



University instructors' and students' perceptions of blended learning and perceived determinant factors

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Abstract

The purpose of this study was to examine the perceptions of instructors and students towards blended learning and perceived determinant factors at Jimma University. A concurrent mixed-methods research design was used. Data were collected from 145 students and 70 instructors by using questionnaires and interviews. The findings showed that both instructors and students confirmed the lack of facilities, lack of technological knowledge, and instructors' lack of technological pedagogical knowledge. On the other hand, both instructors and students believed that the BL approach had a positive impact on students learning. In addition, the major challenges identified were teachers' increasing workload, lack of access to internet connections, non-compliance of learners' educational backgrounds to permit effective use of BL, non-suitability of the approach for all learning styles, slow internet connectivity, lack of organization of blended learning materials, and lack of IT knowledge. Based on the findings of the study, it is recommended that the concerned university officials give thoughtful attention to the provision of necessary facilities to implement BL and design appropriate training and capacity-building programs for university instructors and students to increase students' and instructors' knowledge and skills in technology use.

Keywords: Blended learning; challenges; determinant factors; instructors; perceptions

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1. INTRODUCTION

In previous decades, education has always been associated with the physical presence of schools, classrooms, examination halls, teachers, textbooks, and examinations (Eddy et al., 2014). In such decades, students learned only in a traditional setting where the instructor-led approach was used. Traditional classroom settings provide access to experts and involve students in questions and discussions. Students are exposed to social interaction, which provides them with an opportunity to learn from others. In the traditional classroom, the interests of students who prefer an individualized, less structured environment and need self-paced learning material are compromised.

However, in this era, innovations in technology have resulted in new trends in learning environments and introduced more modern conceptions of learning. Such innovations include e-learning and Web-based programs that focus on delivering the instructional content of a physical classroom over the Internet. However, learners are challenged with long sequences of page-turner content along with point-and-click quizzes in the e-learning and Web-based programs. The challenge inherent in the innovation (online) revealed that a single mode of delivery seemed unable to offer sufficient engagement, choices, relevance, social contact, and context to facilitate effective and successful learning. As a result, another innovative solution for such challenges necessitated the introduction of blended learning (BL) (Mohamed-Amin et al., 2014).

Blended learning, also known as hybrid learning, is seen as a pedagogical approach in which socialization opportunities created by classroom activities are combined with the opportunities of technology-supported learning (Istenič, 2024). Blended learning can be handled by creating environments that support social learning in the classroom and guide the student's learning in individual work (Yin & Yuan 2021; Marcellis et al., 2024). Thus, the transition from teacher-centered teaching to a student-centered teaching process in which students are actively involved in the learning process will be ensured (Chen et al., 2024). In blended learning, the strengths of online education can be complemented by the strengths of face-to-face education (Pizzi, 2014; Yapici & Akbayin, 2012).

Therefore, blended learning approaches aim to find a harmonious balance between online access to information and face-to-face interaction. Online educational activities in classrooms are combined with traditional teaching methods as part of the traditional method to better meet the learning needs of students in the classroom. The parts of the learning process that require direct communication with teachers can be carried out in the classroom environment, and the rest can be organized in the electronic learning environment (Lim & Morris, 2009; Paechter et al., 2010; Rowley et al., 2002).

The new innovative learning method, BL, is one of the most widely used methods in education to promote active learning and enhance students' learning outcomes. Various research findings revealed the positive impact of BL on students' achievement and engagement. For example, Luna and Winters (2017) compared blended learning classrooms with lecture classes; the blended learning classes had a significantly greater improvement overall from pre-test to post-test. Additionally, a similar study that compared the pre-test and post-test scores of traditional blended classrooms and flipped classrooms was conducted in 2018. The study found that traditional blended-learning classrooms had higher mean growth scores (Clark et al., 2018). Furthermore, Marie (2021) in her study compared a control group with limited technology and an experimental group that included blended learning. She found that the experimental group scored higher on the post-test.

Recognizing the strengths that blended learning holds, many educational settings are striving to change their delivery methods to blended programs. The approach is becoming a newly emerging trend

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in higher education as it combines the best of synchronous and asynchronous learning approaches to meet specific educational goals. However, despite the benefits of blended learning, there are still several challenges associated with it. For instance, the teacher's and students' individual differences, such as their behaviors and attitudes, might influence their adoption of BL (Bingimlas, 2017; Levin et al., 2013; Yu et al., 2023; Tang et al., 2024).

Attitude, as defined by Gawronski (2007), is a measure of an individual's viewpoint or disposition toward a person or thing. Scholars and educators report that integrating technology into classroom practices is not easy or innately achievable. This attitude is significant because of the rise of integrated technologies in the day-to-day lives of individuals. When technology is utilized meaningfully, it creates a promising atmosphere where students and researchers can collaborate and learn successfully. To reduce the challenges of utilizing technology in the classroom, technology decisions and planning must be purposeful, collaborative, and strategic from their conception through implementation and on to sustainability (Yadav, 2022). Therefore, investigating teachers' and students' attitudes toward implementing certain educational innovations or changes is very important.

As far as the knowledge of the researcher is concerned, research matching student and staff perceptions of BL has been sparse. The findings of international studies show different results concerning teachers' and students' perceptions of BL. For instance, Klímová & Poulouva (2014) carried out a study to find out students' perceptions of BL. They surveyed Czech and Kazakh university learners to depict their thoughts about blended learning. The findings of the study revealed that the Czech participants preferred blended learning in that it enabled them to continue learning and to contact their teachers outside of class time to ask for clarification about what they did not understand and work out. However, Kazakh participants displayed a tendency to overrate face-to-face learning as they had less chance to access computers and the internet, and Kazakh culture differs from Czech culture in terms of the importance attached to the teacher's authority.

Another study targeting learners' perceptions of blended learning was carried out by Drysdale et al., (2013). They came up with positive student feedback about BL. Contrary to this, research findings by Owston et al., (2013) show that low-achieving students were not satisfied with BL.

Regarding teachers' perception of BL, research findings by Sobie, (2015) showed that the instructors had a positive attitude towards the use of BL. Satar & Akcan (2014) have done another study on teachers' perceptions of blended learning approaches. The participants in this study were pre-service language teachers who were exposed to blended learning environments for 20 weeks. The result obtained from this qualitative study indicates that some participants had positive perceptions of BL.

1.1. Purpose of study

Hence, the analysis of the BL in general and the perceptions of instructors and students in particular would be an important source of knowledge and direction for further improvement of the situation. Therefore, the purpose of this study was to investigate the perceptions of instructors and students towards various domains of blended learning and perceived determinant factors at Jimma University. This study tried to answer the following basic research questions.

1. What are the perceptions of instructors and students towards facilities, technological knowledge, technological pedagogical knowledge, and the benefits of the BL approach?
2. What are the perceived determinant factors of using a blended learning approach?

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The main objective of this study was to investigate university instructors' and students' perceptions of various domains of blended learning and the major determinant factors that affect the use of blended learning approaches. More specifically, the specific objectives of this study include:

1. To identify the perceptions of instructors and students towards facilities, technological knowledge, technological pedagogical knowledge, and the benefits of BL approaches.
2. To investigate the perceived determinant factors of using a blended learning approach.

2. METHOD AND MATERIALS

2.1. Research design

The research design used for the study was concurrent mixed-methods. Mixed-methods research designs incorporate quantitative and qualitative data to answer a research question where one type of data is used to inform the other in some way. The concurrent mixed-methods design was used to help triangulate the quantitative and qualitative information. Moreover, the qualitative data helps to substantiate the quantitative findings.

2.2. Participants

This study was conducted on Jimma University's main campus. Thus, the target population of this study was the four colleges on the main campus of Jimma University. These include the College of Social Science and Humanities, the College of Education and Behavioral Science, the College of Natural Science, and the Sports Academy. About the study population, two colleges (EBS and Natural Science) from the target population were selected. The main sources of data for the study consisted of instructors and undergraduate students at the two colleges.

To determine the study population from the target population, a probability sampling method, namely the lottery method, was utilized. In this process, the researchers selected the sampling units objectively. Accordingly, using the stated technique, the researchers selected the two colleges (the College of Education and Behavioral Sciences and the College of Natural Science) of the university. The main reason for selecting the colleges on a random sampling basis is to give each college an equal chance of being selected as a study population. The study population, which accounts for 50%, is considered adequate to represent the target population.

To decide the sampling frame, the researchers first identified and defined the population. To determine the desired sample size, identifying the subgroups (strata) for which the researcher wanted to guarantee appropriate and equal representation was an additional consideration. Therefore, the researchers used stratified sampling techniques to give equal chances to subgroups, i.e., departments and students, according to the batch they represent. Generally, a total of 70 instructors and 145 students were selected as a sample for this study.

2.3. Data collection instruments

The data collection tools of the study were questionnaires and interviews.

Questionnaire: This instrument was prepared based on a review of related literature. It consisted of closed-ended questions. Two types of questionnaires were prepared, one for the instructor and the other for the students. The questions were about instructors' perceived perceptions of BL about the availabilities of facilities to implement BL, technological knowledge, Technological pedagogical knowledge, and the benefits and challenges of BL.

Interview: The interview was conducted with six instructors selected from CEBS and natural science. Specifically, two instructors each were selected from the TECS, psychology, and physics departments. Regarding the nature of the interview, semi-structured interview guides were employed to collect data from the instructors. Issues that were focused on in the interview were the perceived challenges and benefits of implementing BL and the recommendations to solve the challenges. The interview, which lasted from 35 minutes to 45 minutes, was followed by note-taking; no sound recording material was utilized as the participants refused to be recorded. The interview was used in the study to support quantitative data collected using questionnaires.

2.4. Validity and reliability of the instruments

To maintain the validity of the instruments of data collection, educational experts edited the questionnaires so that they could check the validity of the instruments. After the necessary modifications and corrections were made, the instruments were distributed for the pilot test. Moreover, to address the issue of reliability, the pilot testing was done in one purposely selected department (mathematics), which is outside of the study sample. This was done to test and fit the instrument with the higher institutions setting in Ethiopia. Accordingly, 2 instructors and 12 students from the math department participated in the pilot study. To determine the reliability of the questionnaires, the Cronbach alpha coefficients of all the items included in the main study were acceptable, and the average coefficient values were found to be 0.88, which is considered highly reliable.

2.6. Data analysis

Both qualitative and quantitative analysis techniques were employed. Data collected through questionnaires was presented using the mean and standard deviation. Generally, the benchmark used in the study to analyze the quantitative data is strongly agree (4.21–5.00), Agree (3.41-4.20), and undecided. (2.61-3.40), disagree (1.81-2.60), and strongly disagree (1.00–1.80). On the other hand, data from teachers' interviews was presented in narrative form. According to Creswell (2014), the qualitative data would intertwine with the quantitative data to further enrich and enhance the information collected.

2.7. Ethical consideration

To ensure informed consent, every participant in this research work was selected based on his or her full willingness and interest in the process of providing valuable information for this research. Furthermore, the participants were assured that the information they provided would be kept confidential. In addition, anonymity was maintained in the analysis and interpretation of the study.

3. RESULT

This section includes the presentation and analysis of data collected through questionnaires and interviews. Data collected through questionnaires was presented in tables for each case and analyzed using frequency distributions, the mean, and the standard deviation, followed by relevant discussions. Whereas qualitative data obtained through interviews was used to supplement and explain quantitative data.

3.1. Perceptions of instructors and students towards BL

3.1.1. Perceptions towards the facilities of BL

Regarding instructors' perceptions of the availability of the facilities to implement BL, participants were supplied with five various items. The result is shown in Table 1.

Table 1

Perceptions towards the facilities of BL

S/n	Items	Students		Instructors	
		M	Std.	M	Std.
1	I use my mobile phone or laptop to do the blended learning (BL) model.	2.17	0.80	2.34	0.88
2	For the blended learning model, I use the internet on campus.	2.19	0.89	2.07	0.76
3	The campus provides electricity and socket outlets for electronic devices in classes.	2.61	0.91	2.60	0.76
4	The campus has good Wi-Fi and an internet network.	1.51	0.84	2.14	0.85
5	The campus provides me with the necessary support and resources on how to implement BL.	1.96	0.88	1.73	0.72
Aggregate Mean		2.09	0.87	2.18	0.8

Table 1 is about instructors' perceptions of the availability of facilities to implement BL. The finding indicates the instructor's overall disagreement towards the availability of facilities to implement BL (M = 2.18, SD =.8). About this item, respondents did not equally rate their perceptions of the five items presented to reveal the issue; one item was rated below the grand mean. Accordingly, the provision of the necessary support and resources on how to implement BL to instructors (M = 1.7, SD =.72) was rated below the grand mean.

About the students' perceptions towards the availability of the facilities at BL, they were supplied with five various items, and the result is shown in Table 1. The overall finding of the items indicates that students have demonstrated their disagreement with the availability of facilities to implement BL (M = 2.09, SD =.87). About the table, one item was scored lower than the total mean score (range). Accordingly, the availability of good Wi-Fi and internet network access on campus was scored (M = 1.51, SD =.84); the students showed a strong disagreement with this item.

Likewise, the interview results with one of the instructors (I 3) support the above idea. The interviewee instructor has to say this:

The obstacle is network connectivity. Because I only rely on Wi-Fi, when the light is off, it is enough to make me worried. However, fortunately, the task deadline is a few hours from the time of giving, so when the lights are on, I send the assignments; they are on the internet connection. The internet connection is bad either at home, in internet cafes, or on campus. In the classroom, in face-to-face learning, I rush ahead to cover the portion of the course that might make the students nervous.

3.1.2. Perceptions towards technological knowledge

About instructors' perceptions of technological knowledge, they were supplied with nine various items, and the result is shown in Table 2.

Table 2
Perceptions towards technological knowledge

S/n	Items	Students		instructors	
		M	Std.	M	Std.
1	I can use basic technological terms (operating system, wireless connection, virtual memory) appropriately.	1.68	0.62	1.87	.81
2	I can adjust computer settings, such as installing software and establishing an Internet connection.	1.37	0.63	1.64	.88
3	I can use computer peripherals such as a printer, headphones, and a scanner.	2.86	1.65	4.63	.73

4	I can troubleshoot common computer problems (e.g., printer problems, Internet connection problems, etc.) independently.	2.97	1.67	4.49	.74
5	I can use digital classroom equipment such as projectors and smart boards.	3.06	1.86	4.99	.12
6	I can use office programs (Word, PowerPoint.) with a high level of proficiency.	3.34	1.36	4.56	.50
7	I can create multimedia (e.g., videos, Web pages, etc.) using text, pictures, sound, video, and animation.	1.50	0.59	1.74	.79
8	I can use collaboration tools (wiki, Edmodo, 3D virtual environments, etc.) for my objectives.	1.72	0.55	1.70	.77
9	I can teach software that helps students complete a variety of tasks more efficiently.	1.39	0.60	1.60	.82
Aggregate Mean		2.21	1.06	2.27	.51

As indicated in Table 2, the respondent instructors were asked to judge their perceptions of technological knowledge. The finding indicates that there is low technological knowledge among instructors ($M = 2.27$, $SD = .51$). Concerning the technological knowledge of instructors, half of the items fall in the range of a very low response. Accordingly, four items: ability to teach software that helps students complete a variety of tasks more efficiently ($M = 1.6$, $S.D = .82$), ability to use collaboration tools (wiki, Edmodo, 3D virtual environments) by their objectives ($M = 1.7$, $S.D = .77$), ability to create multimedia (for instance videos, Web pages) using text, pictures, sound, video, and animation ($M = 1.74$, $S.D = .79$), and ability to adjust computer settings such as installing software and establishing an Internet connection ($M = 1.64$, $S=.88$) are rated to fall in the 'very low' range response.

However, four items were rated far higher than the aggregate mean; the instructors expressed their high ability for those items with the rating attached to each item. The items include: ability to use computer peripherals such as a printer, a headphone, and a scanner with ($M = 4.63$, $S.D = .73$); the ability to troubleshoot common computer problems independently with ($M = 4.49$, $S.D = .74$); the ability to use digital classroom equipment such as projectors and smart boards with ($M = 4.99$, $S.D = .12$); and ability to use office programs with a high level of proficiency with ($M = 4.56$, $S.50$).

Similarly, student participants were asked to judge their perceptions of technological knowledge. The finding indicates the overall low technological knowledge of students ($M = 2.21$, $SD =1.06$). Concerning the issue, more than half of the items fall in the range of a very low response. Accordingly, five items: the ability to use technological terms (operating system, wireless connection, virtual memory) appropriately with ($M = 1.68$, $S.D =.62$); the ability to adjust computer settings such as installing software and establishing an Internet connection with ($M = 1.37$, $S.D =.63$); and ability to create multimedia (e.g., video, Web pages) using text, pictures, sound, video, and animation ($M = 1.5$, $SD =.59$), ability to use collaboration tools (wiki, Edmodo, 3D virtual environments) by my objectives ($M = 1.72$, $S.D =.55$) and ability to learn software that helps students complete a variety of tasks more efficiently, with ($M = 1.39$, $S.D =.6$) rated to fall in the 'very low' range of responses.

Additionally, two items were rated higher than the aggregate mean; the students showed their medium ability for those items with the rating attached to each item. The items include the ability to use computer peripherals such as a printer, a headphone, and a scanner ($M = 2.86$, $SD = 1.65$), and the ability to troubleshoot common computer problems independently ($M = 2.97$, $SD =1.67$). Furthermore, two items, the ability to use digital classroom equipment such as projectors and smart boards ($M = 3.06$, $SD = 1.86$), and the ability to use office programs with a high level of proficiency ($M = 3.34$, $SD = 1.36$), were

scored much higher than the aggregate mean; students showed their high ability for those items with the rate attached to each item.

3.1.3. Instructors' Perception of Technological Pedagogical Knowledge (TPK)

Regarding instructors' perceptions towards technological pedagogical knowledge, they were supplied with seven items on Likert-type scales with five-point scales, and the result is shown in Table 3.

Table 3
Perceptions towards technological pedagogical knowledge (TPK)

S/n	Items	Instructors	
		M	Std.
1	I can meet students' individualized needs by using information technologies.	1.96	0.84
2	I can lead students to use information technologies legally, ethically, and safely.	2.64	1.38
3	I can support students as they use technology to develop their higher-order thinking abilities.	1.94	0.68
4	I can manage the classroom learning environment while using technology in the class.	2.73	1.49
5	I can decide when technology will benefit my teaching.	2.53	1.51
6	I can design learning materials by using technology that supports students' learning.	2.21	0.86
7	I can use multimedia, such as videos and Web sites, to support students' learning.	2.76	1.44
Aggregate Mean		2.40	1.17

The perception of instructors towards technological pedagogical knowledge (TPK) is presented in Table 3. As indicated in the table, the overall response shows that the instructors have low technological pedagogical knowledge (M = 2.4, SD =1.17). Even though the responses of the majority of the items were found to be low, some items in the table were rated with a 'medium' response. Instructors' TPK to lead students to use information technologies, their ability to manage the classroom learning environment while using technology in the class, and their ability to use multimedia to support students' learning were among the items for which the respondents rated a medium score (M = 2.64, S.D =1.38), (M = 2.73, S.D = 1.49), and (M = 2.76, S.D = 1.43), respectively.

3.1.4. Perceptions of the benefits of blended learning

Concerning instructors' perceptions towards the benefits of BL, they were supplied with eight various items, and the result is shown in Table 4.

Table 4
Perceptions of the benefits of blended learning

S/n	Items	Students		Instructor	
		M	Std.	M	Std.
1	Blended learning would enhance my teaching experience and GPA.	1.94	0.62	4.77	0.59
3	Teaching and learning would be more effective when I used BL.	4.61	0.50	4.51	0.72
5	Blended learning improves my interaction with my students.	4.33	0.47	4.54	0.72
6	BL helps instructors address individual learning needs.	2.65	0.69	2.19	0.64
7	By using blended learning, I have begun saving time.	1.98	1.12	2.30	0.82

8	Blended learning enhances my motivation and interest to teach and learn.	4.82	0.44	2.40	1.40
Aggregate Mean		3.38	0.64	3.42	0.81

In Table 4, it was attempted to show instructors' perceptions about the benefit of BL. The overall finding of the items indicates that instructors positively perceived the benefits of BL ($M = 3.42$, $SD = .81$). About these items, the respondents did not equally rate their perceptions of the eight items presented to reveal the issue; some items were rated greater than the aggregate mean while the rest were below the grand mean. In line with this, among the eight items, four of them were rated much higher than the aggregate mean of the items, and they fall in the range of 'strongly agree'.

According to this, the benefit of BL is to enhance teachers' teaching experience ($M = 4.77$, $SD = 0.59$), making teaching more difficult if they did not use BL ($SD = 0.72$), and the benefits of BL are to let teachers find more errors using BL than just face-to-face learning ($M = 4.57$, $SD = 0.84$), and BL's benefit improves teachers' interaction with their students. ($M = 4.54$; $SD = .0.72$) were among the items on which the respondent instructors strongly agreed. However, some items like being easy for teachers to create BL with ($M = 2.1$, $SD = 0.75$), being able to address individual learning needs with ($M = 2.19$, $SD = 0.64$), saving time with ($M = 2.3$, $SD = 0.82$), and enhancing teachers' motivation and interest to teach with ($M = 2.4$, $SD = 1.4$) were rated below the grand mean; instructors did not perceive these four items to benefit them.

On the other hand, Table 4 also tried to show students' perceptions about the benefits of BL. The overall finding of the items indicates that students positively perceived the benefits of BL ($M = 3.54$, $SD = .69$). About these items, the respondents did not equally rate their perceptions of the eight items presented to reveal the issue; some items were rated greater than the aggregate mean while the rest were below the grand mean. In line with this, among the eight items, four of them were rated much higher than the aggregate mean of the items, and they fall in the range of 'strongly agree'.

In line with this, the benefit of BL to improve students' interaction in learning ($M = 4.33$, $S.D = .47$), the benefit to enhance student motivation and interest to learn ($M = 4.82$, $S.D = .44$), the benefits of BL to help students pursue their education in the future ($M = 4.47$, $S.D = .51$), and helping to understand the subjects of the courses in a better way ($M = 4.61$, $S.D = .50$) were among items on which the respondent instructors strongly agreed.

However, some items, like the benefits of the BL technique to improve students' grades (GPA) ($M = 1.94$, $SD = 1.08$), the benefits of BL to save time ($M = 1.98$, $SD = 1.12$), and the ability of instructors to address individual learning needs ($M = 2.63$, $SD = 0.69$), were rated below the grand mean; the respondent students did not perceive these three items to benefit them.

Similarly, the interview results also revealed that the blended learning approach has paramount importance in encouraging and enhancing students' participation. For instance, one of the interviewee instructors (I 1) has to say this:

Students are more engaged, and they want to participate. I see my students reaching higher and digging deeper. Before incorporating blended learning, I felt that my students were not motivated to learn. Now, they do not seem to have that glazed look anymore, which is what made me change what I was doing. Just seeing that my students, who are not normally motivated to learn, are participating when I give them online stuff has been amazing. I do not think it is just the technology itself that motivated them, because they are looking at the feedback and trying to understand why they missed something. The interactive learning and engagement appeared to have motivated them. I see them trying harder.

Similarly, another interviewee instructor (I 2) also has to say when he tries to explain its role in raising the student's motivation to learn:

I would say, as far as students go, that blended learning and technology have increased motivation. They are more motivated and interested in it. They like the ability to see things online, and as far as having students say that they see it now; it has made such a difference. The use of Blended Learning makes all students study at the same time, which makes them enthusiastic. Before the new normal, students learned through online classes, so there was very little interaction between students and teachers. However, all students can learn together through blended learning, even in two ways: online and offline.

Thus, blended learning can contribute to students learning certain material through interaction, and the teacher says that by simply accepting it, they become engaged and motivated.

On the other hand, another interviewee teacher also mentioned that blended learning could improve students' collaborative learning. The instructor (I 3) has to say this:

I saw an improvement in collaboration among my students when I started incorporating blended learning. My kids are engaged in talking to each other when they are working in small groups or with a partner. They were not just talking to socialize; they were talking about the work they were doing. Students were also stepping up to help other students. They also like to help each other and seem to do it nicely.

It is clear that when the students use the blended learning approach, many of them support each other in class when they need help with something.

3.1.5. The challenges of blended learning

About instructors' perceptions of technological knowledge, they were supplied with six various items, and the result is shown in Table 5.

Table 5

The challenges of blended learning

S/n	Items	M	Std.
1	Training learners and teachers in technological tools	3.97	1.25
2	Teachers' increasing workload	4.00	1.15
3	Learners' educational backgrounds do not permit effective use of BL.	4.04	1.11
4	Not suitable for all learning styles.	3.80	1.29
5	No access to an internet connection.	3.49	1.30
6	Blended learning frustrates me.	1.69	0.67
Aggregate Mean		3.63	1.36

Table 5 summarizes instructors' perceptions of the challenges of BL. The finding indicates that respondents generally agreed with the challenges of BL (M = 3.63, SD =1.36). Concerning these items, five out of the six items presented to assess the perceptions of the BL were rated agree'. However, one item, which is intended to reveal if BL frustrates teachers, is rated as strongly agree. Frustration with BL was not considered a challenge to implement BL by the instructors; they strongly disagreed with the items (M = 1.69 and SD =.67).

Similarly, student participants were requested to rate their agreement or disagreement on the set of challenges, and the result is summarized and presented in Table 6 below.

Table 6

Students' perceived challenges of BL

S/n	Items	M	Std.
1	Slow internet connectivity is a problem for Blended learning.	4.25	0.69
2	My teachers do not reply to my emails quickly.	4.36	0.86
3	Blended learning materials aren't well organized.	4.25	0.85
4	The instructor isn't on time for all activities.	4.01	1.14
5	Blended learning is frustrating to use.	1.88	0.81
6	Blended learning instructions are not easy to follow.	4.26	0.94
7	I find Blended learning difficult to do.	4.21	0.94
8	The learning process in Blended learning has become less effective.	2.21	0.97
Aggregate Mean		3.65	0.9

Table 6 summarizes the self-report of respondent students' perceptions towards the impressions of BL. The finding indicates that respondents generally agreed with the challenges of BL ($M = 3.65$, $SD = 0.9$). On this issue, the respondents did not equally rate their perceptions of the twelve items presented to reveal the issue; some items were rated higher than the aggregate mean while the rest were below the grand mean. In line with this, among the twelve items, five of them were rated much higher than the aggregate mean of the items, and they fall in the range of 'strongly agree'. Accordingly, the findings show that slow internet connectivity is a problem for BL with ($M = 4.25$, $SD = .69$), teachers' reluctance to reply to students' emails quickly with ($M = 4.36$, $SD = .86$), lack of organization of BL learning materials with ($M = 4.25$, $SD = .85$), difficulty following BL instructions with ($M = 4.26$, $SD = .94$), and difficulty doing BL with ($M = 4.21$, $SD = .94$) rated above the grand mean of this item; the respondents strongly agreed to these items being considered as challenges. However, frustration with BL and ineffectiveness with BL were not considered challenges by the students; they disagreed with the items with $M = 1.88$, $SD = .81$, and $M = 2.21$, $SD = .97$, respectively.

Similarly, the qualitative data collected through interviews with the teachers also supports the above idea. One of the major challenges that affects teachers' and students' use of the blended learning approach in the classroom is the problem of internet connection. For instance, one of the interviewee instructors (I 2) explained this in the following way:

In this university, I do not know why the internet network is bad, which is why sometimes I get into trouble when I want to finish some tasks related to BL. The difficulties come first because I send assignments via telegram, so it needs a network. Secondly, for example, after the students work on a given assignment, when I want to give feedback, it is usually a slow response. Actually, in the absence of an adequate internet connection, everyone prefers face-to-face learning.

4. DISCUSSION

The first research question was intended to reveal the perceptions of instructors and students towards facilities, technological knowledge, technological pedagogical knowledge, and the benefits of BL approaches at Jimma University. About one of the themes of this research question, instructors' and students' perceptions towards the availabilities of facilities, this study has shown that instructors and students generally disagree about the availability of facilities to implement BL. This result shows that the inadequacy of facilities is a serious problem in implementing BL in the university studied, as per the perceptions of the instructors. Particularly, the provision of the necessary support and resources on how to implement BL was rated below the grand mean.

Substantiating the above result, scholars such as Lozano-Lozano et al., (2020) and Pierce (2017) confirmed in their study that the lack of availability of different resources and facilities, such as internet

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access, was a problem preventing blended learning implementation, while support, one-to-one initiatives, and professional development allowed for successful implementation.

Another theme of the first research question was intended to disclose instructors' and students' perceptions of their technological knowledge. Accordingly, it had been shown that instructors and students in the studied area had low technological knowledge. Some items, like the ability to teach software, the ability to use collaboration tools, the ability to create multimedia using text, pictures, sound, and video, and the ability to adjust computer settings such as installing software and establishing an internet connection, were perceived to be very low by the instructors. In the same manner, the respondent students revealed low technological knowledge in areas like the ability to use technological terms appropriately, the ability to adjust computer settings, the ability to create multimedia, the ability to use collaboration tools, and the ability to learn software that helps students complete a variety of tasks more efficiently. This finding is consistent with the previous study results by Lam (2015) which indicates a lack of technological knowledge is one major hindering factor in the implementation of blended learning approaches.

Moreover, the perception of instructors towards technological pedagogical knowledge (TPK) was highlighted in research question one of this study. Hence, the overall responses of the respondents show that the instructors have low technological pedagogical knowledge. Even though the responses of the majority of the items were found to be low, some items in this theme received a medium response. Instructors' TPK to lead students to use information technologies, their ability to manage the classroom-learning environment while using technology in the class, and their ability to use multimedia to support students' learning were among the items for which the respondents gave a medium score. This finding is in line with the previous findings revealed by Vereshchahina et al., (2018).

The fourth issue treated in the research question was about instructors' and students' perceptions of the benefits of a blended learning approach. Regarding this, the respondent instructors perceive the positive impacts of the approaches in various ways. Accordingly, it has been shown to have a significant positive impact on enhancing teachers' teaching experiences, easing the teaching and learning process for teachers, and improving teachers' interactions with their students. In the same vein, the respondent students demonstrated positive perceptions of the benefits of blended learning. Accordingly, the respondent students positively perceived the blended learning approach as improving their interaction in the learning process, enhancing student motivation and interest to learn, helping students pursue their education in the future, and helping them understand the subjects of the courses in a better way. Supporting the above idea Law et al., (2019), in their study, showed that BL can have a lot of benefits for the students, such as increasing their engagement and motivation and making them excited and more passionate about learning (Lozano-Lozano et al., 2020; Pierce, 2017).

The second research question of this study was intended to reveal the perceived challenges of using a blended learning approach at Jimma University. On this issue, data from respondent instructors and students' questionnaires generally confirmed the existence of various challenges in using BL. The instructors highlighted challenges such as teachers' increasing workload, lack of access to internet connections, non-compliance of learners' educational backgrounds to permit effective use of BL, and non-suitability of the approach for all learning styles. In the same manner, respondent students also confirmed the prevalence of various challenges like slow internet connectivity, a lack of organization of blended learning materials, and a lack of IT knowledge.

Moreover, the interview results conducted with instructors exposed almost similar challenges in the use of BL. The respondents all complained about the internet network problems on campus. Instructors

were criticized for having trouble finishing some tasks related to BL. Actually, in the absence of an adequate internet connection, as stated by the interviewee, everyone prefers face-to-face learning. Moreover, the frequent interruption of electric power was also mentioned as a challenge to implementing BL. Lack of support from the campus with the necessary resources on how to implement BL and a shortage of functioning personal computers are also among the perceived challenges of BL by the instructors. Referring to the challenges of using a blended learning approach, the current study is in line with some previous research that revealed the challenges of using BL. Other technical issues, such as insufficient network stability, might hinder students from learning successfully (Kenney & Newcombe, 2011).

5. CONCLUSION

Based on the major findings of the study, the following conclusions were drawn:

How people perceive an object or event influences how they approach it. By the same token, teachers' perceptions do play an important role in any kind of initiative that will be embarked on to promote student learning, as unless teachers believe in the effect of an approach, method, or technique, expect success from the employed approaches or methods does sound irrational. Accordingly, from this study, both instructors and students believe that the blended learning approach has a positive impact on improving their interaction in the learning process, enhancing student motivation and interest to learn, helping students pursue their education in the future, and helping them understand the subjects of the courses in a better way. This implies that there was no resistance on the part of teachers or students. Teachers and students were ready to implement BL.

From this study, it is also clear that both students and instructors confirmed that there are inadequate facilities, lack of technological knowledge, and teachers have low awareness of technological pedagogical knowledge to implement blended learning. From this, it can be concluded that the university instructors and students studied do not implement a blended learning approach. In other words, due to some factors, such as a lack of facilities and technological knowledge, the new pedagogical innovation is not implemented in the study university, or it is neglected regardless of its usefulness for students learning.

The major challenges identified by instructors and students are teachers' increasing workload, lack of access to internet connections, non-compliance of learners' educational backgrounds to permit effective use of BL, non-suitability of the approach for all learning styles, slow internet connectivity, lack of organization of blended learning materials, and lack of IT knowledge. From this, it can be deduced that the challenges emanated from facilities, knowledge about technology, and the suitability of materials to the students' needs. Therefore, these challenges hindered both instructors and students from getting the expected benefits because of the new pedagogical innovation in the university, as well as making it difficult to inculcate students with 21st-century skills.

6. RECOMMENDATIONS

To implement the blended learning approach at the university and achieve the intended objectives, it is advisable to take the following measures:

- The availability of facilities is indispensable to appropriately implementing a blended learning approach. Therefore, the concerned university officials should give thoughtful attention to the provision of the necessary facilities to implement BL. Instructors' and students' technological knowledge is crucial in implementing a blended learning model. Thus, the concerned university officials should design appropriate training and capacity-building programs for university instructors and students to increase students and instructors' knowledge and skills in technology use. Similarly, the Technological and

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pedagogical knowledge of instructors plays a vital role in inculcating students with the necessary training and support for instructors, which should deserve due attention from university officials.

- The success of any instructional approach begins with the teacher, so it is critical to establish ongoing professional development focused on blended learning pedagogy, especially in the area of managing and sustaining a student-centered learning environment.
- Finally, the writer recommends more detailed and comprehensive studies in the same area to investigate and further strengthen the practices of BL.

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