42, SD = 0.56$) and a total of seven items were rated high ($\bar{X} = 3.76, SD = 0.82$). Only one item in the survey received an average rating ($\bar{X} = 3.76, SD = 0.82$) which talked about their teachers' faith in their academic performance. This means that the respondents neither agree nor disagree on whether their teachers believe that they can do well in school.

For items that received a very high rating, the students strongly agree that schoolwork is indeed important and that they want to finish their high school education in order to go to college. The items that received a high rating from the respondents focused on the students' experiences regarding their classes. To wit: the Grade 11 HUMSS students agree that they are indeed praised for doing well in school and are interested in what they are learning inside the classroom. The respondents also agree that they attend school activities and finish schoolwork with friends. This implies that the students engage more in school when they are with friends. Lastly, the respondents agreed that their classes do teach them life-long learning skills that helped them become successful people not just inside the school, but outside as well.

Table 3 presents the level of understanding among the Grade 11 Humanities and Social Sciences students of USC-SC.

Table 3: The level of understanding

Items	Mean	SD	Description
1. Overall, this subject has been intellectually stimulating.	3.67	0.87	High
2. Overall, this subject has been well coordinated.	3.47	0.76	High
3. Overall, this subject has been supported by useful learning resources.	3.87	0.88	High
4. Overall, this subject has been well-taught.	3.47	0.72	High
5. Focusing on my own learning in this subject, I have been required to work at a high standard.	3.63	0.91	High
6. Focusing on my own learning in this subject, I found the assessment tasks useful in guiding my study.	3.8	0.75	High
7. Focusing on my own learning in this subject, I received valuable feedback on my progress.	3.77	0.72	High
8. Focusing on my own learning in this subject, I learned new ideas, approaches, and/or skills.	3.8	0.6	High
9. Focusing on my own learning in this subject, I learned to apply knowledge to practice.	3.73	0.73	High
10. Focusing on my own learning in this subject, I have been part of a group committed to learning.	3.73	0.68	High
Overall Mean Rating	3.69	0.09	High

Interval: 1 – 1.8 (Very Low); 1.81 – 2.6 (Low); 2.61 – 3.4 (Average); 3.41 – 4.2 (High) 4.21 – 5 (Very High)

Out of the data gathered from the survey, the level of understanding among Grade 11 Humanities and Social Sciences Students is rated high ($\bar{X} = 3.69$, SD = 0.09). All the items in the questionnaire received a high rating, which means that all of the respondents do understand the things being taught in school. Although, the items that discuss the coordination and teaching of the subjects have the lowest mean ($\bar{X} = 3.47$, SD = 0.76) compared to all the other items in the survey.

Based on the gathered data, the researchers conclude that the students do have high levels of understanding with regards to the subjects and courses taught in class.

Table 4 presents the correlation between the level of student engagement and the level of understanding among Grade 11 Humanities and Social Sciences students in USC-SC.

Table 4: The correlation between the level of student engagement and understanding

Correlations			
		engagement	understanding
engagement	Pearson Correlation	1	.626**
	Sig. (2-tailed)		0.000
	N		30
understanding	Pearson Correlation	**.626**	1
	Sig. (2-tailed)	0.000	
	N	30	30

**Correlation is significant at the 0.01 level (2-tailed).

Using the alpha level (0.05) and degree of freedom (28), the researchers look up a critical value in the r-table and find a critical r of 0.361. If Pearson r is greater than the r-tabled value, the researchers shall reject the null hypothesis. If Pearson r is less than the r-tabled value, the researchers must not reject the null hypothesis. Since Pearson r (0.63) is greater than the r-tabled value (0.361), then the researchers shall reject the null hypothesis.

Out from the statistical treatment applied to the data from the survey, the researchers found out that there was a moderately positive relationship (r = 0.63) between the level of student engagement and level of understanding. There was also a moderately high correlation between the level of student engagement and level of understanding. This means that the degree of the strength and direction of the relationship between the level of student engagement is moderately related to the level of understanding among 30 Grade 11 Humanities and Social Sciences students.

V.   CONCLUSION

In conclusion, the Grade 11 Humanities and Social Sciences students have high levels of student engagement. This implies that the Grade 11 HUMSS students engage in their schoolwork, class group discussions, and peer school activities. In addition, the respondents also have high levels of understanding which denotes that they have learned different ideas and skills from their comprehension of their subjects and courses. In terms of the correlation between the two variables, there is indeed a significant relationship between the level of student engagement and understanding, r(28) = 0.63, p < 0.05 among the 30 respondents. The moderately high computed value of r suggests a fairly strong relationship between the two variables among 30 Grade 11 Humanities and Social Sciences students. This means that when a student understands a lesson, he/she will most likely engage and participate in class.

It is therefore recommended by the researchers to also apply this study to other education levels, such as those students who are still in Junior High School. Conducting this research to lower grade levels will help determine whether or not the students' level of student engagement and understanding will worsen or improve after each education year level.

REFERENCES

[1]   Coates, H. (2016). Student Engagement in Campus-Based and Online Education: University Connections. Retrieved from https://www.amazon.ca/Student-Engagement-Campus-Based-Online-

[2]   Wang, M.T., Degol, J. (2014, June 17). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4833401/

[3]   Wang M-T, Eccles JS. Adolescent behavioral, emotional, and cognitive engagement trajectories in school and their differential relations to educational success. Journal of Research on Adolescence. 2012a;22:31–39.

[4]   Appleton JJ, Christenson SL, Furlong MJ. Student engagement with school: Critical conceptual and methodological issues of the construct. Psychology in the Schools. 2008;45:369–386.

[5]   Alexander Astin's Theory of Involvement. (n.d.). Retrieved from
https://studentdevelopmenttheory.weebly.com/astin.html

[6]   Soroño – Gagani, F. and Bonotan, A. (2017). The Impact of the Mathletes Training Program on the Math Achievement and Self – Concept of Students. Asia Pacific Journal of Multidisciplinary Research, Vol. 5, No. 2, 131-138, May 2017.

[7]   Vygotsky, L.S. (1978). Mind and society: The development of higher mental processes. Cambridge, MA: Harvard University Press.

[8]   Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), Encyclopedia of human behavior (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], Encyclopedia of mental health. San Diego: Academic Press, 1998).

[9]   Pask, G. (1976). Conversation theory: Applications in education and epistemology. Amsterdam: Elsevier.

[10]   Scott, Bernard. Gordon Pask‟s conversation theory: A domain-independent constructivist model of human knowing. URL:https://goo.gl/dxK6mN, date retrieved: December 14, 2016.