

Educational Variables as Predictors of Student Engagement in Learning

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Abstract:- This study aimed to determine which among the predictors of educational variables influence student engagement in learning. A total of 74 elementary students from Jesus V. Ayala Elementary School, Binugao District, Davao City Division, were identified through Tabachnick and Fidell (2001). The study utilized a descriptive-correlation design. Two survey questionnaires, focusing on educational variables and student learning engagement, were used for data collection. The statistical tools employed in the study were mean, Pearson r, and regression analysis. Results revealed that the level of educational variables as predictors of student learning engagement in terms of learning situation was high which means that it was oftentimes evident. Meanwhile, the teacher, and learning material was moderate which means that it was sometimes evident. Regarding the level of student engagement in learning, cognitive engagement was sometimes observed, while behavioral and emotional engagement were oftentimes observed, indicating a very high level of commitment among learners. Further, the findings showed a strong significant relationship between the educational variables and student learning engagement, with a p-value of less than .05 at the level of significance. Moreover, learning situation, teacher, and learning materials significantly influenced students' learning engagement. This indicates that for every unit increase in the three domains of educational variables, the learning engagement of the students will increase by 1.908, holding other factors constant. Moreover, based on the above manifestations the study, it is recommended that school heads focus on enhancing the learning environment to ensure it remains conducive to student engagement and provide ongoing professional development for teachers to improve their instructional strategies.

Keywords:- Educational Variable, Learning Situation, Student Learning Engagement, Emotional Engagement, Philippines

I. INTRODUCTION

From the past decades up to the present, student engagement has been identified as one of the most pressing concerns confronting the modern educational system in general, and individual teachers in particular. Such focus on the idea is quite reasonable and understandable, as research shows that positively engaged children can outperform their peers by up to seven months, underlining the importance of this issue worldwide. Fostering student engagement is widely recognized in the educational field as a vital component

impacting learning outcomes and overall academic success of learners. However, little is known about the variables that promote student engagement in learning communities, particularly educational determinants. Hence, the goal of this study is to investigate and identify crucial educational variables that influence levels of student engagement.

However, Baron and Corbin (2022) revealed that despite the focus on and recognized importance of engagement, it has been noted, particularly by teachers, that disengagement within students is increasing. Studies discovered a growing pattern of declining attendance and decreased engagement within lessons. There is no denying that engagement is important for academic success, as research has demonstrated that there is a direct connection between them. Therefore, with a change in student attitudes to learning, additional and immediate research should be done.

In the international context, Boubih et al. (2023) conducted a study in Morocco to evaluate factors impacting student engagement in educational institutions. The findings showed that excellent teacher-student interactions, perceived relevance of schoolwork, peer support, and future hopes and goals all had a substantial impact on student engagement. Moreover, the findings emphasized that positive and constructive relationships between teachers and students, as evidenced by a willingness to communicate with teachers in the institution, genuine interest in their students, and openness in how teachers manage students, contribute to higher learner engagement.

Meanwhile, a 2023 poll revealed that around 55% of students in the United States are engaged in their present school, with 28% disengaged and 17% actively disengaged. Other studies found that more than 40-60% of low-income, minority, and urban adolescents are persistently disengaged from school. Prior to dropping out, students experience disengagement from school activities and demands (Gallup, 2023).

Cobb-Fossnes (2020) also sought to address the issue of student disengagement in a low socioeconomic school district in central New Jersey. One of the key findings was the impact that parents and their home environment had on student disengagement. Another noteworthy finding was teaching approaches that encourage student engagement. The teachers in this study accepted ownership, noting that disengagement is frequently the result of a lack of instructional techniques. Furthermore, it was emphasized that teachers should know their pupils, have empathy for their difficulties, and provide

a loving environment in which kids will want to interact more.

In the Philippines, Enerio (2021) used a sequential explanatory mixed-methods study to identify variables associated with and levels of student engagement among 493 students. The findings revealed that the student-teacher interactions, student-institution transaction, and relatedness components all showed a relatively positive correlation. It indicates that students are more engaged when they have positive relationships with their teachers. Students choose teachers that engage them in hands-on activities, provide positive reinforcement, and offer guidance on the side.

Meanwhile, in Davao City, Palarisan and Domag (2023) identified student engagement as an important component of effective teaching and learning in education, therefore uncovering factors that contribute to it is critical for education students. Their study discovered a favorable and significant correlation between teachers' socio-emotional classroom management and engagement among students. According to the study's findings, students have a high level of student engagement, with emotional engagement being particularly high, indicating that students actively participate in class and are driven to learn.

While there was a significant amount of research on factors influencing student engagement in general, there was a relative dearth of studies particularly concentrating on educational variables that could affect student engagement, resulting in a gap in the literature on this topic. Hence, the purpose of this study was to investigate essential educational variables that influenced levels of student engagement in learning, particularly in Jesus V. Ayala Elementary School, Binugao District, Davao City Division. Furthermore, by seeking to illuminate educational variables that had the greatest influence on student engagement, particularly those that improved it, the current study contributed significantly to both theoretical as well as practical perspectives on student engagement.

This study aimed to determine the level of educational variables of learners and the level of student engagement in learning. Specifically, the study aimed to answer the following questions:

- *What is the Level of Educational Variables of Learners in Terms of:*
 - Learning situation;
 - Teacher; and
 - Learning Material
- *What is the Level of Student Engagement in Learning in Terms of:*
 - Cognitive Engagement;
 - Behavioral Engagement; and
 - Emotional Engagement
- *Is there a significant relationship between the level of educational variables and student engagement in learning?*

- *Which among the Predictors of Educational Variables had the Most Influence on Student Engagement in Learning?*

Ho1: There is no significant relationship between the level of educational variables and student engagement in learning.

Ho2: None of the predictors of educational variables had influence on student engagement in learning.

II. METHOD

This section presented components of the methodology that were used in the study, such as the research design, research respondents/participants, research instrument, data gathering procedure, research ethics, and data analysis.

This study utilized a quantitative research approach employing a descriptive-correlation design to systematically describe and examine the relationship between educational variables of learners and student engagement at Jesus V. Ayala Elementary School, Binugao District, Davao City Division. According to McCombes (2023), descriptive designs aim to precisely outline a population or phenomenon by answering questions of what, where, when, and how. Quantitative research, as outlined by Creswell and Creswell (2023), focuses on measuring variables using instruments to test objective theories and understand social issues through statistical analysis and numerical data. Milgram (2023) underscores that quantitative methods emphasize precise measurements, statistical analysis, and the identification of causal relationships, contributing to a comprehensive understanding and potential new insights in research.

In this study, students enrolled in Jesus V. Ayala Elementary School, Binugao District, Davao City Division were selected using universal sampling, ensuring comprehensive representation from the school's student population. The sample size of 74 students was determined based on Tabachnick and Fidell's (2007) formula for regression analysis, which accounted for the educational variables as independent variables. The study adhered to specific inclusion criteria, including enrollment in Grades 4-6 and regular attendance in the current school year, while excluding students in lower grades to maintain consistency in data collection and analysis.

The survey questionnaire in this study examined educational variables related to learning situation, teacher's methodology, and learning materials, adapted from Mohamed (2014). Student engagement in learning was assessed using measures from Fredricks and McColskey (2012), covering cognitive, behavioral, and emotional engagement. The questionnaire underwent rigorous evaluation for reliability and validity, supervised by experts in education and research. Pilot testing in a nearby school district confirmed its reliability with a score exceeding .70. The finalized questionnaire, evaluated using a five-point Likert scale, ensured robust measurement of educational variables and student engagement across the study.

The study followed a structured process starting with obtaining permissions from higher authorities, including the Dean of the Graduate School of Rizal Memorial Colleges and the Office of Division Superintendent. Content validation and pilot testing were conducted to ensure questionnaire reliability, involving expert validators and a pilot group of 25 students not included in the study. Questionnaires were administered face-to-face to establish rapport with respondents, allowing sufficient time for completion before retrieval. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS), ensuring robust statistical treatment and adherence to institutional formatting requirements for interpretation and reporting.

The researcher rigorously adhered to Rizal Memorial Colleges' Research Ethics principles throughout the study, ensuring social value by investigating the influence of educational variables on student engagement. Informed consent was obtained from respondents through a face-to-face process, emphasizing voluntary participation and the right to withdraw at any time. Measures were taken to ensure respondents' safety and comfort during data collection, with strict privacy protocols in place to safeguard personal information. The study upheld principles of justice, treating all participants equally and transparently disclosing study methods and findings. The researcher, qualified and supported by academic guidance, accessed necessary facilities and engaged the community by disseminating findings to enhance understanding and support for student engagement initiatives.

The collected data will undergo thorough analysis using several statistical techniques. Mean values will describe the levels of educational variables and student engagement in learning. Pearson correlation coefficients will assess

relationships between educational variables and student engagement. Multiple linear regression analysis will identify which educational variables most significantly influence student engagement. These methods collectively provide a comprehensive understanding of the factors impacting student engagement and guide future educational strategies.

III. RESULTS AND DISCUSSIONS

This section highlighted the results and discussion of the study. The presentation starts from the descriptive analysis of educational variables as predictors and student engagement in learning, followed by the discussion on the correlation between the two variables. The presentation ends with the influence of the educational variables on the student engagement in learning.

➤ *Level of Educational Variables of Learners*

Table 1 shows the summary of educational variables of learners which are measured by three indicators namely: learning situation, teacher, and learning material. The mean ratings of these indicators are as follows: *learning situation* (3.44) was described as High which means that the level of educational variables of learners in terms of learning situation was oftentimes evident; Moreover, *in terms of teacher* (3.32) and *learning material* (3.24) was described as moderate, which means that the level of educational variables of learners in terms of teacher and learning material were sometimes evident. The three predictors/domains on the level of educational variables generates an over-all mean rating of (3.33) or Moderate and which described as sometimes evident to the learners. This means that the level of educational variables of learners' namely learning situation, teacher and learning material was moderate and was sometimes observed among learners of Jesus V. Ayala Elementary School.

Table 1. Level of Educational Variables of Learners.

No.	Item	Mean	Descriptive Level
1.	Learning Situation	3.44	High
2.	Teaching Methodology	3.32	Moderate
3.	Learning Material	3.24	Moderate
	Overall Mean	3.33	Moderate

The findings indicate that the learning situation is often evident, suggesting a supportive and conducive environment for learning. However, the influence of the teacher and the quality of the learning material are rated as moderate, indicating that these aspects are only sometimes evident and there is room for improvement. Overall, the combined mean rating of these three indicators suggests that the educational variables are moderate, meaning they are occasionally evident among the learners. This highlights the need for further enhancement in the areas of teacher effectiveness and learning materials to provide a more consistently supportive educational experience.

Research consistently underscores the critical impact of various educational variables on student learning outcomes. Fraser (2022) highlights the significant role of a supportive learning environment in enhancing students' academic success. A positive classroom climate and appropriate

physical conditions contribute greatly to student engagement and learning, aligning with the finding that the learning situation was often evident among learners. Moreover, Hattie (2019) emphasizes the importance of teacher quality, noting that effective teachers who provide clear instructions, engage students, and offer prompt feedback are crucial for fostering a conducive learning environment. The moderate rating of teacher effectiveness in the study suggests the need for ongoing professional development to further improve teaching practices. Also, Mayer (2022) demonstrates that the quality and clarity of learning materials are vital for student comprehension and retention. Well-designed instructional materials can significantly enhance learning outcomes, supporting the finding that the learning materials were sometimes evident and indicating the importance of improving educational resources.

➤ *Level of Students' Engagement in Learning*

Table 2 shows the Level of Students' Engagement in Learning which are measured by three indicators namely: cognitive engagement, behavioral engagement and emotional engagement. The mean ratings of these indicators are as follows: *cognitive engagement* (3.40) and *behavioral engagement* (3.45) was high which means that the level of student engagement in learning was oftentimes evident. Moreover, in terms of *emotional engagement* (3.25) was

moderate and was described as sometimes evident. The three indicators/domains on the level of students' learning engagement in English generates an over-all mean rating of (3.36), described as sometimes evident to the learners. This means that the level of students' engagement in learning namely cognitive engagement, behavioral engagement and emotional engagement has gained moderate result among learners of Jesus V. Ayala Elementary School, Binugao District, Davao City Division.

Table 2. Level of Students' Engagement in Learning.

No.	Item	Mean	Descriptive Level
1.	Cognitive Engagement	3.40	High
2.	Behavioral Engagement	3.45	High
3.	Emotional Engagement	3.25	Moderate
	Overall Mean	3.36	Moderate

Based on these findings, it can be concluded that students exhibit a high level of cognitive and behavioral engagement, indicating that their active participation, effort, and mental investment in learning are frequently evident. This suggests that students are generally attentive, diligent, and engaged in understanding and applying the material. However, their emotional engagement is moderate, indicating that while they occasionally feel connected and motivated, there is room for improvement in fostering a stronger emotional connection to the learning experience. It was supported by Fredricks et al. (2019), who discuss the multifaceted nature of engagement and emphasize the importance of addressing all dimensions—cognitive, behavioral, and emotional—for holistic student engagement. Pekrun et al. (2020) further explore the critical role of emotions in learning, noting that positive emotional experiences can significantly enhance overall engagement and academic outcomes. Ryan and Deci (2021) highlight the importance of intrinsic motivation in fostering sustained engagement and suggest that increasing emotional connections to learning can lead to better educational experiences.

➤ *Significant Relationship between the Educational Variables and Student's Engagement in Learning.*

Table 3 flaunted the data on the significant relationship between Educational Variables and Student's Engagement in Learning. The Pearson Product Moment Correlation (Pearson r) was applied for the two (2) variables on their significant relationship. The results appeared a computed p-value of .000 which was lower than the .05 level of significance. Thus, the null hypothesis was rejected since the value denotes of having a significant relationship.

Furthermore, the computed r-value of 0.84 denotes the correlation between the two variables with which the hypothesis on significant relationship was tested. Clearly, the findings inferred a strong significant relationship between the educational variables and student's engagement in learning. Consequently, it is expected that student's positive educational variables would contribute to an increase on their learning environment, which in turn, exerts a positive influence on student's aggregated academic achievement and engagement.

Table 3. Significant Relationship between the Educational Variables and Student's Engagement in Learning.

Variables		r-value	Statistical Description	p-value	Decision
Educational Variables (x)	Student's Engagement in Learning (y)	0.84	Strong correlation	.000	Reject H_0

The findings indicate a strong significant relationship between educational variables and student engagement in learning. This suggests that positive educational conditions—such as supportive teaching practices, engaging curriculum, and a conducive learning environment—are likely to enhance student engagement. As students experience these favorable educational factors, their overall learning environment improves, leading to increased motivation, participation, and academic achievement. This result is supported by literature emphasizing the impact of educational quality on student engagement. For instance, Eccles and Roeser (2021) highlight the importance of supportive school environments in promoting student motivation and engagement. Similarly,

Skinner and Belmont (2019) discuss how positive teacher-student interactions can enhance students' engagement and academic performance.

➤ *Predictors of Educational Variables that influences the Student's Engagement in Learning*

Table 4 exemplified the regression test among the educational variables namely: learning situation, teacher's methodology, and learning material towards student's engagement in learning. The overall correlation had a computed r-value of 0.84 with a p-value of <.000 in the significant level denotes the high positive correlation (Cohen, 2002) between the two variables with which the hypothesis

on significant relationship was tested. Clearly, the findings inferred a Very strong significant relationship between the educational variable and Student's engagement in learning. It also shows an F-value of 68.84 with a p-value of <.000 which is significant indicating a model fit. Meanwhile, it registers an R^2 value of .706 which implies that 70.6 percent on the student's engagement in learning has been explained by the predictors holding other percentages not accounted to the three dimensions.

Regression coefficients displays that all the educational variables that influences the student's engagement in learning. Likewise, unstandardized coefficients exhibit that among the domains of educational variables, learning situation with a coefficient of ($\beta=0.380$) had the best significant influence on the student's engagement in learning by displaying p-values which are lesser than .05. Hence, the null hypothesis is rejected.

Table 4. Predictors of Educational Variables that influences the Student's Engagement in Learning

Educational Factors	Students Learning Engagement					
	Unstandardized Coefficients		Standard Coefficients			
	B	Std. Error	Beta	t-value	p-value	Decision @= 0.05
Constant	1.908	.209		4.668	.000	
Learning Situation	.380	.085	.102	1.086	.001	Reject H_0
Teacher's Methodology	.300	.079	.601	6.432	.000	Reject H_0
Learning Material	.231	.073	.384	4.057	.000	Reject H_0

Dependent Variable: **Student's Engagement in Learning**

$R = 0.84$, $R^2 = 0.706$, F-ratio=68.844 p-value= .000

Based on the above result, the educational variables namely: learning situation, teacher's methodology, and learning material significantly influences student's engagement in learning by registering a p-value of .000 which is less than .05 in the level of significance. This leads to the rejection of the null hypothesis. Further, the result indicates that for every unit increase in the three domains of educational variables predictors, the student's engagement in learning will increase by 1.908 holding other factors constant. This finding underscores the importance of a well-structured and supportive educational environment. Supporting literature, such as Hattie (2019), highlights how high-quality teaching practices and effective use of learning resources are critical to student engagement and academic success. Similarly, Fredricks et al. (2019) emphasize that engagement is multifaceted, and improvements in instructional quality and learning conditions can significantly boost students' cognitive, behavioral, and emotional involvement in their education.

IV. CONCLUSIONS AND RECOMMENDATIONS

Based on the findings of this study, the following conclusions were offered:

On the level of educational variables of learners in terms of learning situation, respondents indicated they learn best at home due to a comfortable environment, which likely enhances concentration on learning materials throughout the day. However, moderate noise and distractions present occasional challenges to maintaining uninterrupted focus. Similarly, access to stable internet, though rated moderately, indicates potential variability in connectivity that could impact online learning activities. These aspects collectively

shape the home learning environment, influencing the quality and consistency of the study experience.

On the level of educational variables of learners in terms of teacher methodology, with good examples and illustrations enhancing student comprehension and engagement. However, clarity of instructions and promptness of feedback are moderate, suggesting areas for improvement. Students show moderate interest in teaching methods, indicating room for better engagement strategies. Regular follow-ups are also moderately rated, reflecting the teacher's effort in communication and support. These factors collectively influence the teaching environment and student engagement.

The educational variables of learners in terms of learning material, passages in the Self-Learning Material support comprehension, but textbook clarity needs improvement. Students find the passages somewhat interesting, but more captivating content is needed. Module instructions are moderately clear, requiring more precise guidelines for independent work. Students complete tasks with minimal parental guidance, but more user-friendly materials could further support this ability.

On the level of student's engagement in learning in terms of cognitive engagement, frequently exceeding coursework expectations and making connections between new material and prior knowledge. They actively engage in critical thinking but show slightly less persistence through challenging tasks and learning from mistakes. This suggests cognitive engagement is generally high, with room for improvement in perseverance and error analysis.

On the level of student's engagement in learning in terms of behavioral engagement, it can be concluded that students exhibit high behavioral engagement in their academic activities. They remain focused, put substantial effort into their learning, and pay close attention to their work. They also demonstrate resilience by persisting through difficulties. However, while their task completion is generally timely, it shows slightly less consistency compared to their focus and effort.

On the level of student's engagement in learning in terms of emotional engagement, it can be concluded that the student demonstrates a generally positive attitude and engagement towards answering modules and participating in online classes, with high enjoyment and motivation in module activities. However, their emotional engagement in online classes and enthusiasm for learning language are moderate. This suggests that while they find satisfaction in certain learning aspects, there is room to enhance emotional connection and intrinsic motivation, especially in online and language learning contexts.

Clearly, the findings inferred a strong significant relationship between the educational variables and student's engagement in learning. Consequently, it is expected that student's positive educational variables would contribute to an increase on their learning environment, which in turn, exerts a positive influence on student's aggregated academic achievement and engagement.

Based on the result of the analysis, the educational variables—learning situation, teacher's methodology, and learning materials—significantly influenced student engagement in learning at Jesus V. Ayala Elementary School, with a p-value of .000, which is less than .05 at the level of significance. This result leads to the rejection of the null hypothesis. Furthermore, the analysis showed that for every unit increase in these three domains of educational variables, student engagement in learning at Jesus V. Ayala Elementary School is predicted to increase by 1.908, holding other factors constant.

Based upon the outcomes of the findings, the following recommendations are suggested for consideration:

The Department of Education should prioritize initiatives that optimize learning environments, ensuring they are conducive to student concentration and equipped with reliable internet access to support online learning activities. Investing in continuous professional development for teachers is crucial to enhance instructional clarity, improve feedback mechanisms, and promote effective teaching strategies that cater to diverse student needs and learning preferences.

School heads play a pivotal role in fostering supportive learning conditions by minimizing distractions and optimizing technological resources. They should encourage teachers to implement engaging teaching methods, provide clear instructions, and maintain regular communication with students to monitor and enhance their engagement levels.

Teachers, in turn, should strive to enhance instructional clarity, employ varied teaching strategies to capture student interest, and create a positive classroom atmosphere that supports emotional engagement and intrinsic motivation.

Students are encouraged to actively participate in their learning journey by creating an optimal study environment at home that minimizes distractions and promotes focused learning. They should take advantage of comfortable settings to concentrate on their studies and utilize available resources effectively, such as accessing online learning materials with reliable internet connectivity.

Future researchers are encouraged to explore innovative learning environments, conduct longitudinal studies to track the impact of educational variables on student engagement over time,

REFERENCES

- [1]. Baron, P. & Corbin, L. (2022). Student engagement: rhetoric and reality, *Higher Education Research & Development* 31 (6), 759-772.
- [2]. Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2019). School engagement: Potential of the concept, state of the evidence. *Review of educational research*, 74(1), 59-109.
- [3]. Gallup, Inc. (2023). U.S. overall: Gallup student poll results. 1-6.
- [4]. Lee, V., & Burkam, R. (2023). Dropping out of high school: The role of school organization and structure. *American Educational Research Journal* 40:353-393.
- [5]. Milgram (2019) Obedience to Authority An Experimental View. Retrieved from: <https://www.nytimes.com/1974/01/13/archives/obedience-to-authority-an-experimental-view.html>