

Effect of blended learning approach on students' learning motivation at Jimma College of Teachers' Education, Ethiopia

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Abstract

Purpose – This study aims to investigate the effect of a blended learning approach on students' learning motivation at Jimma College of Teacher Education.

Design/methodology/approach – The research used a non-equivalent group pre-post quasi-experimental design. The study involved interventions in intact classes, with a second-year student group as a treatment group and a control group randomly assigned for the conventional method. Second-year English and Citizenship department students from Jimma College of Teacher Education were study participants. The data collection method involved questionnaires and consisted of a pre-intervention and post-intervention phase for both groups. Both descriptive and inferential statistics were used in the data analysis. The independent and paired sample t-test was used to compare the means of the two groups on the dependent variable.

Findings – The results show that the blended learning approach significantly improved student motivation levels in the treatment group compared to conventional learning, as evidenced by the post-test mean scores. Furthermore, the treatment group also showed improved student learning motivation compared to the control group. This suggests that blended learning is an effective approach to improving student learning motivation.

Originality/value – Therefore, blended learning can be a viable alternative to conventional learning approaches. It has the potential to increase student motivation.

Keywords Blended learning, Conventional learning, Face-to-face learning, Online learning, Student learning motivation

Paper type Research paper

1. Introduction

Technologies integrated learning encompasses using digital tools, platforms and resources to enhance and facilitate the learning process. Technology-integrated learning provides access to various educational materials, such as online courses, videos and podcasts. Technology-integrated learning can enhance the learning experience, boost student motivation and encourage collaboration between students and teachers. Technology-integrated learning has the potential to lower costs by removing the necessity for physical textbooks and other course materials. Technology-integrated learning has the potential to lower costs by



removing the necessity for physical textbooks and other course materials (Bervell and Umar, 2020). The blended learning approach is a form of digital learning technology. It is an instructional approach that integrates conventional in-person classroom instruction with virtual learning resources and activities. It aims to give students a more flexible and customized learning experience by combining the advantages of both online and classroom learning approaches. Blended learning offers personalized instruction and caters to diverse learning styles, interests and abilities to enhance student motivation. By enabling students to advance at their speed and have access to resources catered to their needs, blended learning enables individualized learning experiences. Students may become more motivated as a result of this individualization as they feel more in control and are part of the process (Hollister-Mareko, 2022).

Blended learning is an instructional approach that combines traditional classroom instruction with online educational resources, allowing for online participation. Both the instructor and the students are physically present, and the learners have some degree of control over their learning time, location, pathway or pace. A blended course integrates in-person and online learning to provide effective, efficient and flexible education. In essence, blended learning is the combination of face-to-face instruction and online experiences to create effective, efficient and flexible learning. Blended learning combines both classroom and online learning, maximizing the benefits of both settings (Kholifah *et al.*, 2020). Some advantages of blended learning include providing learners with access to computers and regional and international information networks, fostering teachers' leadership and mentoring responsibilities in terms of computer and information network knowledge, enabling learning groups to use multimedia, e-mail, virtual libraries and various internet collaborative software, promoting knowledge production, offering flexibility for different institutions and schools and resolving the issue of constantly changing instructional materials' content (Graham, 2013).

Blended learning in higher education offers a flexible and stimulating learning environment, which has the potential to enhance students' motivation to learn. By incorporating multimedia, interactive exercises and internet resources, students' attention can be improved, and their interest in the subject matter can be heightened. When students have more control over their education, such as accessing course materials and participating in discussions at their own pace and convenience, they may be more motivated. Blended learning also provides personalized learning opportunities, with online tools offering customized learning paths, adaptive assessments and individualized input to allow students to progress according to their knowledge and abilities. This personalized approach can be highly motivating for students, as they can track their growth and progress (Means *et al.*, 2013).

Ethiopia is one of the developing countries located in the Horn of Africa. The country's educational infrastructure has improved significantly in recent years. The majority of Ethiopia's universities now have state-of-the-art facilities that facilitate technology-enhanced learning. This features a strong e-learning architecture that enables students to access learning materials from a distance. These educational institutions are equipping graduates to compete in a globalized labor market by incorporating technology into their curricula. Ethiopia's dedication to encouraging innovation and raising the incentive of its people to learn is reflected in this move toward digital education (Ministry of Education (MoE), 2023). However, in some institutions, a lack of adequate devices hampers equitable access to educational resources, further widening the digital divide among students.

Collaborative learning is a critical aspect of blended learning in higher education. It allows students to connect and work together through online discussion boards, virtual group

projects and video conferencing, fostering a sense of community and active participation. Access to peer evaluation and social support through collaborative learning experiences encourages students to participate more actively and contribute to the learning process. Incorporating real-world examples and applications into blended learning can also improve student motivation. When theoretical concepts are linked to real-world situations, students are better able to recognize the relevance and applicability of what they are studying. This connection may motivate them to engage more deeply with the material and feel a greater sense of purpose in their studies (Syarif and Sofyan, 2012).

The self-paced and technology-enabled components of blended learning can help students feel a greater sense of ownership over their learning. This autonomy and control can be highly motivating for many students. Blended learning can also help students become more engaged and motivated to learn, as they can learn at their own pace and in their style. In addition, blended learning can provide students with access to more resources to help them learn more effectively. This approach can also help reduce student stress and anxiety as students can more easily manage their workload. Blended learning provides students with greater flexibility in accessing resources at their convenience (Graham and Halverson, 2022).

A study by Sahni (2019) found that blended learning in the classroom promotes autonomous learning and enhances student motivation. The approach has several benefits, as it is innovative, promotes active learning, is personalized, student-centric and highly motivating for students. The study also demonstrated that a balanced approach to blended learning can lead to increased student motivation. Empirical data showed that combining self-directed learning and blended learning had positive effects on students' academic performance. Another finding confirmed that peer learning techniques were the most impactful component of the blended learning strategy in enhancing student's comprehension of the course material. Finally, the study confirmed the significance of web-based video lectures and the usage data of web-based platforms for revealing information about learners' watching habits and potential trouble spots (Doleck et al, 2018).

Institutional preparation, digital literacy, technology infrastructure and staff and student participation all have a significant effect on how effectively technology-integrated learning is used in Ethiopian higher education (Alemayehu and Yared, 2021). To maximize the benefits of blended learning in Ethiopian higher education, ongoing efforts must be made to resolve the difficulties and obstacles to its successful implementation. Therefore, this study was carried out at Jimma College of Teacher Education to investigate the effect of a blended learning approach on students' motivation.

1.1 Research problem

Today, technology is widely accepted as a significant learning approach. Technology provides students with access to a wide range of educational materials, enabling them to learn in diverse ways. This allows students to discover methods that work best for them and keeps them engaged and motivated. Furthermore, technology also creates opportunities for collaboration, enabling students to work together and learn from one another. Technology-integrated learning involves a blended learning approach. Blended learning is one of these which mixes online and in-person instruction. Blended learning is a form of instruction approach that integrates conventional in-person training with virtual learning experiences. It seeks to combine the most beneficial elements of both approaches to improve instruction and encourage students' participation. Under a blended learning approach, students engage in a combination of online and in-person learning activities which are frequently supported by online learning environments. Depending on the educational institution, course objectives

and instructional design, there may be variations in the accurate combination of in-person and online components (Horn and Staker, 2017).

Blended learning, which combines face-to-face instruction with online and digital components, has become increasingly common in higher education institutions (Tseng and Walsh, 2016). A growing number of Ethiopian higher education institutions have adopted technology-integrated learning in the past few years to increase accessibility and quality. In Ethiopian higher education, there is still uncertainty regarding the effect of blended learning on students' motivation to learn (Abera and Yimer, 2021). However, to this day, the teaching and learning process at institutions of higher education is conducted through the conventional approach (Ahmed et al, 2020). Face-to-face and conventional approaches occur in the physical presence of both students and a teacher. This means that assignments, discussions and activities occur in the classroom under the direction of the teacher. With the Conventional approach, learning is more teacher-directed than student-directed and conventional learning frequently emphasizes abstract ideas and theoretical information, which are not necessarily instantly useful or relevant to everyday circumstances. It also forces students to learn at the same pace. On the other hand, the classroom teacher often runs to cover course contents and, hence has little time to assist individual students. Conventional learning methods lower students' motivation to learn because of their lack of relevance to real-world situations (Bertozzi et al, 2022). More research is necessary to fully understand these issues with the educational system particularly the effect of blended learning approaches on students' learning motivation.

1.2 Research aim

The main objective of this study was to address the effect of the blended learning approach on students' learning motivation at Jimma College of Teacher Education.

1.3 Research questions

To achieve the above-stated objective of the study the following research question was forwarded:

- RQ1. Is there a statistically significant difference between students who learn through the conventional method and those who follow a blended learning approach regarding students' learning motivation at Jimma College of Teacher Education?

2. Conceptual framework of the study

The conceptual framework of this study has three variables, namely independent, mediators and dependent variables. Among the variables in this study, the independent variable is the blended learning approach, the mediator variable is the lab rotation model and the dependent variable is student motivation.

The Independent Variable in this study evaluates the degree to which blended learning approach is used in a particular learning environment. It encompasses such elements as the utilization of technological tools, the integration of online and offline components and the accessibility of resources (Lin et al, 2016).

Lab Rotation Model: Concerning this model, students rotate between a physical classroom and a computer lab or other technology-equipped learning space. A lab rotation model of blended learning combines face-to-face instruction with the flexibility and individualization offered by online learning. Student engagement with content can be

enhanced through multiple modes, independent learning skills can be cultivated and personalized instruction and feedback can be provided (Horn and Staker, 2017).

Student Motivation: The dependent variable in the context of “student Learning Motivation” refers to the factors that influence students’ desire and drive to engage in their educational activities. This can include aspects such as academic performance, self-efficacy and overall satisfaction with the learning environment. Changes in these factors can significantly impact students’ motivation levels. Therefore, understanding how these variables interact is crucial for enhancing student engagement and success. By using online tools that cater to individual student needs, allowing them to learn at their own pace and access resources tailored to their abilities and interests, personalization can increase motivation by making learning more relevant and engaging (Smith et al, 2016). The conceptual framework used in this study is illustrated in the following figure

The “Conceptual Framework of the Study” (Figure 1) certainly shows how different variables relate to one another in the study setting, emphasizing the functions of independent and dependent variables in particular. According to this conceptual framework, independent variables are those that the researcher manipulates or controls to see how they affect other variables. These variables function as the assumed cause in a cause-and-effect connection and are unaffected by other study parameters. In this case, the learning approach would be the independent variable if the study looked at how a particular blended learning approach affected student learning engagement.

Conversely, the results or effects that are measured in reaction to variations in the independent variable are known as dependent variables. The dependent variable in the above example would be student engagement, which is frequently evaluated by self-report results, degrees of engagement or comprehension. This relationship shows how differences in the dependent variable (student learning motivation) can result from changes in the independent variable (blended learning approach). Establishing a direct causal relationship between the two variables requires an understanding of this dynamic.

Synchronous learning entails live interaction between instructors and students, boosting engagement through prompt feedback and collaborative tasks. This approach facilitates lively discussions and nurtures a sense of freedom among learners, potentially resulting in better engagement. In contrast, asynchronous learning offers students the flexibility to access resources and finish assignments at their own speed. This model accommodates various

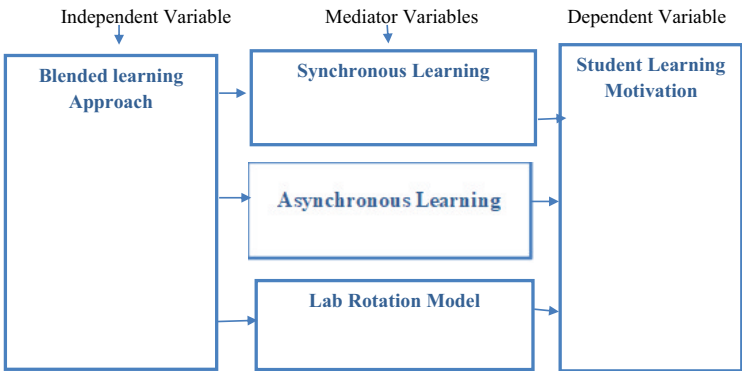


Figure 1. Conceptual framework of the study
Source: Authors’ own work

learning styles and schedules, promoting deeper reflection and independent learning. The lab rotation model blends synchronous and asynchronous components by enabling students to alternate between online instruction and hands-on lab activities. This strategy can improve practical skills and encourage collaborative learning while catering to various learning preferences. By integrating both learning formats, it can create a more holistic educational experience.

3. Research methodology

3.1 Research design

This study used a non-equivalent, quasi-experimental research design, which is particularly useful for randomly assigning participants to experimental and control groups. The researchers used a pre-test-post-test non-equivalent group design in this study. The pre-test and post-test measures were administered to the two groups. The pre-test was administered to both groups before the treatment, while the post-test was administered to both groups after the treatment. The data collected was then analyzed to test for differences between the two groups.

In the quiz research design, non-random sampling was used to focus specifically on a targeted population that is most relevant to the study's objectives. This approach allows for a deeper exploration of specific characteristics and contexts that may not be captured through random sampling. While this may raise concerns about generalizability, the insights gained from this focused sample can provide valuable context-specific findings that are applicable to similar educational settings. In addition, the study discusses how the findings can inform broader implications within comparable contexts, thereby mitigating some generalizability concerns.

The interventions in this study were conducted in intact classes where a class of second-year students was assigned as the treatment group and, by the conventional method; another class of second-year students was assigned as the control group. The treatment group, namely TG, was treated by a blended learning approach (BL). While the control group (CG), is the conventional approach in the comparison group (Figure 2).

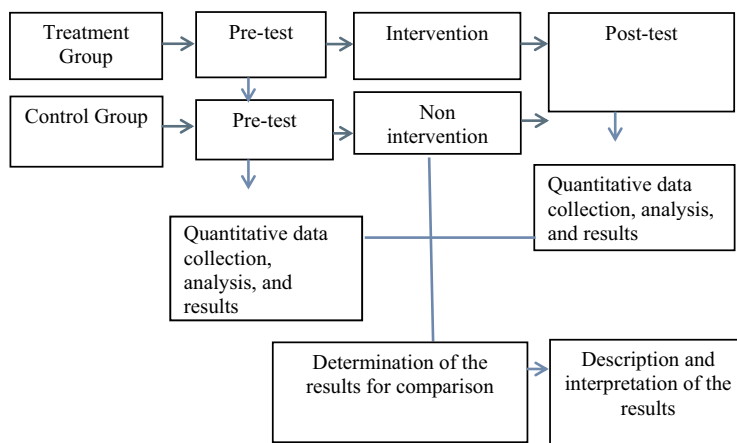


Figure 2. Research Design

Source: Authors' own work

3.2 Population, sample, and sampling techniques

The setting for this study was Jimma College of Teacher Education. The college was selected on purpose because of its ICT facilities. The college course was face-to-face learning approach and the study participants were taking the course curriculum and instruction for primary school teachers at the college department of education. The study was conducted at course level. It required at least two groups (the control group and the treatment group) to take the same course and Jimma College of Teacher Education was selected.

The total population of this study comprised 300 s-year students taking the TECS (221) course. The researcher set parameters to make sample selection easier. The first requirement was that samples were taken from second-year students who were taking the TECS 221 course. The researcher selected one control and one experimental group from the six different department classes of second-year students based on a simple random sampling technique. These two classes, both the (control and experimental groups) were intact groups one with 30 and the other with 32 students so a total of 62 students participated in the study.

3.3 Data collection instrument

The data collection method chosen for this study was a questionnaire. A 33-item learning motivation questionnaire was adapted from Keller (2010) to gather data about participants' learning motivation. Primary data comprises information gathered from surveys and replies given to a specific population using well-defined, constrained, closed-ended questionnaires (Cohen, 2013). Based on a five-point Likert scale, the effectiveness of blended learning is assessed by assessing how much the experience affects the motivation of students: very much (5), much (4), somewhat (3), little (2) and very little (1). The scale is then used to measure the students' overall motivation with the experience. The results of the survey are then used to inform decisions about the effectiveness of the blended learning approach. The average score of each student was calculated to provide an overall measure of blended learning effectiveness, which can be used to assess the success of the blended learning approach.

3.4 Validity and reliability of the instrument

A pilot study was conducted to check the reliability of the instruments. To check the reliability before using the questionnaires, the researcher collected expert opinions on whether or not the items measure the full range of students' learning motivation. The experts provided feedback on the items, and the researchers refined the questionnaire accordingly. On the instrument, 33 questions were distributed to 30 respondents. Among the 33 questionnaires, only 3 questions improved. To determine the reliability of the questionnaires, the alpha coefficient was calculated in SPSS. The Alpha coefficient was 0.863, indicating that the questionnaires were reliable. The Alpha coefficient is a statistical measure used to indicate the reliability of a set of questions. A higher value indicates a more reliable questionnaire. According to Pallant (2016), a questionnaire's Cronbach's alpha should be above 0.7 for it to be considered reliable for data gathering. The revised questionnaire was then administered to the students. The collected data was analyzed using statistical methods.

3.5 Data collection procedure

Among the available data collection methods, questionnaires were chosen. The questionnaires had two phases: pre-intervention questionnaires and post-intervention questionnaires for both groups. The researchers collected data in these two phases. Before the intervention, one curriculum and instruction instructor, one ICT instructor and 32 English department students were given three days of training by the researcher to introduce the

tools/platform of blended learning and its implementation in the classroom. The training included follow-up observations from the researcher for further input on each classroom intervention. Then, after the intervention, implementation continued for one semester (16 weeks).

There were different internal and external threats regarding the validity of a quasi-experimental pre-test-post-test control-group design and researchers must address how to control these threats. History and maturation were controlled as any event or effect in the treatment group also occurs in the control group unless it occurs in only one of the two groups. Instrumentation was also controlled as both treatment and control groups were exposed to the pretest.

4. Data analysis

In this study, the data was analyzed using descriptive and inferential statistics. Descriptive statistics include frequencies, mean and standard deviation. Inferential statistics uses sample data to infer and derive statistical judgments about populations using the rules of probability (Johnson and Christensen, 2019). SPSS software version 26, *t*-test (Independent sample *t*-test paired sample *t*-test), was used to compare the means of two groups on the dependent variable. At the same time, a paired *t*-test was used to see the difference between the pre-test and post-test of the dependent variables at 0.05 alpha level (Field, 2009).

The data was analyzed to determine whether the assumptions for the *t*-test were satisfied. In this instance, the data met the required assumptions. Each unit was randomly drawn from the population from which the sample was taken for both groups. The data gathered represented the students' academic achievement using ratio scaling. It recommends evaluating the normality of each pair of data sets by looking at the skewness and kurtosis values and using Levene's test to determine the homogeneity of variances (Tabachnick *et al.*, 2013).

4.1 Ethical considerations

According to Creswell (2012) and Marczyk *et al.* (2005), data collection should be carried ethical manner that upholds study participants' rights. Ethical implications of the study issue should always be carefully considered by every researcher conducting research. Thus, along with being given permission and confidentiality, keeping participants' identities was considered an ethical concern in this study. The college vice academic dean guaranteed permission to do the research. Each participant got full details regarding the aim of the study and the planned activities. Participants were informed that their participation in the research was not harmful regardless of whether they agreed. Based on this, the treatment was made with the consent of the participants.

4.1.1 Result. This section gives the results of the pre-treatment obtained using a motivational questionnaire, and the post-test, obtained using the same motivational questionnaire after the experiment. The descriptive statistics (Table 1) of pre-test and post-test on students learning motivation across the groups present the results of the pre and post-test regarding student learning motivation across the groups.

Each skewness and kurtosis value revealed the descriptive statistics of pre-test and post-test on students learning motivation across the groups in (Table 1) for the distribution of TG and CG on pre-test and post-test motivation scores supported the normality, as these values range between -2 and 2 (George and Mallery, 2003). Similarly, the results of Levene's test for the pre-test ($F [1, 60] = 2.244, p = 0.139$) and post-test ($F [1, 60] = 3.666, p = 0.060$), as presented in descriptive statistics of pre-test and post-test on students learning motivation across the groups (Table 1), suggest that the equality of variances for the dependent variables in the pre-test and post-test between the TG and CG for the two groups was attained (Field, 2009).

Table 1. Descriptive statistics of pre-test and post-test on students learning motivation across the groups

DV	Group	N	Mean	SD	SE	Skewness	Kurtosis	Levene's test	
								F	Sig.
Pre-MT	TG	32	2.60	0.19	0.034	0.362	-0.299	2.244	0.139
	CG	30	2.52	0.21	0.039	-0.017	-1.339		
Post-MT	TG	32	3.49	0.30	0.053	-0.034	-0.622	3.666	0.060
	CG	30	2.93	0.22	0.041	0.582	-0.214		

Source(s): Authors' own work

Meanwhile, before investigating potential differences between the groups, it is important to determine their difference at the pre-test level. For this purpose, the independent sample *t*-test was used for pre-test motivation.

Pre-test student motivation levels between the two groups were compared using the Independent Sample *t*-test (Table 2); the results show a *t*-values of 0.068 with a degree of freedom (df) of 60 and a *p*-value of 0.946, indicating that there is no statistically significant difference in student motivation between the two groups. Also, a *p*-value greater than the standard alpha level of 0.05 indicates no difference in means between the two groups (Field, 2009).

The reported mean difference was 0.051, with a standard error of 0.518. This minimal mean difference implies that the average motivation levels of both groups are very similar. In addition, the 95% confidence interval for this mean difference ranges from -1-1, allowing us to be 95% confident that the true mean difference falls within this range. The broad confidence interval reinforces the conclusion of no significant difference, as it includes zero (Cohen, 1988).

In assessing the assumption of equal variances, Levene's test indicated no significant results, validating the use of the equal variance assumption in the *t*-test. This outcome suggests that the variances for both groups are similar, which supports the credibility of the results (Bland and Altman, 1996). With these assumptions in mind, the findings confirm that the two groups show comparable levels of motivation before any interventions are applied. In conclusion, the results from the Independent Sample *t*-test indicate that there is no significant difference in pre-test student motivation between the two groups. As a result, the findings of the independent Sample *t*-test show that the pre-test scores of the groups under study do not differ significantly.

The research question seeks to answer whether there is a difference between groups regarding the pre-test and post-test mean scores of the treatment and control group

Table 2. Independent sample t-test to compare pre-test student motivation for both group

DV	t-test for equality of means						95% Confidence Interval	
	t	df	p	Mean difference	Sth. Error difference		of the Difference Lower	Upper
Pre Mt								
Equal variance assumed	0.068	60	0.946	0.051	0.518		-1.000	1.075

Source(s): Authors' own work

motivation. It states, is there any statistically significant difference between students who learn through conventional methods and blended learning regarding their learning motivation?

An Independent Sample *t*-test was used to determine whether there was a significant difference in the post-test mean scores of the treatment group and the control group motivation. Table 3, illustrates the result of the analysis.

Independent sample *t*-test to compare post-test student motivation for both groups (Table 3), shows that there was a statistically significant mean difference in motivation between the groups at a *t*-values is 5.065 with 60 degrees of freedom, and the *p*-value is 0.000. The eta squared ($\eta^2 = 0.300$) indicates a strong effect size (Field, 2009). This reveals that 30% of the variations between the groups were accounted for in the intervention. This finding showed that the TG students were more motivated to study the curriculum as compared to the CG students. This is the result of the influence of the application of the blended learning approach in the TG students' group.

The reported mean difference has a standard error of 0.074 and is 0.373. This suggests that the motivation score of one group was, on average, 0.373 points greater than that of the other group. This mean difference has a 95% confidence interval that excludes zero and runs from 0.226–0.520. It further supports the conclusion that there is a significant difference in motivation levels because this range indicates that we can be 95% confident that the genuine mean difference falls within these limitations (Cohen, 1988).

The effect size, represented by Eta Square (η^2), is calculated at 0.300. This value indicates a large effect size, suggesting that approximately 30% of the variance in post-test student motivation can be attributed to the differences between the groups. Effect sizes provide a measure of practical significance beyond mere statistical significance, highlighting the importance of the interventions applied. The findings from the Independent Sample *t*-test demonstrate a significant difference in post-test student motivation between the two groups, with a meaningful effect size

To see the difference between pre-test and post-test scores for each group, a paired sample *t*-test is used (Table 4). The Cohen's *d* effect size was also carried out to determine improvement before and after the interventions.

The paired sample *t*-test was conducted to compare the pre-test and post-test student motivation levels within the same group of participants. As shown Paired Sample *t*-test pre- and post-test results on the students learning motivation scores in (Table 4), the mean difference between the comparison group's post- and pre-test scores was 0.044 at *t* (29) = 1.828, *p* = 0.078, indicating that the difference between pre-test and post-test scores is insignificant. The effect size, Cohen's *d* = 0.05, is of small effect (Cohen, 1988). Similarly,

Table 3. Independent sample *t*-test to compare post-test student motivation for both groups

DV		t-test for equality of means				95% Confidence Interval of the Difference		Eta square
Post Mt	t	df	p	Mean difference	Stn. Error difference	Lower	Upper	η^2
Equal variance assumed	5.065	60	0.000	0.373	0.074	0.226	0.520	0.300

Source(s): Authors' own work

Table 4. Paired sample t-test pre-and post-test results on the students learning motivation scores

Group	Variables	Paired differences			<i>t</i>	<i>Df</i>	<i>p</i>	Cohen's <i>d</i>
		MD	SD	SEM				
TG	postMT – preMT	0.88656	0.33419	0.05908	15.007	31	0.000	0.531
CG	postMT – preMT	0.04433	0.13286	0.02426	1.828	29	0.078	0.05

Source(s): Authors' own work

the mean difference between the TG post-test and pretest is 0.886 at $t(31) = 15.007$, $p < 0.001$, which indicates that there is a significant mean difference between the post-test and pre-test. The effect size, Cohen's $d = 0.531$, shows a medium effect. As a result, students who were exposed to blended learning methods showed significant motivational change after the intervention while students in conventional classrooms did not show such changes.

5. Discussion

This study investigated the effect of the blended learning approach on students' learning motivation at Jimma College of Teacher Education. Blended learning, which combines conventional face-to-face instruction with online components has been shown to have several positive impacts on student motivation in higher education. As many studies have indicated, the blended learning method has positive impacts on students learning motivation. In terms of student learning motivation, for example, studies by, [Liu \(2010\)](#), and [Wiginton \(2013\)](#) have demonstrated that blended learning approaches are more effective than conventional learning. It is pilfered that conventional-based learning may prevent students from moving at their own pace and make it challenging for them to make up lost time. All the students can manage their learning process and learn without interruptions when they have access to a personal computer and instructional materials. To access information, students are free to peruse the learning resources as often as necessary and to repeat exercises when they wish.

The results of this study show that the blended learning approach is more effective than conventional learning in terms of improving students' learning motivation toward the curriculum and at Jimma College of Teacher Education. This is in line with other research that has also found the blended learning approach beneficial in terms of student learning motivation ([Means et al, 2013](#)). The treatment group showed significantly improved attitudes and motivation by using blended learning compared to the control group. This model facilitates student presentations, improves peer interaction and fosters both group discussions and collaborative learning. investigated the connection between blended learning and student motivation. With results showed that active learning, teamwork self-regulation and blended learning settings increased student motivation.

The effect of a blended learning strategy on the motivation higher education of students, compared to students receiving conventional classroom education, is that the former show reported higher levels of intrinsic motivation, engagement and enjoyment, according to the findings ([Ertmer and Koehler, 2014](#)). In the same way, there is a significant mean difference in this study between the post-test and pre-test, as shown by the TG posttest-to-pretest mean difference of 886 at $t(31) = 15.007$, $p < .001$. Cohen's $d = 2.33$, regarding effect size, indicates a very significant influence and because of this, following the intervention, students exposed to blended instructional methods demonstrated substantial changes in their motivation whereas students in conventional educational settings did not.

Blended learning's interaction features which include online exercises, visual material and teamwork opportunities also encourage social contact and active participation. These elements foster a stimulating, collaborative learning environment which, in turn, improves student motivation. Studies show that compared to students receiving conventional face-to-face education, students in blended learning contexts report higher levels of motivation, self-efficacy, curiosity and satisfaction. Blended learning, combining online and in-person components, maximizes the advantages of both learning modalities to give students a rich and varied educational experience that is specific to their unique needs and preferences. Overall, the available data points to a beneficial effect of blended learning on student motivation in higher education. Blended learning gives students more control over their education, encourages active participation and improves their entire experience by combining the benefits of both in-person and online learning (Oweis, 2018).

6. Conclusion

The main purpose of this research was to examine the effect of the blended learning approach on students' learning motivation in the course of curriculum and instruction for secondary school at Jimma College of Teacher Education. The findings led to the following conclusions: The study found no significant difference in student learning motivation between the control and experimental groups before the intervention, indicating that both groups were equally motivated. Students who did not participate in blended learning did not show a significant improvement in motivation. While those who participate in blended learning demonstrated a notable increase in their motivation to learn. This indicates that college students might increase their learning motivation by using blended learning. Following the intervention, there was a notable difference in the learning motivation of the experimental group compared to the control group. This indicates that, compared to that of the control group, who did not engage in blended learning, the experimental group's level of student motivation improved noticeably.

7. Recommendation

Blended learning is highly beneficial for supporting effective student learning motivation but it requires solid commitment. Enhancements to the infrastructure and facilities such as fast Internet and reliable wireless connectivity are also essential to facilitate blended learning. Future research should also examine the effects of BL on students' learning motivation in various discipline areas

7.1 Implementation strategies

7.1.1 Training programs.

Develop comprehensive training sessions for students and instructors on blended learning approach to ensure effective integration into the curriculum.

7.1.2 Infrastructure development. Invest in reliable internet access and necessary technological devices for both students and faculty to facilitate seamless online and offline learning experiences.

7.2 Cost-Benefit analysis

Conduct a thorough analysis comparing the costs of implementing blended learning (e.g. training, technology procurement) against the anticipated benefits, such as improved student learning motivation. This analysis should highlight potential long-term savings and efficiency gains.

7.3 Local policymaker consultation

Engage local policymakers in discussions about the benefits and challenges of blended learning. Their insights can help tailor the implementation strategy to the regional context and secure necessary support and resources for sustainable development.

8. Limitations of the study

Although the quiz experimental study examining the effect of blended learning on students' learning motivation at Jimma College of Teacher Education offers important insights, it has its limitations. The researchers were unable to manage the unique personalities and experiences of the students participating in the study, which could have affected their levels of engagement and reactions to the blended learning approach. Differences in previous educational backgrounds, motivation and learning styles might introduce confounding variables that influence the overall results. Furthermore, personal situations outside of the academic setting could have hindered students' ability to engage fully in the blended learning activities, complicating the analysis of the findings. The absence of qualitative insights may restrict a deeper understanding of student's experiences and perceptions regarding blended learning. The study was conducted at a single institution, which may limit the applicability of the results to other educational contexts or institutions

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Data availability

The data sets generated or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics statement

The research was ethically approved by the ethics review board, Wudu Melese (PhD), Jimma University College of Education and Behavioral Science, Department of Teacher Education and Curriculum Study. The study was conducted in agreement with the guidelines governing research involving human participants, as outlined by the Ethics Committee of Jimma University.

Informed consent

All participants were duly informed of their rights and responsibilities and provided explicit written consent before participation. Therefore, all data for this study was gathered voluntarily from the participants, who consented to its usage in the research.

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