EMPLOYING PEARSON PRODUCT MOMENT CORRELATION AND MULTIPLE REGRESSION ANALYSIS, TO TEST THE IMPACT OF BLENDED LEARNING ON STUDENTS' INVOLVEMENT

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Citation: Pines, T. L., Cayabas, M. D., & Peralta, M. B. (2022). Employing Pearson Product Moment Correlation and Multiple Regression Analysis, to test the impact of blended learning on students' involvement. *Mazedan International Journal of Applied Mathematics*, 2(1), 17-20.

Abstract

This study investigated how the implementation of blended learning affected the level of participation shown by the students. It employed a descriptive-correlation study strategy to evaluate the gathered data by means of a self-made questionnaire that was pretested with Cronbach's Alpha, which resulted in a reliability rating of 0.972. This was done in order to ensure the validity of the findings. The number of respondents was determined by combining a full enumeration with a method called purposive sampling. In addition to that, the researcher utilised Pearson Product Moment Correlation in addition to Multiple Regression Analysis in order to examine the hypotheses that were presented. In terms of the students' motivation, oral involvement, material delivery, evaluation, intervention, and interactive homework, the teachers frequently made use of blended learning. Additionally, the students engaged in behavioural and cognitive learning to a little lesser extent. The use of blended learning by the instructors, both in terms of intervention and interactive homework, had a substantial association with cognitive and behavioural learning, as well as a significant effect on the students' level of involvement. On the basis of the data, one may draw the conclusion that collaboration between instructors and students on blended learning is absolutely necessary for the academic success of the students. Through the use of a variety of blended learning platforms, teachers are able to deliver knowledge, as well as direction and inspiration for their students. Because they are allowed to voice their concerns without fear of reprimand, students are more likely to develop an interest in learning as a direct result of the teacher's supervision. Because their instructors and parents have worked together to assist and oversee them, students are motivated to work on their modules because they have this support system.

Keywords: Blended Learning, Student's Engagement, Cognitive Engagement, Content Delivery, Philippines.

1. INTRODUCTION

The Philippine government intensified education concerns COVID-19 posed fresh challenges to the country's existing condition. Department of Education regularized immediate responses to the unanticipated consequences of a health crisis. Education authorities planned and implemented new pathways of learning delivery such as blended learning utilizing online classes, printouts, and other platforms.

Blended learning helps you save time and money. If an internet signal reaches the location, students and teachers can access the modules at any time and from anywhere. (Horn and Staker, H. 2014) It has been used in other countries earlier than the Philippines. This modality of learning combines the use of online learning modules and other learning materials, and online learning interaction as well as traditional face-to-face classroom mode. It is a procedure that must be followed consider the lecturers' ability, the institution's facilities, and the learners' willingness to try novel learning modalities. Activities for e-learning might be provided as a supplementary to present offerings at first, which can then be turned into a

hybrid learning program (Lynch, 2018). However, the growing demand for blended learning possesses problems and challenges since it is a new modality in learning in the Philippines. Blended learning models have a number of obstacles, including the cost of technology, insufficient training, technological issues, the need to alter content for blended learning, decreased motivation, and poorer interactions between students and teachers. (Tuguic 2021). Besides, they experience large number of activities, distractions, and lack of focus, they may have poor internet connection, loss of sleep, lack of time to answer all of the modules. (Tupas, 2020).

To address the problem, education calls for constant monitoring and evaluation to ensure that the quality of education reaches them. Hence, the researcher intends to conduct this study which explored the utilization of blended learning and students' engagement of grade 5 teachers and learners of selected school in Kidapawan City Division, District II.

2. STATEMENT OF THE PROBLEM

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The study determined the correlation of utilization of blended learning and student's engagement, which specifically answer the following questions:

1. What is the level of teachers' utilization of blended learning in terms of motivation, oral participation, content delivery, evaluation, intervention, and interactive homework?

2. What is the extent of student's engagement in terms of behavioral engagement and cognitive engagement?

3. Is there a significant relationship between blended learning utilized by teachers and students' engagement?

4. Does the blended learning utilized by teachers influence students' engagement?

3. THEORETICAL FRAMEWORK

This study anchors its concepts on the Theory of Constructivism. This is a popular educational philosophy that emerged in the early 1990s. Constructivism's basic framework is that students create their own learning; they can learn independently. (Gaer 2014). Hence, they can work in a self-learning kit. They discover for themselves. Teachers serve as facilitators in this framework, and each student learns what he or she needs to. This is consistent with the new Bloom's taxonomy, in which creation is the most powerful step on the taxonomy ladder. Constructivist learning complements multi-level instruction and flipped learning.

According to constructivist theory, there is no learning unless learners create it from experiences; thus, when using the constructivist approach, you are also creating a more engaged and student-centered classroom. Here are a few methods I employ to make my classroom more constructivist. Garrison, Anderson and Archer (2000) published a theoretical framework designed to structure the learning process in an online or blended environment The Community of Inquiry (CoI) is an inquiry-based teaching and learning model based on John Dewey's work and constructive views of experiential learning.

Thorne (2003) stated that over the past decade blended learning includes a component of e-learning and face-to-face process of learning delivery. Blended learning combines the best of both traditional and online practices Blended learning fosters reflective thinking, facilitates communication and collaboration, increases student engagement with the subject, enhances contextual learning, extends the course in space and time, increases flexibility, provides opportunities for engagement based on the student's pace, aids in the construction of knowledge through communities of practice, establishes much-needed authenticity, and promotes learner control. Naidu, 2003; Bonk, Wisher & Lee, 2004; Khan, 2005; Clark & Mayer, 2008. Utami (2018) found that it encourages students to participate in their learning they have the option to learn at their own pace. They can prepare for the course before attending the class, which can promote student-centered learning and reflect the value of 21st-century education. The study supports other researchers' findings that blended learning is effective for improving student performance. The majority of these studies also discovered that blended learning improves academic achievement averages.

4. CONCEPTUAL FRAMEWORK

This study conceptualized that blended learning correlate to student's engagement. The independent variables in this study are the blended learning. The instructional practices measured motivation, oral participation, content delivery, evaluation, feedback provision, intervention, interactive homework. The dependent variable is the student's engagement measured in terms of behavioral engagement and cognitive engagement.
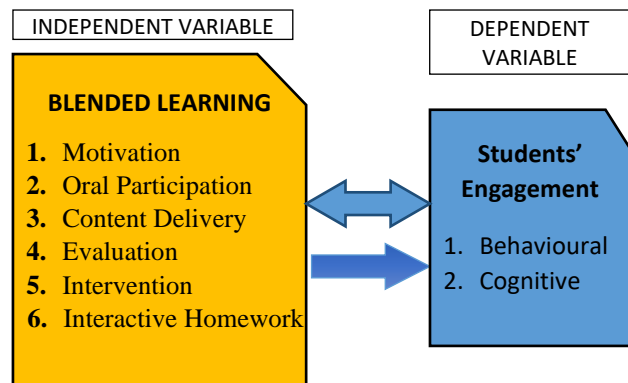

Figure 1 The schematic diagram showing the relationship of the variables under study

5. RESEARCH DESIGN

This study utilized a descriptive-correlational (Creswell, 2012) research design to describe and analyze the collated data from the grade 5 teachers and learner's respondents to measure the level of blended learning and its significance to student engagement. This is accomplished by using descriptive rating the Likert-scale type survey. The relationship and influence between independent and dependent variables were elucidated based on the statistical result.

6. DATA GATHERING METHODS

The researcher prepared a letter addressed to the office of the Schools Division Superintendent requesting permission to conduct the study in selected schools of District II Kidapawan City Division.

The granted permission was the passport of the researcher to coordinate with the principals together with the teacher to facilitate the conduct of the survey. The researcher immediately proceeded to administering the survey questionnaire, she explained the purpose and process of getting the data from the respondents, given enough time to the respondents to think, and analyze every item in the questionnaire. After the data completely gathered, these were tallied and tabulated in excel form in preparation for statistical analysis and interpretation.

7. PARTICIPANTS OF THE STUDY

The respondents of the study were the Grade 5 teachers and learners of District II, Kidapawan City Division. The researcher asked the principal of each school for the names, emails, and phone numbers of teachers and learners. Each of the teachers and learners were contacted through messenger and orient them about the study. There was 11 teachers and 100 learners in Kidapawan City Division, District II who were part of this study.

Table 1. A number of learners and teachers in the selected school of District II of Kidapawan City Division doing blended learning.

| School	No. of Learners	No. of Teachers
1.Balabag Elementary School	10	1
2.Cayetano A Javier Elementary School	11	1
3.Habitat Elementary School	14	1
4.Lapan Elementary School	11	1
5.Manongol Elementary School	20	3
6.Mua-an Elementary School	17	2
7.Sibug Memorial Elementary School	17	2
Total	**100**	**11**

Statistical Tools and Data Analysis

The statistician utilizes the statistical package for the Social Sciences (SPSS) and descriptive statistics such as percentage, frequency, mean and weighted mean (Trochim, 2006) to describe the results. The computed data is presented using tables. To test the hypotheses, it utilized Pearson Correlation and Regression Analysis (Pearson 1896).

8. RESULTS AND FINDINGS

Summary of Results and Discussions

Research Problem No. 1

Level of teachers' utilization of blended learning in terms of motivation, oral participation, content delivery, evaluation, intervention, and interactive homework
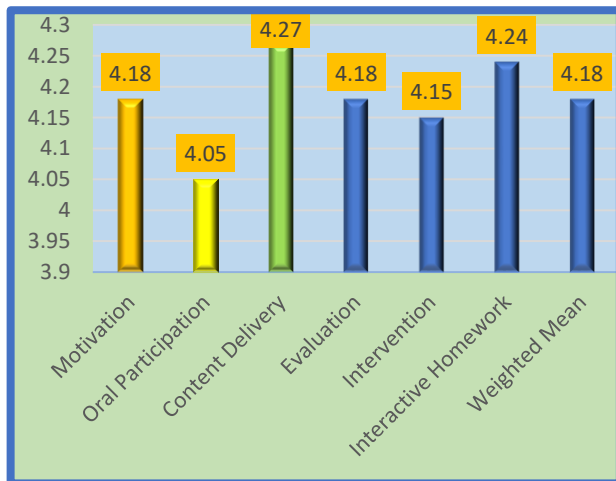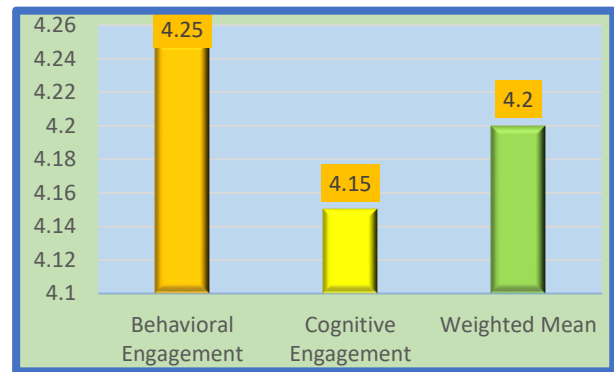

Level	Range	Description
5	4.50 – 5.00	Always Utilized
4	3.50 – 4.49	Often Utilized
3	2.50 – 3.49	Sometimes Utilized
2	1.50 – 2.49	Rarely Utilized
1	1.00 – 1.49	Very Rarely Utilized

To sum up the level of teachers' utilization of blended learning, content delivery obtained the highest weighted mean of 4.27 described as often utilized followed with interactive homework (4.24), motivation (4.18), evaluation (4.18), intervention (4.15), and oral participation (4.05) which were described as often utilized respectively. The level of teachers' utilization of blended learning gained a general weighted mean of 4.18 having a description of often utilized.

Research Problem No. 2

Level of student's engagement in terms of behavioral engagement and cognitive engagement-

Level	Range	Description
5	4.50 – 5.00	Highly Engaged
4	3.50 – 4.49	Engaged
3	2.50 – 3.49	Moderately Engaged
2	1.50 – 2.49	Slightly Engaged
1	1.00 – 1.49	Very Slightly Engaged

To summarize the level of student's engagement, the graph revealed that behavioral engagement gained the highest weighted mean of 4.25 described as engaged and followed with cognitive engagement having a weighted mean of 4.15 described also as engaged. The level of student's engagement garnered a general weighted mean of 4.2 which is generally described as engaged.

Research Problem No. 4

Table 2 Correlation matrix showing the relationship of the blended learning and the pupils' engagement

Blended Learning		Behavioral	Cognitive
Motivation	Pearson R	-0.196	0.260
	Probability	0.541	0.415
Oral Participation	Pearson R	-0.430	-0.309
	Probability	0.163	0.329
Content Delivery	Pearson R	0.346	0.416
	Probability	0.270	0.178
Evaluation	Pearson R	0.229	0.422
	Probability	0.475	0.172
Intervention	Pearson R	0.372	0.655[*]
	Probability	0.234	0.021
Interactive Homework	Pearson R	0.619[*]	0.217
	Probability	0.032	0.498

*. Correlation is Significant at 0.05 level.

The findings in the blended learning and the students' engagement, focus on behavioral and cognitive. Blended learning in terms of intervention allows the pupils to learn through their own pace, intervention enhances the learning engagement of pupils having determined which content has to be emphasized with the suited delivery of content including assessment strategies. It conforms to the statements of Lee (2014) that interventions in blended learning assists struggling students by measuring their progress and utilizing a specific program or set of steps to address an academic need.

The result implies that modifying components of the learning environment as a mediator between contextual elements and targeted learning outcomes can improve behavioral learning and the pupil's engagement in terms of interactive homework. It looked at all aspects of involvement to see what influences student engagement. This supports the study of Hargraves (2012) that interactive homework in new normal education requires family discussions and interactions it includes instructions for the student on how to involve family members in homework by asking questions or engaging in activities

that require their participation. It encourages students to share their learning with their families and gives them responsibility in their own learning task.

Research Problem No. 4

The findings in Table 3 indicates that the blended learning in terms of interactive homework (t- value = 1.755, probability = 0.046*) is the best predictor, which implies that blended learning in terms of interactive homework because they learn more when they exchange ideas with their peers. They also learn at time somebody coach them in what they should do.

Further, the implication is consistent with the finding of Voorhis (2004) that students can demonstrate their understanding and expertise in a context other than blended learning if they participate. Although not all students will actively participate in the activities, homework might provide them with an opportunity to demonstrate their strengths or uncover areas of weakness.

In addition, it indicates that blended learning practices on students' engagement in terms of intervention (t- value = 2.417, probability = 0.040*) is the best predictor which implies that blended learning in terms of intervention is vital in cognitive engagement because they can learn more using a different range of teaching methods. They also set their learning goals and have a clear expectation on the subject matter. After determining the learners' strength and weaknesses in learning which conforms to the statements of Fredricks (2004) that a learner that is intellectually engaged is one who is unwillingly exert the necessary effort for comprehension of complex ideas or mastery of difficult skills.

Table 3. Influence of the blended learning practices on the students' engagement

Blended Learning Practices		Students' Engagement	
		Behavioral Engagement	Cognitive Engagement
Motivation	t-value	1.136	0.207
	probability	0.067	0.844
Oral Participation	t-value	-0.083	-1.316
	probability	0.937	0.095
Content Delivery	t-value	0.937	0.255
	probability	0.392	0.809
Evaluation	t-value	-0.846	1.337
	probability	0.436	0.094
Intervention	t-value	-0.825	2.417
	probability	0.447	0.040*
Interactive Homework	t-value	1.755	-1.489
	probability	0.046*	0.087

9.   CONCLUSIONS

Based on the results of the study, it could be concluded that the teachers are used to utilizing blended learning and readily conduct oral participation, content delivery, evaluation, intervention, and interactive homework. Moreover, blended learning was introduced that led them to engage and enhance their behavioral and cognitive competence.

The level of utilization of blended learning in terms of intervention, and interactive homework associated to the improvement of their performance in blended learning. Cooperation between teachers and pupils in blended learning is essential for the academic achievement of the

pupils. Teachers may provide guidance and motivation to the pupils and information through various platforms of blended learning. Pupil can develop an interest in learning as a result of the teacher's supervision because they feel free to explain their concerns. Pupils are interested working with their modules because they have the teachers and parents who collaborated to assist and supervise. They eventually develop a more positive mind-set and internal desire to learn more which lead to form a study habit.

10.   RECOMMENDATIONS

Based on the findings and conclusions, the researcher offers the following recommendations:

1. Foster a community in the blended classroom to increase and improve student engagement.

2. Schools may consider planning out ways to enrich pupils' learning activities in new normal modality.

3. Schools may also consider a constructive and timely feedback to cultivate lasting student engagement.

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