Students' Level of Engagement in Learning Technology and Livelihood Education in Blended Learning Modality

Miamie C. Villa [iD], Alcher J. Arpilleda* [iD], Michel D. Galavia [iD], Manilyn C. Lapiz [iD],
Veverlyn A. Salvador [iD], Kelvin C. Pacatan [iD], Ian S. Umpil [iD], Jesster H. Abella [iD],
Mark Kevin C. Marbani [iD], Reggienan T. Gulle [iD], Reubenjoy P. Budejas [iD]

St. Paul University Surigao, Surigao City, Philippines

Abstract:

Student engagement is the amount of attention, interest, curiosity, and positive emotional connections that students have when they are learning whether in the classroom or on their own (Sousa, 2016). This study aimed to determine the students' level of engagement in learning Technology and Livelihood Education (TLE). A survey was conducted among the randomly selected Junior High School Students of St. Paul University Surigao. Based on the findings, the researcher concluded that the students were highly engaged in learning TLE in a blended learning environment, specifically in the behavioral, cognitive, and emotional engagement. It was also concluded that the respondents' age, sex, and grades are not significantly correlated to their level of engagement. Therefore, it is hereby recommended that teachers may continue to prepare tasks and activities that would engage the students in learning TLE, focusing more on their cognitive engagement. Similar studies may be conducted where additional variables will be included, and teachers may be taken as respondents for cross validation.

Keywords: *blended learning, descriptive, engagement, Technology and Livelihood Education, Philippines.*

Introduction

For the past two years, face-to-face classes halted. There was a shift in the way of learning to make education possible as Briones (2020) as cited by Lucero and his colleagues (2022) called that education must continue even in times of crisis. A learning continuity plan was developed to address the needs of the challenging times.

During those years, learning practical lessons became a challenge. It was believed that the level of engagement and academic accomplishment of students would be impaired as a result of the abrupt changes they experienced from traditional face-to-face learning to alternative delivery modes (Legarde and Sumandal, 2022). Sousa (2016) defined student engagement as the amount of attention, interest, curiosity, and positive emotional connections that students have when they are learning whether in the classroom or on their own. Learning engagement became a challenge for most of the subjects.

One of the challenged subjects is Technology and Livelihood Education (TLE). It is recognized to be a highly skill-based subject

where teachers must expose their students in a pragmatic, first-hand, and authentic teaching-learning experiences. Students learn best when they take an active part and have hands-on experiences in TLE class. It can be noted that such experiences, to become meaningful, need deeper student engagement. According to the National Association of Independent Schools (NAIS) as stated by Bernstein (2022), student engagement involves three dimensions: behavioral engagement which focuses on participation in academic, social, and co-curricular activities; emotional engagement which focuses on the extent and nature of positive and negative reactions to teachers, classmates, academics, and school; and cognitive engagement which focuses on students' level of investment in learning.

In 2022, the Department of Education (DepEd) released DO No. 34, s. 2022 which intends to provide schools and community learning centers with direction and guidance in the re-opening of classes, the gradual introduction of 5 days in-person learning modality, and the organizing of curricular and co-curricular operations within the required number of school days. It was stated that schools can implement different modalities. One of which is blended learning, a combination of in-person classes and distance learning.

St. Paul University Surigao implemented blended learning this school year. This is also in line with the university's pursuit of providing quality education amid the changes of the challenging times. The university has facilities to aid learning TLE, however, after the two years of online classes, there have been challenges as to how to engage the students in a blended learning mode.

Thus, the researcher conducted this study to determine the students' level of engagement in learning TLE in a blended learning mode. It also determined the relationship between the demographic profile and the students' level of engagement. Recommendations may be proposed based on the findings of the study.

Materials and Methods

Research Design

The researcher used a quantitative descriptive survey research design using survey technique to gather data regarding the students' level of engagement in learning TLE in a Blended Learning Modality. This was deemed appropriate as descriptive research design obtains information concerning the current status of the phenomena and to describe what exists with respect of the variables of the study (Garcia et al., 2022).

Respondents and Instruments

The respondents of this study were the randomly selected Junior High School students at St. Paul University Surigao. The main instrument used in this study was a modified questionnaire from Legarde and Sumandal (2022). The questionnaire consisted of two 3 parts. Part 1 was about the profile of the respondents in terms of age, sex, grade in TLE. Part 2 of the questionnaire was about the level of engagement of students in terms of behavioral, cognitive, and emotional.

Data Analysis

In determining the students' level of engagement in learning TLE, the following statistical tools were utilized to analyze the data. Frequency Count and Percentage Distribution were used to describe the respondents' profile in terms of sex, age, and grades. Mean and Standard Deviation were used to determine the level of engagement in learning TLE. Pearson Product Moment Correlation of Coefficient was used to test the significant relationship between the demographic profile and the students' level of engagement.

Results and Discussion

Table 1 presents the demographic profile of the respondents. In terms of sex, 91 (59.48%) are females, while 62 (40.52%) are males. In terms of age, 49 (32.03%) participants are 13 years old, 35 (22.88%) are 14 years old, 29 (18.95%) are 15 years old, 22 (14.38%) are 12 years old, and 18 (11.76%) are 16 years old. In terms of grade, almost half of the participants got 90-94% with 62 (40.52%), then 41 (26.80%) got 85-89%, 27

(17.65%) got 95-100, 13 (8.50%) got 80-84% and 10 (6.54%%) got 79% and below.

Table 1. Demographic Profile of the Respondents

Profile Variables	f (n=153)	%
Sex		
Male	62	40.52
Female	91	59.48
Age		
12 years old	22	14.38
13 years old	49	32.03
14 years old	35	22.88
15 years old	29	18.95
16 years old	18	11.76
Grades		
95 - 100	27	17.65
90- 94	62	40.52
85 - 89	41	26.80
80 - 84	13	8.50
79 and below	10	6.54

Level of Engagement in Learning TLE

Table 2. Level of Behavioral Engagement

Indicators	M	SD	QD
Behavioral Engagement			
I am trying my best to learn TLE despite the situation.	2.99	0.73	High
I get involved in our tasks and learning activities in TLE.	3.06	0.53	High
I find ways to attend our class in TLE on time.	2.92	0.72	High
I am paying attention in our class in TLE.	2.89	0.74	High
I am contributing to our class discussions in TLE.	2.90	0.78	High
I ask questions when I don't understand a particular topic/lesson in TLE.	2.86	0.76	High
Average:	2.94	0.71	High

Legend: 1.00-1.74 – Very Low; 1.75-2.49 – Low; 2.50-3.24 – High; 3.25-4.00 – Very High

Table 3. Level of Cognitive Engagement

Indicators	M	SD	QD
Cognitive Engagement			
When our tasks in TLE are difficult, I still exert effort to do them.	2.77	0.78	High
Despite facing some challenges, I keep trying or working hard to finish my requirements in TLE.	3.07	0.61	High
I make sure that my outputs in our activities and performance tasks in TLE are done well.	2.82	0.76	High
I put effort into doing my performance tasks and other activities in TLE.	2.66	0.79	High
I am not giving up right away even I do not understand a lesson or task in TLE.	2.73	0.72	High
I plan how to finish my written tests and performance tasks in TLE on time.	2.56	0.73	High

I studied my lessons in TLE regularly to get high scores in all my written tests.	2.62	0.77	High
I take down some important concepts and lessons in my notes during our online classes in TLE.	2.56	0.75	High
I prefer to finish my output in TLE on time considering its quality.	2.63	0.80	High
When our teacher in TLE ask questions, I volunteer myself to answer or share my thoughts and insights about the question.	2.90	0.79	High
Average:	2.73	0.75	High

Legend: 1.00-1.74 – Very Low; 1.75-2.49 – Low; 2.50-3.24 – High; 3.25-4.00 – Very High

Table 3 presents the students' level of cognitive engagement. Among the ten (10) indicators, the item Despite facing some challenges, I keep trying or working hard to finish my requirements in TLE got the highest mean (M=3.07, SD=0.61), which can be qualitatively described as high. This means that the respondents are resilient as they continue to comply with the requirements amid adversities. Meanwhile, the items I plan how to finish my written tests and performance tasks in TLE on time and I take down some important concepts and lessons in my notes during our online classes in TLE got the lowest mean (M=2.56, SD=0.73 and 0.75, respectively), which can be qualitatively described as high. Despite being the lowest indicator, it still yielded a high description, which means that the respondents still are doing their responsibilities by planning as to how they can complete their tasks and by participating actively even during online classes. Toth (2021) stated that both student engagement and learning increase when students have access to truly rigorous tasks. On the average, the respondents' level of cognitive engagement is qualitatively described as high (M=2.73, SD=0.75).

Table 4 presents the students' level of emotional engagement. Among the 11 indicators, the item I am happy during our classes in TLE got the highest mean (M=2.94, SD=0.60), which can be qualitatively described as high. This means that the respondents have a positive disposition in when it comes to learning TLE, may it be online or face-to-face, as the university implements blended learning. Meanwhile, the item I help my fellow students in understanding our lessons got the lowest mean (M=2.57, SD=0.82), which can be qualitatively described as high. Despite being the lowest indicator, it still yielded a high description, which means that the respondents exhibit the value of community by making themselves available for others, especially those who need help. The university instills this core value, community, to the students for them to become team players building community through active collaboration. World Economic Forum (2020) (Arpilleda and Mallillin, 2022; Arpilleda et al., 2023) identified problem-based and collaborative learning as one of the eight critical characteristics in learning content and experiences that have been identified to define high-quality learning in the Fourth Industrial Revolution in Education. On the average, the respondents' level of emotional engagement is qualitatively described as high (M=2.77, SD=0.75).

Table 4. Level of Emotional Engagement

Indicators	M	SD	QD
Emotional Engagement			
I am interested in what I am learning in our TLE class.	2.90	0.73	High
I am happy during our classes in TLE.	2.94	0.60	High
The learning material (modules and PowerPoint presentations) we deal in TLE is so exciting that I really enjoy my TLE class.	2.81	0.77	High
When doing my written task and performance task in TLE, I am in a good mood.	2.76	0.75	High
I feel like I belong in my TLE class.	2.71	0.87	High
I am confident about my performance in our TLE subject.	2.69	0.79	High

I enjoy spending time with my classmates.	2.72	0.65	High
I help my fellow students in understanding our lessons.	2.57	0.82	High
I enjoy working with my classmates during our group activity in TLE.	2.75	0.76	High
I prefer to work with my classmates on projects and activities in TLE.	2.76	0.71	High
I am feeling overwhelmed by our requirements in TLE.	2.81	0.77	High
Average:	2.77	0.75	High

Legend: 1.00-1.74 – Very Low; 1.75-2.49 – Low; 2.50-3.24 – High; 3.25-4.00 – Very High

Table 5 shows that students were highly engaged about learning the TLE, with an overall mean rating of 2.81.

Table 5. Level of Engagement

Indicators	M	SD	QD
Behavioral Engagement	2.94	0.71	High
Cognitive Engagement	2.73	0.75	High
Emotional Engagement	2.77	0.75	High
Average:	2.81	0.74	High

Legend: 1.00-1.74 – Very Low; 1.75-2.49 – Low; 2.50-3.24 – High; 3.25-4.00 – Very High

Specifically, behavioral engagement has the highest mean rating of 2.94, while cognitive engagement has the lowest mean rating of 2.73. Despite such, all the three indicators yielded a high description. These results are consistent with Legarde and Sumandal's (2022) research, which found that behavioral engagement obtained the highest mean rating among the Grade 7 and 8 students at Palawan State University-Laboratory High School.

Table 6 shows the correlation between the respondents' profile and level of engagement. Findings revealed that there is a very weak correlation between the respondents' sex and their behavioral, cognitive and emotional engagement (r-values=-0.03, 0.05, and 0.00, respectively); there is a very weak correlation between the respondents' age and their behavioral, cognitive and emotional engagement (r-values=-0.00, 0.00, and 0.08, respectively); and there is a very weak correlation between the respondents' grades and their behavioral, cognitive and emotional engagement (r-values=-0.06, 0.08, and -0.07, respectively). Since there is a very weak correlation between the variables, it implies that a person's sex, age and grades are insignificantly related to the other variables.

Table 6. Correlation between the Demographic Profile and Level of Engagement

Profile	Dependent	r	Interpretation	p-value	Interpretation
Sex	Behavioral Engagement	-0.03	Very Weak Correlation	0.755	Not significant
	Cognitive Engagement	0.05	Very Weak Correlation	0.563	Not significant
	Emotional Engagement	0.00	Very Weak Correlation	0.954	Not significant
Age	Behavioral Engagement	-0.02	Very Weak Correlation	0.796	Not significant
	Cognitive Engagement	0.00	Very Weak Correlation	0.954	Not significant
	Emotional Engagement	0.08	Very Weak Correlation	0.346	Not significant
Grades	Behavioral Engagement	-0.06	Very Weak Correlation	0.491	Not significant
	Cognitive Engagement	0.08	Very Weak Correlation	0.313	Not significant
	Emotional Engagement	-0.07	Very Weak Correlation	0.420	Not significant

Legend: * Significant at 0.05 level of Significance 0.0 – 0.19 – Very Weak Correlation; 0.20 – 0.39 – Weak Correlation; 0.40 – 0.59 – Moderate Correlation; 0.60 – 0.79 – Strong Correlation; 0.80 – 1.0 – Very Strong Correlation

Furthermore, there is no significant correlation between the respondents' sex and their behavioral, cognitive and emotional engagement (p-value=0.755, 0.563, and 0.954, respectively) since the p-values are higher than the specified level of significance. This means that the sex of the students, whether male or female, do not have any bearing when it comes to their engagement in class. The result contradicts the claim of Nejati and his colleagues (2014) which state that women are usually more attentive than men, thus making differences in the engagement

of different sexes. In addition, it was found that the engagement level in school differs by sex where female students reported to have higher level of engagement when compared to boys (Amir et al. 2014; Santos et al. 2021).

There is also no significant correlation between the respondents' age and their behavioral, cognitive and emotional engagement (p-value=0.796, 0.954, and 0.346, respectively) since the p-values are higher than the specified level of significance. This means that the age of the students, whether young or old, do not have any bearing when it comes to their engagement in class. It was found that the engagement level in school differs by age where younger students recorded higher school engagement level as compared to elder ones (Amir et al. 2014; Santos et al. 2021).

There is also no significant correlation between the respondents' grades and their behavioral, cognitive and emotional engagement (p-value=0.491, 0.313, and 0.420, respectively) since the p-values are higher than the specified level of significance. This means that whether the students are performing well or not, their level of engagement of engagement does not have any bearing. This contradicts to the findings of Dyer (2015) that the correlation between high student engagement and improved academic outcomes has a strong research history.

Conclusions

Based on the findings, the researcher concluded that the students were highly engaged in learning Technology and Livelihood Education (TLE) in a blended learning environment, specifically in the behavioral, cognitive, and emotional engagement. It was also concluded that the respondents' age, sex, and grades are not significantly correlated to their level of engagement. Therefore, it is hereby recommended that teachers may continue to prepare tasks and activities that would engage the students in learning TLE, focusing more on their cognitive engagement. Similar studies may be conducted where additional variables will be included, and teachers may be taken as respondents for cross validation.

References

Amir, R., Saleha, A., Mohd Jelas, Z., Ahmad, A., & Hutkemri. (2014). Students' engagement by age and gender: A cross-sectional study in Malaysia. *Middle-East Journal of Scientific Research, 21* (10), 1886-1892. https://doi.org/10.5829/idosi.mejsr.2014.21.10.85168

Arpilleda, A., & Mallillin, M. (2022). Proceedings from 3rd International Research and Education Summit*: Perceived Knowledge, Attitudes, Beliefs, and Instructional Practices in Education 4.0.* Puerto Princesa, Palawan.

Arpilleda, Y.J., Oracion, R.V.L., Arpilleda, A.J., Chua, L.L., & Gortifacion, A.K.N. (2023). Teachers' Knowledge, Attitudes, Beliefs, and Instructional Practices in Education 4.0. *Cognizance Journal of Multidisciplinary Studies, 3*(2), 73-82. https://doi.org/10.47760/cognizance.2023.v03i02.004

Bernstein, L. (2022). *What is student engagement and why does it matter?* Xello. Retrieved from https://xello.world/en/blog/student-engagement/what-is-student-engagement/

Dyer, K. (2015). *Research proof points – Better student engagement improves student learning. NWEA.* Retrieved from https://www.nwea.org/blog/2015/research-proof-points-better-student-engagement-improves-student-learning/

Garcia, R., Arpilleda, A., Mallillin, M., & Abadiano M. (2022). Utilization of Quipper Application as Learning Management System in Teaching as Experienced by the Junior High School Teachers of St. Paul University Surigao. *International Journal of Science and Management Studies, 5*(1), 129–142. https://doi.org/10.51386/25815946/ijsms-v5i1p113

Legarde, M.A.A., & Sumandal, A.H. (2022). Students' Level of Engagement in Learning

Technology and Livelihood Education in the New Normal. *International Journal of Multidisciplinary Studies, 6*(3), 45-50.

Lucero, P.A.O., Guerra, E.C., & Arpilleda, A.J. (2022). Teachers' Perspective and Instructional Implementation of Modular Distance Learning during the Pandemic. *International Journal of Research, 9*(10), 271–278. https://doi.org/10.5281/zenodo.7243654

Nejati, R., Hassani, M. T., & Sahrapour, H. A. (2014). The relationship between gender and student engagement, instructional strategies, and classroom management of Iranian EFL teachers. *Theory and Practice in Language Studies, 4*(6), 1219-1226.

Santos, A.C., Simões, C., Cefai, C., Freitas, E., & Arriaga, P. (2021). Emotion regulation and student engagement: Age and gender differences during adolescence. *International Journal of Educational Research, 109*, 101830.

Sousa, D.A. (2016). *Engaging the rewired brain.* USA: Learning Sciences International.

Toth, M. (2021). *Why student engagement is important in a Post-COVID world.* Learning Sciences International. Retrieved from https://www.learningsciences.com/blog/why-is-student-engagement-important/