



# Investigating the benefits of blended learning over face-to-face classroom learning. A case of IPTE 17 student teachers at St. Joseph's Teacher Training College in Dedza, Malawi

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Date of Submission: 09-10-2024

Date of Acceptance: 22-10-2024

## ABSTRACT

This study aimed at exploring the benefits of Blended Learning over Face-to-Face classroom learning in teachers training colleges. This study was conducted in the months of September, October and November, 2022 at St Joseph's Teachers Training College in Dedza, Malawi. This study involves a mixed design. Interview schedule was used to collect qualitative data while paper and pencil test was used to collect quantitative data. In This study, a sample of 183 participants was used out of 530 student teachers representing 34.5% of the total population. The participants were divided into two groups: experimental and control. The experimental group consisted of 92 student teachers and were exposed to Blended Learning method and the control group consisted of 91 and Face-to-Face classroom learning method. Both groups studied the same topics from Module 5 of Education foundation Studies. A performance test was developed from the topics. The results from the test indicated the presence of statistically significant difference in the postachievement revealing that Blended Learning was more beneficial in terms of students' performance than Face-to-Face classroom learning.

**Keywords:** Blended Learning, Face-to-Face learning, performance.

## LIST OF ABBREVIATIONS

**ODL:** Open Distance Learning

**TTC:** Teachers Training College

**IPTE:** Initial Primary Teacher Education

**ICT:** Information Communication and Technology

**f:** figures **t:** test

**Sig.** significance **df:** difference

## I. INTRODUCTION

Different scholars have defined Blended Learning in different ways. Watson J. (2008) defines Blended Learning as the employment of technological innovations in mixing two methods of education, online or virtual and Face-to-Face in each

case there is interaction between the faculty member being a teacher or a mentor with student teachers and student teachers amongst themselves. Hassan (2010) sees that it is a way of learning intending to help the learner achieve the targeted learning outcomes through the mixing between the forms of traditional education and e-learning with its patterns inside and outside the classroom. Blended Learning can also be defined as the combination of manifold approaches to pedagogy or teaching, for example collaborative, teacher-supported learning or e-learning. It often refers specifically to the provision or use of resources which combine e-learning with other educational resources.

Blended Learning is a student-centered approach to learning whereby the learner interacts with other student teachers, with the teacher, content, computers and/or smart phones. Many educators recommend the importance of reviewing the curriculum to include information about use of computers and smart phones during learning in order to keep up with the age of computer and other information technologies. The inclusion of such technology in the curriculum allows the implementers of the curriculum to include them in when delivering the content to students.

Blended Learning has more learning benefits. It allows the learner to study at his or her favourite time and place, provides opportunities for people who are working to study without leaving their jobs, It allows for discussions on the network. On the other hand, Face-to-Face classroom learning is one in which student teachers and teachers meet together in the same place and at the same time. Salamah, (2005) indicates some features and characteristics that describe Face-to-Face model of teaching and learning as providing a Face-to-Face communication which increases the interaction between the student teachers and their lecturers, student teachers themselves and student teachers and content.



### Statement of the problem

Generally, there is an outcry of poor performance by student teachers in schools and colleges in Malawi due to factors such as inadequate teaching and learning materials, inadequate coverage of the syllabus, absenteeism, closure of schools and colleges due to pandemics and natural disasters and much reliance on traditional methods (Face-to-Face model) of teaching. In 2020, teaching and learning was suspended in schools and colleges in Malawi for a period of about three months due to COVID-19 outbreak. This contributed largely to the poor performance by student teachers in schools and colleges as most schools and colleges could not finish the syllabus on time. Teachers training colleges could not be able to offer online learning during the time teaching and learning was suspended due to the COVID-19 because they were only used to Face-to-Face as a model of teaching in Malawi. However, most developed countries conducted online learning during the COVID-19.

Some private colleges in Malawi also had to conduct online learning when teaching and learning was suspended. Teachers thereafter, consolidated online lessons through Face-to-Face classroom learning when colleges reopened. This could mean that private schools piloted Blended Learning during COVID-19. However, the researcher wonders whether Blended Learning was a better way of conducting lessons than the Face-to-Face classroom learning as far as student teachers' performance was concerned. This necessitated the investigation on the benefits of Blended Learning over Face-to-Face classroom learning in teacher training colleges in Malawi

### Objectives of the study

#### Main objective

The main purpose of this study is therefore to investigate the benefits of Blended Learning over Face-to-Face classroom learning.

#### Specific objective

The intention of the study was specifically:

- 1 To examine perceptions of student teachers towards use of Blended Learning as a method of teaching
- 2 To explore factors that can make Blended Learning in teacher training colleges succeed

### Research Question

The study sought to answer the following questions:

- 1 Is Blended Learning more beneficial than Face-to-Face classroom learning?

2 What are the perceptions of student teachers towards use of Blended Learning as a method of teaching?

3 What are the factors that can make Blended Learning in teacher training colleges succeed?

### RESEARCH HYPOTHESIS Null hypothesis

- Blended Learning has benefits over Face-to-Face classroom learning

#### Alternative hypothesis

- Blended Learning has no benefits over Face-to-Face classroom learning

#### Definition of unfamiliar terms.

- **Blended Learning:** an integrated system designed to help the learner through each stage of learning since it was based on combining the traditional learning and e-learning with its various forms within classrooms or outside classrooms.

- **Performance:** the product of what was learned by the student teachers directly after the end of the educational material. It was measured by the total marks obtained by the student in the test, which was prepared for this purpose.

- **IPTE 17 student teachers:** all the student teachers studying during the first term of the year 2022.

- **Face-to-Face:** a situation in which participants, teachers, and facilitators meet together in the same place and at the same time.

## II. LITERATURE REVIEW

### Concept and benefits of Blended Learning

In terms of the terminology Blended Learning consists of two different words namely blended and learning, to blend means to mix or put together things to improve quality while learning was taking in information What was mixed were two main elements, namely, classroom lessons and online learning. Blended Learning can improve student teachers' engagement in learning, and it also helps student teachers achieve a meaningful level of learning since it provides several features: social interactions and technology quality. Elenena. (2016), supports that Blended Learning can complement a conventional teaching and learning process that lasts only a few hours in school.

Blended Learning involves class (or Face-to-Face) and online learning. The teacher introduces a concept or an activity through online and thereafter, allows student teachers to discuss the activity in groups at their own time and place and make Face-to-Face presentations after the discussions or vice versa. The teacher would



consolidate the group activity during the Face-to-Face session. This method was beneficial for allowing learners continue learning even after the class time is over. It also encourages lifelong learning in student teachers as they continue searching information on the internet and share through other forms of media.

### Concept of Face-to-Face classroom learning

Face-to-Face classroom learning is a learning method where course content and learning material were taught in person to individual or group of student teachers

(<https://tophat.com/glossary/f/face-to-face-learning>). It is the most traditional type of learning instruction which is still embraced by schools and colleges in Malawi. Face-to-Face method allows student teachers to interact with the teacher, and the materials. It also allows interaction between students themselves. Student teachers share ideas and learn from one another as they interact. They also learn from their teacher

**Application of Face-to-Face classroom learning** Face-to-Face allows for a live interaction between a learner and teacher. They meet in a set place for a set time, for either one-on-one learning or, most commonly, in group class lessons. The teacher prepares materials to be given to the student teachers. Different approaches are used during Face-to-Face interaction. During this method student teachers are given a task to work in groups or individually. They can be assigned to carry out experiments and present their findings during plenary. The teacher can demonstrate ways of carrying out a task and give time for the student teachers to practice in groups, pairs or individually (Salamah, 2005). The tasks are derived from the textbooks or written on the chalkboard and student teachers are asked to copy in their notebooks. However, no studies have been carried out to compare Blended Learning and Face-to-Face classroom learning which was commonly used in Teacher Education Institutions in Malawi as a mode of delivering lessons. Therefore, this paper investigated the benefits of Blended Learning over Face-to-Face classroom learning.

### Theoretical reviews

The study is centered on constructivist theory of learning. Constructivism is a theory of learning in which students build knowledge through interaction with the world, students discover how to make meaning out of the concepts. Based on constructivist theory, learning is best accomplished using hands-on and interactive learning and reflecting upon what has been experienced. The

theory espouses both hands-on and brain-on approach

(<https://www.buffalo.edu/catt/develop/theory/constructivism.htm>). For instance, theories of Jean Piaget, Jerome Bruner, Lev Vygotsky and John Dewey, state that students actively use past or present experiences to construct new knowledge (In-Went and MoEST 2009). In this regard the teachers' role is to provide an environment and opportunities for the students to articulate that knowledge.

### III. RESEARCH DESIGN

This study followed a mixed approach. According to Creswell. (1994); Creswell. (2008) Quantitative approach emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through test items, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. It uses a positivist belief that social environment was real and constant regardless of setting and time. The approach demands objective discovery of truth which can be obtained after carrying out a research that was characterized by the traditional criteria of internal and external validity, reliability, objectivity and generalizability (Kivunja, 2017). So it was simple for the quantitative researchers to give indicators of rigor by presenting a relatively straightforward, transparent methodological account within the standardized set of procedures.

This study used qualitative research design so as to expound on the statistical findings. Mbambo (2009) states that Polit and Hungler describe research design as a blue print out line for conducting the study in a manner that control was exercised over factors which can interfere with the validity of the results. It was for this reason that the researcher obtained answers to the research questions or objectives which guided the study.

This study used qualitative design to identify and analyze students' perceptions on the use of blended learning as a method and how to make it succeed. The procedure for conducting the research was as follows: Before conducting the study, the researcher planned a study based on the predetermined project title. The researcher then prepared all the tools used to collect data such as developing a pre-test and interview guide. These were approved by the head of the education foundations at the college. After that, the researcher randomly selected the sample from the population of 530 student teachers using cluster random



sampling technique which was divided into two categories, control and experimental group. The experimental was treated by using

Blended Learning method and the control group was exposed to Face-to-Face traditional method.

Before giving treatment, the researcher conducted a pre-test to find out the normality and homogeneity of the sample. The pre-test revealed that the samples were at the same level of performance. The experimental group was given treatment by exposing them to the Blended Learning method and the control group was taught using the Face-to-Face traditional method of teaching. At the end of the teaching and learning sessions, both samples were given the same test and at the same time. The scripts were marked and graded. The online platform used in Blended Learning was Google classroom. The interview was conducted to reveal students perception towards Blended Learning and factors that can make Blended Learning succeed in teachers training colleges.

#### Population of the study

The research population for this study was made up of all IPTE 17 student teachers at St Joseph's TTC. Research participants were individuals or group of individuals about whom the researchers conducting research obtains data through interaction with the persons for identifiable private information (Committee, 2013). In This study, research participants were 183 out of 530 student teachers representing 34.5% of the total population.

#### Sampling Procedure

Participants who were used in this research were selected by using random sampling technique. Since according to the literature, in random sampling, each member of the population has an equal chance of being picked to be a respondent (Gravetter & Forzano, 2003). Before coming up with participants, the researcher assigned numbers to the 12 classes at St Joseph's TTC which were written on pieces of papers. The numbers represented the names of the classes. The pieces of paper were placed in a container and were shaken. The researcher thereafter asked one person to pick four pieces of papers out of the 12 pieces. There were a total of 183 student teachers from the four pieces of paper which were picked at random. These groups were divided into two, experimental and control groups.

#### Sample size

In This study, a sample of 183 participants was used out of 530 student teachers representing 34.5% of the total population. This is in line with Borg and Gall (1989), who point out that a representative sample of the population should be more than 33%. The participants were divided into two groups. The experimental group consisted of 92 student teachers and the control group consisted of 91. Literature recommends a representative sample of at least 34.5% in order to make a good generalization.

#### Sampling Area

The study was conducted at St Joseph's TTC in Dedza district. This college comprised 530 IPTE 17 student teachers. The college was chosen due to the fact that the researcher was a lecturer at that college such being the case, the researcher saved on cost and time. The sample for the study was drawn from 530 student teachers.

#### Sources of Data Collection

This research used secondary quantitative data from marked scripts of Education Foundation Studies Questions from some topics in Module 5, administered and scored by the lecturers within the institution and also qualitative data from the interview guide and questionnaire. The participants were the student teachers from St Joseph's TTC.

#### Methods of data collection

The two groups of student teachers were taught the same content but using different methods. The experimental group was taught using the Blended Learning method while the control group used the Face-to-Face traditional method of classroom learning. After learning sessions, the participants wrote a test at the same time and place. The test was based on the topics which they were taught. The scripts were marked and graded. The experimental groups were given questionnaire. The researcher wanted to examine the perceptions student teachers had towards Blended Learning. The interview guide was also administered to the experimental group in order to identify factors that could make Blended Learning succeed.

#### Tools for Data Collection

Data collection was done using two different tools. These were test items, and interview guide. The test items were derived from the topics taught in module 5 of the Education foundation Studies. Interview guide was used in order to get



deeper understanding on the perceptions of student teachers towards the Blended Learning method, researcher administered interviews to some student teachers from the experimental group. Interview guide was mainly used to examine the perceptions of the student teachers towards use of Blended Learning method and to identify factors that would make Blended Learning succeed in teachers training colleges. The research used quantitative data from marked scripts of Education Foundation Studies Questions from some topics in Module 5, administered and scored by the lecturers within the institution Fourth Edition

#### Limitations of the study.

This study included the following limitations:

- This study was limited to the benefits of the Blended Learning over Face-to-Face instruction done on student teachers in Education Foundation Studies of the IPTE 17 at St Joseph's TTC.
- This study was limited to a sample of female IPTE 17 student teachers since St Joseph's TTC is an all-female college.
- This study was limited to St Joseph's TTC since the Researcher is a Lecturer at the institution and did not have funds to travel to other institutions which placed very far from the institution.
- The time was not enough to conduct the research in other institutions.

#### Delimitations of the study

The study was done at St Joseph's TTC where the researcher is currently a lecturer in order to save time and costs.

### IV. DATA ANALYSIS

This section presents a comprehensive analysis of the study's findings, utilizing tables, figures, and statistical tests to elucidate the data. Figure 1 displays the pre-test results, administered to assess participants' prior knowledge acquired via Face-to-Face instruction. This baseline measurement facilitated comparison with post-test scores, enabling an evaluation of the effectiveness of both instructional methods.

The tables provide group statistics (Table 1) and independent samples test results (Table 2), highlighting significant differences between the Face-to-Face and Blended Learning groups. Graphical representations (Figure 2) juxtapose the performance of student teachers who received Face-

to-Face classroom instruction with those who experienced Blended Learning.

The analysis reveals notable trends and patterns, including:

- Improved post-test scores among Blended Learning participants
- Enhanced engagement and motivation amongst student teachers in the Blended Learning group - Significant differences in performance between the two groups, favoring Blended Learning

#### TABLE AND FIGURE

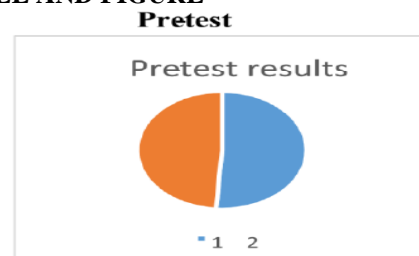


Figure 1

Key

1 = Blended

2 = Face-to-Face

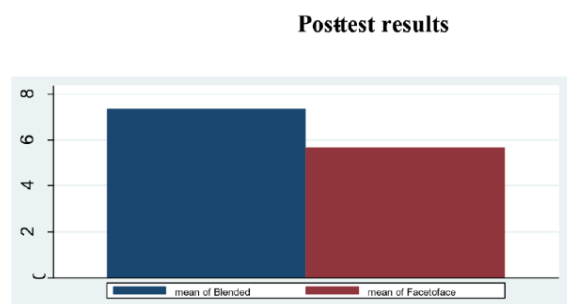


Figure 2

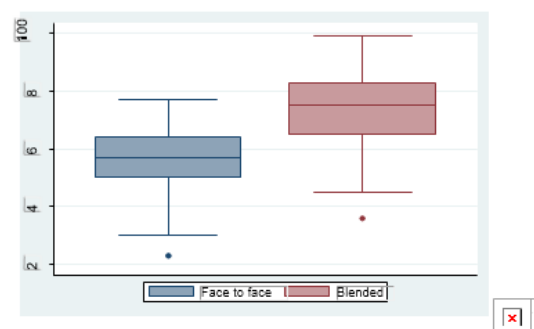


Figure 3



**Group statistics**

	Category	N	Mean	Std. Deviation	Std. Error Mean
Method	Face-to-Face	91	56.67	10.348	1.085
	Blended	92	73.65	13.186	1.375

Table 1

**Independent Samples Test**

Method	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2tailed)	Mean Difference	Std. Error Difference	Interval of the Difference	
								Lower	Upper
Equal variances assumed	6.230	.013	-9.684	181	.000	-16.982	1.754	-20.442	-13.522
Equal variances not assumed			-9.697	172.129	.000	-16.982	1.751	-20.438	-13.525

Table 2

**Interpretation**

In figure 1, the pie chart does not show any difference in terms of performance between the student teachers. The pre-test results clearly indicate that the participants were at the same level of performance. During the post-test, the graph for Face-to-Face student teachers as shown in figure 2 is relatively lower than the graph for the Blended Learning student teachers. This signifies better performance by the student teachers who were taught using the Blended Learning method. Likewise, the box plot in figure 2, the line for Face-to-Face category is relatively lower than that of Blended Learning.

In table 1, statistics indicate that student teachers who were taught using the Blended Learning method had a mean value of 73.65 while those who were taught using Face-to-Face method had a mean

value of 56.67. This implies that the intervention which was conducted had an impact on attainment of learning goals of student teachers. The independent samples test in table 2 shows that the performance results between the groups of student teachers were statistically different. This implies that student teachers in the Face-to-Face category performed relatively lower than those who were exposed to the Blended Learning method.

**V. SUMMARY, CONCLUSION AND RECOMMENDATIONS**

**Investigating if Blended Learning was more beneficial than Face-to-Face as far as student teachers' performance**

On investigating if Blended Learning was more beneficial than Face-to-Face as far as student teachers' performance was concerned, the researcher had 91 student teachers exposed to Face-



to-Face method and 92 student teachers were taught through Blended Learning. Refer to the group statistics in figure 3. The researcher gave the two groups of participants a test which was derived from the topics in the education Foundation Module 5. The two groups were exposed to the same test items and at the same time. The scripts were marked and graded. The histogram on figure 1 illustrates the difference in terms of performance between the student teachers who were taught using the Face-to-Face method and those who were taught using Blended Learning.

The results revealed that students who were taught using Blended Learning did better than those who were taught using traditional Face-to-Face method. This is in agreement with MJ Kintu (2017) who say that Blended Learning can improve student teachers' performance in learning, and it also helps student teachers achieve a meaningful level of learning since it provides several features: social interactions and technology quality. Tawil, (2018) supports that Blended Learning can complement a conventional teaching and learning process that lasts only a few hours in school. According to Sulisworo et al, (2018), flexible learning opportunities in Blended Learning can improve student teachers' performance. Some of them are Modular Distance Learning, Online, Distance Learning, TV/Radio Based Learning and Homeschooling.

#### **Students' perceptions on Blended Learning.**

With respect to the perceptions of students on the Blended Learning method, most students perceive Blended Learning to be more effective than Face-to-Face classroom learning. This was revealed during focus group discussions. According to the participants, Blended Learning improves interaction amongst students themselves, students with content material, students and their teacher. The relationship of student interaction with Blended Learning was also found in

Delacey and Leonard's study, as they reported that students not only learned more when online sessions were added to traditional courses, but that student interaction and satisfaction improved as well. Students also perceive that presenting content in Blended Learning format makes it easy for them to follow concept and this enhances their understanding. The online activities which are consolidated with Face-to-Face interaction increase students' understanding of the learning content.

Most student teachers gave positive responses about Blended Learning. They said Blended Learning helps them work at their pace, anytime and anywhere. This helps them improve their understanding of the materials they are working on. This is in agreement with Meltem E, (2015), who indicated that most of the student teachers gave positive responses to the use of a Blended Learning method.

During focus group discussion, it was also revealed that Blended Learning method allows students to obtain knowledge or assistance online anytime. It allows students to connect with their teachers about projects, announcements, tests and whatever they wish to clarify. It also enables assessments to be more individualized and productive.

During focus group discussion, the following factors were highlighted as making Blended Learning succeed; institution, teachers, learners, technology.

#### **Institution**

It was also revealed that the institution should make a deliberate effort to put systems in place of carrying out regular evaluations to establish the effectiveness of Blended Learning. Blended Learning models should be those that respond to local, community or institutional needs rather than using a generic approach. It is also important that the institutional building blocks are in place including institutional readiness in terms of sufficient technical resources such teachers who have the much needed knowledge and skills to conduct Blended Learning.

#### **Teachers**

The focus group discussions also recommended that teachers should have enough knowledge and skills to conduct Blended Learning. This will help them handle lessons effectively. This is in agreement with Macdonald, J. (2008), who says that it is only those teachers that have the know-how in handling blended learning lessons that are able to assist and guide students' learning effectively. Since Blended Learning is a combination of online learning and Face-to-Face, therefore, the teacher should be able to use computer or smart phones effectively. Teachers have an important role to play as far as Blended Learning is concerned. In a Blended Learning environment, teachers take on more complex roles, working with real-time data, assessments, software, and content from a myriad of sources to ensure that their students get the richest education possible.



### Students

The participants also indicated in their discussions that for student teachers to learn through Blended Learning effectively and actively, they should also have enough knowledge and skills in using the computer or smart phone. They should also be very conversant with different classroom applications such as Google meet. This is in line with Kintu. (2017), who says that Models of Blended Learning typically require students to have computer skills so that they can play a more active role in their education especially when learning through Blended Learning approach. The success of Blended Learning requires students to be more accountable for their actions.

Experiential learning gives students a chance to experience a subject more directly.

### Suggestions and Recommendations

The researcher makes suggestions and recommendations to all stakeholders: students, teachers, organizers, and ministry of education to use Blended Learning because it is more efficient, appropriate and effective than traditional Face-to-Face classroom learning. As Malawi experiences natural disasters, Blended Learning would be an ideal approach to handling lessons during the disasters. Learning would be continued and not disrupted. Therefore, Blended Learning should be incorporated in the Malawian school curriculums (primary, secondary and colleges). The researcher also recommends that students as well as teachers must be enabled to develop the expertise for using ICT-toolkits in Blended Learning environment.

### Areas for Further Research

The researcher recommends that the same study be conducted in secondary schools, primary and other colleges in order to get the real picture of the effectiveness of the Blended Learning in Malawi. A study from one institution cannot be a representation of Malawi as a whole country which has many schools and colleges.

### VI. Conclusion

Findings from the research study proved that students perform better when they are taught using Blended Learning than Face-to-Face classroom learning. The perceptions of the students too are also positive about Blended Learning.

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