

Original Paper

Effectiveness of Blending Learning Approach (BLA) on Graduate Students' Learning Outcomes

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Abstract

This quasi-experimental study aimed to assess the effectiveness of the Blended Learning Approach on graduate school students' intrinsic motivation to learn, achievement, efficiency on project completion, and attitude towards coursework. The study used two groups, the control and experimental group which covered 30 students for each group. Students in the control group were exposed to the face-to-face instructional mode while the experimental group was exposed to the blended mode of instruction. Survey questionnaires, achievement tests, and documentary analyses were the data-gathering modalities that were utilized. The data were treated using mean, scales, and t-test. Results show that the BLA enhanced students' intrinsic motivation to learn, efficiency in project completion, and achievement in the course, however, yielded no significant effect on their attitude toward their coursework.

Keywords

blended learning, graduate school, learning outcomes, online learning, face-to-face learning

1. Introduction

Pedagogical approaches in graduate school have been dynamic over the years considering the nature of its learners. The teaching and learning environment embraces some innovations to improve learning. With the advent of the digital age, traditional didactic teaching and online learning have been modified and gradually replaced by “Blended Learning”. The Blended Learning Approach (BLA) emerged as a popular pedagogical approach. It is forecasted that BLA will be a “new traditional model” or the “new normal” in course delivery (Graham, Woodfield, & Harrison, 2011). BLA is an innovative concept that explores the advantages of both traditional teachings in the classroom and ICT-supported learning

including both offline and online modes. In the present study, blended learning is defined as the combined instructional environment where face-to-face learning and online learning are mixed within a single teaching and learning environment. Furthermore, face-to-face learning refers to the traditional classroom instruction where instructors and learners teach and learn face to face in physical classrooms. Online learning, then, refers to web-based and self-directed learning either synchronously or asynchronously at computers. This involves the use of various virtual resources and tools such as online learning materials, chat, message boards, net meetings.

Blended learning is one of the most modern methods of learning to help in solving the knowledge explosion problem, the growing demand for education and the problem of overcrowded lectures if used in distance learning, expanding the acceptance opportunities in education, being able to train, educate and rehabilitate workers without leaving their jobs and teaching housewives, which contributes to raising the literacy rate and eliminating illiteracy. BLA increases the learning effectiveness to a large degree, decreases the time environment required for training, decreases the training costs, allows the learner to study at his favorite time and place, allows for live interviews and discussions on the network, provides updated information suiting learners' need, and provides simulations, animations, practical events and exercises and practical applications (Al- Shunnaq & Bani Domi, 2010). In blended learning, the combination of two approaches could complement the limitations of the other. The value of this approach could be attributed to six benefits it could bring (Osguthorpe & Graham, 2003) viz., (1) pedagogical richness, (2) access to knowledge, (3) social interaction, (4) personal agency, (5) cost-effectiveness, and (6) ease of revision.

Several researchers proved the effectiveness of teaching. Khader (2016) found that BLA is an effective means of improving students' achievement. Kintu Zhu, and Kagambe (2017) in their study found out that blended learning design features (technology quality, online tools, and face-to-face support) and student characteristics (attitudes and self-regulation) predicted student satisfaction as an outcome.

The Methods of Research course in graduate school is a course that promotes understanding of research, its rigorous processes, and the skills in its conduct from the conceptualization phase to the dissemination phase. The BLA is an appropriate approach in the delivery of the subject as this focuses both on the students' acquisition of the research knowledge and skills which they need in the conduct of research. Through this new way of learning, the student may be able to improve and develop their practical skills, that is translating knowledge to the actual conduct of research.

This study has its intention to gather evidence to test the effectiveness of the BLA. Particularly, this study explored the influences of blended learning pedagogy on graduate school student learning behavior and learning achievement. In the study context, students' learning behavior includes the students' intrinsic motivation to learn and their attitudes towards learning the course. Moreover, learning achievement encompasses students' extent of completion of outputs and course performance or grades.

1.1 Conceptual Framework

The investigation was based on the following frameworks.

The advent of technology has drastically altered all aspects of human life, especially education. The traditional face-to-face approach in teaching is no longer appropriate to the kind of learners and learning environment where we are in. The technology resources that are readily accessible provide options for teachers as they plan for innovations as they perform the roles of imparting knowledge and fixing the desired skills to their students. This context explains the invasion of the Blended Learning Approach in the classroom. BLA is an approach that allows students to learn via electronic and online media as well as traditional face-to-face teaching.

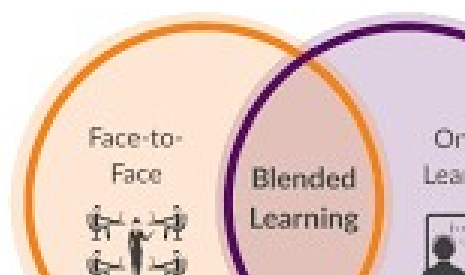


Figure 1. The Blended Learning Approach Model (eDynamic Learning, 2019)

Several experts defined “Blended learning” in different ways. BLA is a combination of face-to-face and online learning, a combination of technologies, and a combination of methodologies (Oliver & Trigwell, 2005). Neumeier (2005) regarded BL as a combination of face-to-face and computer-assisted learning in a single teaching and learning environment. Osgathorpe and Graham (2013) defined blended learning as the combination of face-to-face with distance delivery systems to maximize learning. Blended learning refers to the integration of classroom face-to-face learning experiences with online learning experiences (Owston, York, & Murtha, 2013). Based on the aforementioned definitions, BLA consists of two main components: face-to-face learning and online learning (Akkoyunlu & Vilmaz-Soylu, 2008; Drysdale et al., 2013; Gleason, 2013; Hubackova, Semradova, & Klimova, 2011; Kern, 2006).

As shown, BLA is a blend of classroom or face-to-face teaching and online learning. Face-to-face learning refers to the traditional environment where the instruction is conducted face-to-face between teachers and students in a contact teaching situation (Kaur, 2013; Neumeier, 2005). On the other hand, online learning allows learners to interact with learning materials, with or without the physical presence of peers and the instructor (Al-Qahtani & Higginst, 2013; Blake, 2011; Fryer et al., 2014).

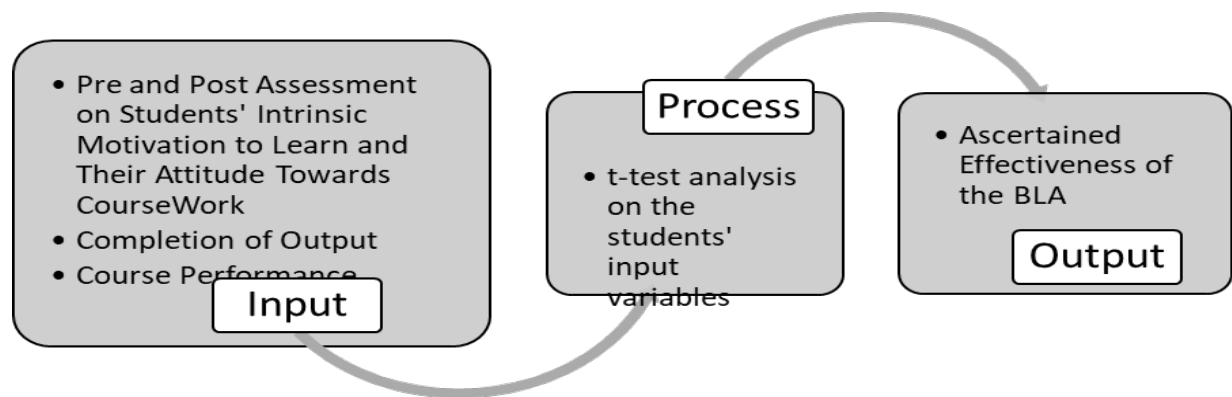


Figure 1. The Paradigm of the Study

As shown in Figure 1, the study considered the pre and post-assessment on the students' intrinsic motivation to learn, attitude towards course work, students' completion of output, and course performance are the significant inputs of the study. Students' intrinsic motivation to learn refers to the students' learning behavior that is driven by internal rewards, the drive that enables the students to engage in behavior that arises from within the individual because it is naturally satisfying (Cherry & Morin, 2019). Attitude towards course work deals with the disposition of the students towards the course and required outputs. Course performance refers to the students' grades in their Methods of Research class. These inputs shall be subjected to t-test treatment for the bivariate analyses, to determine significant variations on the variables under investigation. The desired output of the study is baseline information on the effectiveness of the BLA.

1.2 Statement of the Problem

This study aimed to determine the effectiveness of the blended learning approach at the graduate school level particularly on the students' intrinsic motivation to learn, achievement, efficiency on project completion, and attitude towards coursework.

More specifically, the study aimed to answer the following sub-problems:

- 1) What are the pre and post-assessment results on the students' intrinsic motivation to learn and attitude towards course work for both the control and experimental group?
- 2) What are the performance of the graduate school students after their exposure to the traditional (control) and blended learning approach (experimental) in terms of the following:
 - a) efficiency in project completion; and
 - b) achievement?
- 3) Is there a significant difference in the pre and post-assessment results on the students' intrinsic motivation to learn and attitude towards coursework in each group?
- 4) Is there a significant difference in the post-assessment results between the control and experimental groups in terms of their intrinsic motivation to learn and their attitude towards coursework?

- 5) Is there a significant difference in the performance of the graduate school students in the control and experimental group in terms of their efficiency in project completion and achievement?

1.3 Hypotheses

The following hypotheses were tested at 0.05 level of significance:

- 1) There is no significant difference in the pre and post-assessment results on the students' intrinsic motivation to learn and attitude towards coursework in each group.
- 2) There is no significant difference in the post-assessment results between the control and experimental groups in terms of their intrinsic motivation to learn and their attitude towards coursework.
- 3) There is a significant difference in the performance of the graduate school students in the control and experimental group in terms of their efficiency in project completion and achievement.

1.4 Scope and Limitation

This study is focused on the conduct of an experiment to establish the effectiveness of the BLA on students' learning outcomes such as their intrinsic motivation to learn, achievement, efficiency on project completion, and attitude towards coursework. The participants are graduate school students who were enrolled in Methods of Research class during the SUMMER period, the academic year 2018-2019. The study utilized a two-group quasi-experimental design taken from intact sections of graduate school students in the Methods of Research class.

2. Method

2.1 Research Design

The quasi-experimental design was used in the study as there is no random assignment of the participants to both groups. The control group involved those students who were exposed to that traditional face-to-face approach while the experimental group involved those students who were exposed to the blended learning approach. The study groups are equivalent groups that were identified through group-pairing based on the pre-test results.

The pre-post test design was used to test the effectiveness of the blended learning approach in enhancing students' intrinsic motivation to learn and attitude towards coursework. The post-test-only design was used to determine the effect of the said approach on students' efficiency in project completion and achievement.

2.2 Participants of the Study

The study involved two sections of graduate school students enrolled in the Methods of Research during the Summer period for the Academic Year 2018-2019. To reduce error due to non-randomization, the researchers selected the participants to obtain equivalent groups. The selection of samples for the control and experimental groups was done through pairing to ensure the distribution of participants in equivalent groups based on their scores in the pretest. The course content was taught in the control group (n=30) through the traditional face-to-face modality while those in the experimental group (n=30)

were exposed to online and face-to-face modes.

2.3 Instrumentation

A 30-item pre-test in Methods of Research was developed to serve as the tool in determining students' initial knowledge on Methods of Research. These items were taken from an item bank in the Methods of Research course. The pre-test results served as bases for the selection of the participants for each group to ensure equivalent groupings and to determine the initial knowledge of participants in Methods of Research. A validated survey questionnaire was used to determine the affective characteristics of the students in terms of their intrinsic motivation (10 items) to learn and their attitude towards course work (10 items). These questionnaires were administered before and after the students' exposure to the respective instructional modalities. Students' efficiency in project completion and achievement were obtained through documentary analysis. Efficiency in project completion is based on the students' date of submission of their course projects and project grade. The achievement was based on the students' grades in the Methods of Research course.

2.4 Data Gathering Procedure

The researcher, in obtaining the data, undertook the following procedures. The researchers undertook the following procedures in gathering the data:

1. Sought permission from the VP for Academics and the Dean of the Graduate School for the conduct of the experiment.
2. Sought consent from the participants to secure their voluntary participation in the study.
3. Administered the pre-test in Methods of Research to target participants.
4. Selected the participants for the control and experimental group based on the pre-test results.
5. The conduct of the experiment.
 - 1.1 Administered the Pre-Assessment on the Intrinsic Motivation to Learn and Attitude Towards Coursework Survey.
 - 1.2 Taught Methods of Research in the control group through the traditional face-to-face approach and in the experimental group through the blended-learning approach.
 - 1.3 Administered the Post-Assessment on the Intrinsic Motivation to Learn and Attitude Towards Coursework Survey.
 - 1.4 Conducted the Documentary analysis on Students' grades in Methods of Research and project completion.
 - 1.5 Analysis of the assessment results.

2.5 Data Analysis Tools

The data obtained from the study were subjected through the following data analysis tools:

Mean. This was used to analyze the pre and post-assessment results on the students' intrinsic motivation to learn and attitude towards course work for both the control and experimental group. Furthermore, this was used to determine the performance of the graduate school students after their exposure to the traditional (control) and blended learning approach(experimental) in terms of their

efficiency in project completion, and achievement. A four-point Likert scale was used to further interpret the means.

t-test for dependent samples. This was used to test the difference in the pre and post-assessment results on the students' intrinsic motivation to learn and attitude towards coursework in each group.

t-test for independent samples. This was used to test the significant difference in the post-assessment results between the control and experimental groups in terms of their intrinsic motivation to learn and their attitude towards coursework as well as their efficiency in project completion and achievement.

4. Results

3.1 Students' Intrinsic Motivation to Learn and Attitude Towards Course Work

Table 2. Frequency and Percentage Distribution of Participants in Terms of Their Level of Intrinsic Motivation and Attitudes Towards Coursework

Variables	Level	Control Group				Experimental Group			
		Pre-Assessment		Post Assessment		Pre-Assessment		Post Assessment	
		F	%	F	%	F	%	F	%
Intrinsic Motivation	Very High	5	16.67	8	26.67	3	10.00	10	33.33
	High	6	20.00	7	23.33	7	23.33	12	40.00
	Low	14	46.67	12	40.00	15	50.00	7	23.33
	Very Low	5	16.67	3	10.00	5	16.67	1	3.33
	Total	30	100.00	30	100.00	30	100.00	30	100.00
	Mean	2.37 (L)		2.67 (H)		2.27(L)		3.03(H)	
Attitude Towards Coursework	VHF	5	16.67	7	23.33	4	13.33	8	26.67
	HF	17	56.67	18	60.00	17	56.67	19	63.33
	MF	6	20.00	5	16.67	17	23.33	3	10.00
	LF	2	6.67			2	6.67		
	Total	30	100.00	30	100.00	30	100.00	30	100.00
	Mean	2.83 (HF)		3.07(HF)		2.77 (HF)		3.17 (HF)	

As shown in Table 1, students in both control and experimental groups have a low level of intrinsic motivation before their exposure to face-to-face instruction and BLA, respectively. However, the participants in either group have a high level of intrinsic motivation after their exposure to the teaching modalities. With regards to their attitudes towards their coursework, the majority of the participants in the control group and experimental groups have highly favorable attitudes towards coursework as shown in their pre-assessment and post-assessment results. This finding is supported by the means

which indicate a highly favorable attitude towards coursework.

3.2 Students' Performance after Their Exposure to the Traditional (Control) and Blended Learning Approach (Experimental)

Table 3. Frequency and Percentage Distribution of Participants in Terms of Their Efficiency in Project Completion and their Achievement in Subject

Variables	Level	Control Group		Experimental Group	
		Post-Assessment		Post-Assessment	
		F	%	F	%
Efficiency in Project Completion	Very High	4	13.33	9	30.00
	High	6	20.00	11	36.67
	Low	14	46.67	9	30.00
	Very Low	6	20.00	1	3.33
	Total	30	100.00	30	100.00
	Mean	2.27(L)		2.93(H)	
Achievement in the Course	Excellent	8	26.67	12	40.00
	Very Good	13	43.33	15	50.00
	Good	7	23.33	3	10.00
	Fair	2	6.67		
	Total	30	100.00	30	100.00
	Mean	2.90(H)		3.30(VH)	

Table 2 shows that the level of efficiency of most of the participants in the control group with regards to their project completion is low while most of those participants in the experimental group have a high efficiency on project completion. This result is supported by the mean of 2.27 for the control group which indicates low performance and 2.93 for the experimental group which indicates high performance.

With regards to the achievement in the course, most of the participants in the control group have very good performance while those in the experimental group, half of them have very good performance and 40% have excellent performance. The overall means show that those in the control group have very good performance and those in the experimental group have excellent performance as supported by the means of 2.90 and 3.30, respectively.

3.3 t-test Analysis on the Significant Difference on the Pre and Post Assessment Results on the Students' Intrinsic Motivation to Learn and Attitude Towards Coursework

3.3.1 Intrinsic Motivation

Table 3. T-Test Results on the Significant Difference between the Pre-Assessment and Post-Assessment of Each Group of Their Intrinsic Motivation to Learn

Group	Variable	Mean	SD	t-value	P-value	Decision at $\alpha=0.05$
Control	Pre-Assessment	2.37	1.02	1.79	0.06	Accept Ho
	Post Assessment	2.67	0.97			
Experimental	Pre-Assessment	2.27	1.12	1.54	0.04	Reject Ho
	Post Assessment	3.03	0.98			

The probability value of 0.06 in Table 3 reveals that there is no significant difference between the pre-assessment and post-assessment of the participants in the control group on their intrinsic motivation to learn.

However, for the experimental group, there exists a significant difference on the pre and post-assessment of the participants on their intrinsic motivation to learn as supported by the probability value of 0.04. Based on the means, a significant increase is observed in the participants' intrinsic motivation to learn after their exposure to the Blended Learning approach.

3.3.2 Attitude Towards Coursework

Table 4. T-Test Results on the Significant Difference Between the Pre-Assessment and Post-Assessment of Each Group of Their Attitude Towards Coursework

Group	Variable	Mean	SD	t-value	P-value	Decision at $\alpha=0.05$
Control	Pre-Assessment	2.83	0.97	1.85	0.12	Accept Ho
	Post Assessment	3.07	0.89			
Experimental	Pre-Assessment	2.77	0.79	1.78	0.54	Accept Ho
	Post Assessment	3.17	1.01			

The Table reveals that there is no significant difference between the participants in the control and experimental groups on their pre-assessment and post-assessment of their attitude towards the coursework. This means that the mode of instruction where the participants were exposed does not affect their attitude toward their coursework.

3.4 T-Test Analysis on the Significant Difference on the Post Assessment Results Between the Control and Experimental Groups

Table 5. T-Test Results on the Significant Difference Between the Control and Experimental Group in Terms of Their Intrinsic Motivation to Learn and Attitudes Towards Coursework

Variable	Variable	Mean	SD	t-value	P-value	Decision at $\alpha=0.05$
Intrinsic Motivation to Learn	Control	2.40	0.97	1.03	0.03	Reject Ho
	Experimental	3.03	0.98			
Attitude Towards Coursework	Control	3.07	0.89	0.82	0.67	Accept Ho
	Experimental	2.17	1.01			

Table 5 reveals that there is a significant difference in the level of intrinsic motivation to learn between the control and experimental groups. Furthermore, the data show that those in the experimental group have a higher level of intrinsic motivation than those in the control group.

3.5 T-Test Analysis on the Significant Difference in the Performance of the Graduate School Students in the Control and Experimental Group

Table 6. T-Test Results on the Significant Difference Between the Control and Experimental Group in Terms of Their Efficiency in Project Completion and Achievement in Methods of Research

Variable	Variable	Mean	SD	t-value	P-value	Decision at $\alpha=0.05$
Efficiency in Project Completion	Control	2.27	0.45	1.45	0.045	Reject Ho
	Experimental	2.93	0.32			
Achievement in Methods of Research	Control	2.90	0.87	1.25	0.039	Reject Ho
	Experimental	3.30	0.79			

The probability values of 0.045 and 0.039 reveal that there is a significant difference between the control and experimental group concerning their level of efficiency in project completion and achievement in the course. As shown by the means, the experimental group has a higher level of efficiency in project completion and a higher level of achievement in the course than those in the control group.

4. Discussion

4.1 Students' Intrinsic Motivation to Learn and Attitude towards Course Work

The data in Table 1 shows that the highest percentage of participants in the control group have a low level of motivation for the subject both in their pre and post assessment, although they slightly improved in this aspect as reflected by the means and the frequencies of those who have high to very high motivation levels. For the experimental group, half of the participants have low intrinsic motivation for the subject before they were exposed to the blended learning approach while the highest percentage of them have a high level of intrinsic motivation for the subject after their exposure to the teaching approach. The overall mean indicates that they have low intrinsic motivation before their exposure to the intervention while having a high level of motivation after their exposure to the intervention. This further indicates that the exposure of participants to multiple learning modalities such as online and face-to-face enhanced their intrinsic motivation to learn the subject.

The data further show that the participants' attitudes towards coursework both for the control and experimental group are highly favorable before and after their exposure to the teaching modalities. These data indicate that the participants from the very start of the experiment have exposed a favorable attitude towards their coursework. This further suggests that the lessons and skills derived from the course are valued by them, thus explaining their favorable attitude towards the course.

In summary, after the participants' exposure to the BLA, the observed significant increase in the percentage of students who have very high motivation to learn are indicators that the approach is effective in enhancing students' interest to learn the contents of the courses. The rich activities which the students were exposed to both in online and face-to-face modes contributed to the students' innate interest to learn the course. Providing students with a wide range of activities in varied modes are effective means to enhance their intrinsic motivation to learn as they are exposed to meaningful activities that promote the use of thinking skills.

The data in Table 2 shows that the participants in the experimental group have a higher level of efficiency on project completion than those in the control group. This may reflect the influence of the BLA in enhancing students' efficiency in the completion of the project in Methods of Research. Through the BLA, the students have acquired the desired knowledge and skills, thus enabling them to complete the course projects with speed and accuracy.

With regards to their achievement in the Course, the participants in the experimental group performed better than those in the control group. This result is traced to the participants' high level of intrinsic motivation to learn brought by their rich learning experiences in the BLA approach. Their motivation to learn helped in the acquisition of the desired knowledge and skills that allowed them to complete their course requirements.

The data in Table 3 reveal that no variation exists on the pre-assessment and post-assessment of the participants in the control group. This is an indicator that the face-to-face learning modality is not an influential factor to enhance the intrinsic motivation of students to learn. This further indicates that the

learning modality with which the participants were exposed does not significantly affect their interest to learn the course. However, for the experimental group, there exists a significant difference in the pre and post-assessment of the participants on their intrinsic motivation to learn. As reflected by the means, a significant increase is observed in the participants' intrinsic motivation to learn after their exposure to the Blended Learning approach. The data further show that those in the experimental group have a higher level of intrinsic motivation than those in the control group. This implies that the blended mode of instruction contributed significantly to the participants' inner motivation to learn the course. Intrinsic motivation is the dominant type in students' learning in blended learning (Law, Geng, & Li, 2019).

The existence of no variation between the participant's attitudes towards the coursework means that the mode of instruction where the participants were exposed does not affect their attitude toward their coursework.

The data in Table 6 reveals that there is a significant difference between the control and experimental group concerning their level of efficiency in project completion and achievement in the course. As shown by the means, the experimental group has a higher level of efficiency in project completion and a higher level of achievement in the course than those in the control group. This result indicates that the blended learning approach contributes significantly to the level of efficiency of participants on project completion and their level of achievement on the course. This means that students who were exposed to blended learning show an improvement in their academic performances since their performance level-up as compared to the group who were not exposed to a purely face-face approach. This result is supported by the study of Migalang (2018) which stressed that students who are exposed to BLA exhibit academic excellence. The current findings also accord with the study of Eryilmaz (2015), which found that BLA has positive effects on learners' achievement and their extent of participation and cooperation in the learning process. It means that students acquire existing knowledge and actively create new knowledge for given task performance in the process of sharing knowledge with peers. Blended learning likely improved students' study achievement through cognitive activities. Moreover, Dagaang (2016), the students who experienced the integration of technology in their instruction obtained better scores after the intervention was given compared to students who underwent the traditional way of instruction only. Thus, the blended learning approach is effective in teaching science and helped increase the academic performance of the students.

In summary, students who were exposed to the BLA demonstrated a higher level of efficiency in project completion and achievement in the course than those exposed to the traditional face-to-face mode of instruction. The high level of efficiency in project completion of those exposed to the BLA is brought about by their high level of intrinsic motivation to learn. Their heightened motivation to learn facilitated them in understanding the course content thus, assisting them in the completion of their course project. The course project that was required from the students is the thesis proposal. The thesis proposal is concrete evidence of the students' extent of understanding of the content as this allows them to translate the concepts and skills acquired in planning for the research. The high level of achievement

of students who were exposed to the BLA in Methods of Research is a rippling effect of the students' intrinsic motivation to learn which resulted in high efficiency in project completion and a high level of achievement in the Methods of Research course.

5. Conclusion and Recommendations

Based on the results of the study, the following conclusion is derived:

The Blended Learning Approach employs various instructional modalities which provide students with varying learning environments that may bring about meaningful learning experiences. These experiences have significant influences on the way they behave as learners, particularly their motivation to learn, their completion of course work, and their achievement. Blending provides various benefits overusing any single learning delivery medium alone. Blended learning experience benefitted students in the experimental group by having a positive effect not only on their learning motivations and learning outcomes.

In the light of the findings of the study, the following recommendations are derived:

- 1) That the Graduate School unit shall sustain the implementation of the blended learning approach in its instruction.
- 2) That the study shall be replicated in other courses to provide more shreds of evidence to support the results of the study.
- 3) Those future researchers may consider conducting another study to establish the effectiveness of the blended learning approach with consideration of other student outcomes.

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