Investigating User Acceptance of Blended Learning at University Level: A Cross-Sectional Study

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ABSTRACT

The application of blended learning in higher education, facilitated by learning management systems has a significant importance, but a significant gap exists in understanding user acceptance dynamics. This study addresses this gap by examining blended learning acceptance in Pakistani higher education, utilizing a technology acceptance model framework. A blended course was implemented with 48 undergraduate students at the University of Turbat, employing a quantitative cross-sectional approach for data collection. The findings highlight factors influencing blended learning acceptance, recommending the creation of user-friendly systems to enhance Perceived Ease of Use. Additionally, leveraging teachers' influence and fostering peer support are suggested to increase adoption rates. The study underscores the importance of comprehensive training for educators and students to boost their self-efficacy and technical skills, ultimately reducing reluctance toward adopting blended learning.

Keywords: *Blended Learning, User Acceptance, User Perception of Blended Learning, Blended Learning Acceptance, Technology Acceptance Model*

INTRODUCTION

Blended Learning

Blended learning is a pedagogical method that blends traditional face-to-face learning with online learning, creating a more flexible and personalized learning experience through the integration of digital resources and activities with traditional classroom teaching. The concept aims to combine in-person learning with technological tools to enhance the learning experience of students. While traditional modes of knowledge delivery focus on face-to-face interactions between teachers and students, modern modes prioritize the use of technology to support and enhance education (Muhammad Saad, 2023).

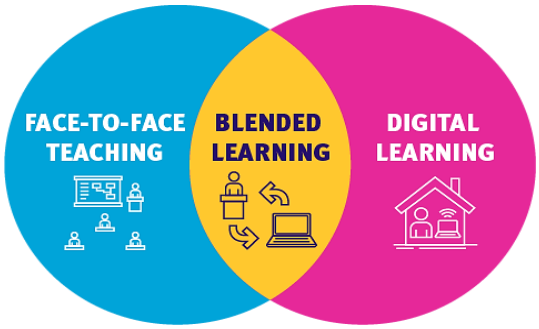


Figure. 1 Blended learning mode

Source: Blended Learning - Mill Dam School Ackworth

This approach has gained popularity in educational institutions worldwide due to its improved flexibility for students, promoting engagement through a variety of learning activities and technologies, and cost-effectiveness by reducing the need for physical classroom space and materials (Bralić & Divjak, 2018; Doris U. Bolliger & Elizabeth Anne Erichsen, 2013; López-Pérez, Pérez-López, & Rodríguez-Ariza, 2011).

Benefits and Challenges of Blended Learning

Blended learning has gained popularity in recent years due to its potential to enhance the learning process. Blended learning offers flexibility in terms of time, place, and pace. It enables personalized learning to fulfill the learning needs of individuals with different characteristics (D. R. Garrison & Kanuka, 2004). Blended learning proved to be an effective learning mode that enhances the engagement, motivation, and performance of the learners (H Singh & Reed, 2001). One of the benefits of blended learning is its capability to facilitate the development of collaboration, critical thinking, and problem-solving skills. It offers interaction among learners and teachers in a variety of ways hence promoting active learning (Vaughan et al., 2013).

Despite the benefits the blended learning has, this learning mode presents some key challenges. One of the considerable challenges is the need for careful design and implementation of an instructional strategy that balances the different components of the learning experience (Graham, 2004a). The requirement for significant resources and efforts for effective integration of blended learning is another key challenge for the institutions (Dziuban, Graham, Moskal, Norberg, & Sicilia, 2018).

In addition, this learning mode requires learners to have a certain level of self-efficacy and self-regulated skills, which can be a challenge for certain students. (Means, Toyama, Murphy, Bakia, & Jones, 2010). Furthermore, due to its complex nature, the assessment of the effectiveness of this learning mode can also be a challenge (Picciano G. Anthony, 2013).

Problem Statement

To provide flexible and personalized learning experiences, the higher education institutions in Pakistan have initiated to adopt the blended learning approach. The successful implementation of a technology largely depends on the perception and acceptance of its users. The implantation of blended learning through a learning management system within higher education is a critical consideration (D. R. Garrison & Kanuka, 2004). As higher education with a growing prominence on technology is continuously evolving, understanding user acceptance becomes predominant (Dziuban et al., 2018). User acceptance dynamics within this context need to be investigated

particularly in Pakistani higher education institutions. Therefore, this research examines the user perception of technology acceptance and investigates the factors that significantly influence the acceptance of blended learning systems. Using the Technology Acceptance Theory (TAM) as the base theory, this study delves into the details of user acceptance (Davis, 1989). This study seeks to contribute to the current discourse surrounding technology-enhanced learning in modern educational settings.

Research Objectives

1. To explore the user perception of technology acceptance for the implementation of blended learning at the University of Turbat, Pakistan.
2. To investigate the factors that influence user acceptance of blended learning technology at the University of Turbat, Pakistan.

Research Questions

1. What is the level of user perception of technology acceptance for the implementation of blended learning at the University of Turbat, Pakistan?
2. What factors influence user acceptance of blended learning technology at the University of Turbat, Pakistan?

The Rationale of the Study

This research aims to contribute to the literature to fill a critical gap in understanding the acceptance of blended learning in the context of higher education in Pakistan, focusing on the University of Turbat. Although, blended learning is a popular learning mode with the potential to support personalized learning experiences. Its success heavily relies on the acceptance of learners. Utilizing the prominent technology acceptance theory TAM as the base theory (Davis, 1989; Viswanath Venkatesh, Michael G. Morris, Gordon B. Davis, & Fred D. Davis, 2003), this study seeks to explore learner perception and identify important influencing factors contributing the system acceptance. Ultimately, the study aims to present valuable insights into the effective implementation of the blended learning system, providing practical recommendations for educators, administrators, and policymakers in the ever-evolving landscape of higher education (Ally, 2008; Dziuban et al., 2018).

LITERATURE REVIEW

History of Blended Learning

The online learning mode came into existence with the prevalent availability of computers and the Internet in the 1990s. during that period it was initially used as a standalone learning mode. However, as online learning uses increased, researchers and educators started to explore ways to integrate online learning with traditional face-to-face learning to form more flexible and personalized learning experiences. This intended blend of online learning with traditional learning resulted in the origin of the blended learning approach (Picciano G. Anthony, 2013).

The term “blended learning” was first introduced in the late 1990s and was primarily defined as "the combination of different delivery modes, media, and approaches in a learning environment" (Bonk & Graham, 2006). With the passage of time and the evolution of technologies, the concept of blended learning has also gone over evolutions and several new definitions and

models have been proposed for blended learning (Bonk & Graham, 2006; D. R. G. Garrison & Vaughan, 2012).

Blended Learning Models

Implementation of blended learning can be a challenging job owing to its flexible nature and availability of multiple strategies and technologies. To provide a clarity of structure, this study emphasizes the basic six models of blended learning.

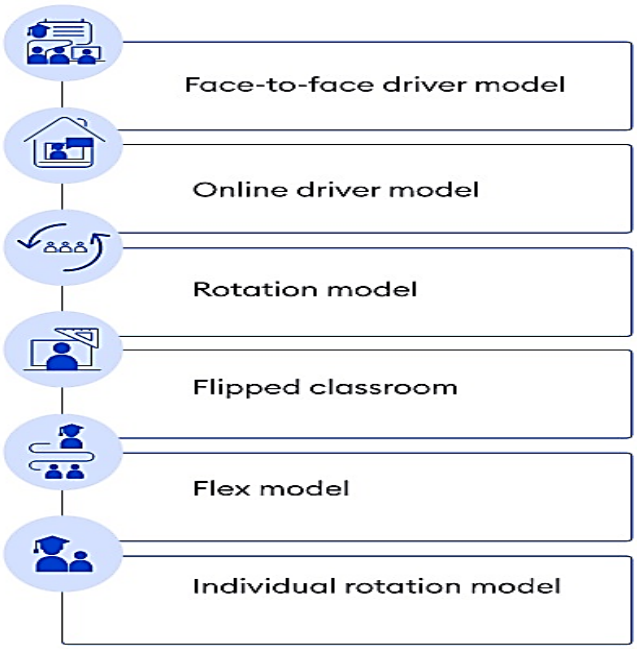


Figure. 2 Blended learning models

Source: [What is Blended Learning? Types, Examples & Tools (ispringsolutions.com)]

1) The Face-to-Face Driver Model: This blended learning model looks similar to a traditional educational setup with the integration of online personalized instructions. It primarily aims to support struggling students in exceeding their grade level and progressing at their own pace with supportive classroom technologies.

2) The Rotation Model: This model involves learners' rotation between selected stations to study online or receive individualized instructions from the instructors. This method is commonly applied in elementary schools where students are customary to switching between stations.

3) The Flex Model: This blended learning model is employed in schools having a large number of non-traditional or at-risk students. Applying this approach, instruction is mostly delivered online, and students have a significant degree of autonomy in their learning additionally, teachers provide support on the spot whenever the learners need it.

4) The Online Lab Model: This approach is used by schools that have limited resources; students learn entirely online but complete coursework in a designated computer lab. By adopting this approach, the institutions offer a wide range of courses instead of hiring more

teachers they utilize the lab. Additionally, students have the flexibility to study at their own pace without disturbing the learning environment of their peers.

5) The Self-Blend Model: Implementation of this model is common in high schools. In this approach, the learners attend face-to-face classes, and online learning is used to augment the education. This method is suitable for students who are highly self-motivated and looking to take advanced placement courses or other courses not covered in the academic curriculum.

6) The Online Driver Model: This model offers a distinctive learning experience. This approach uses online platforms as the main sources for course content and allows the completion of courses from any location. It enables online communication for inquiries and in-person check-ins are not required. This approach suits the students who require flexibility in their schedule of learning.

("6 Models of Blended Learning," 2013; Disha Gupta, 2021; Helga Kolinski, 2022; Judy Thompson, 2016)

Theoretical Framework of the Study

This study employs the Technology Acceptance Model proposed by Davis in 1989 (Davis, 1989) and revised by Venkatesh and Davis in 2000 (Venkatesh & Davis, 2000), as the theoretical framework for this investigation. The TAM is a prominent technology acceptance theory extensively employed by researchers to investigate user acceptance and use of technologies including the context of education (DigitalCommons, All Graduate Theses, & Kuo, 2010). In TAM, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are the key determinants of user acceptance and use behavior (Davis, 1989).

In the context of blended learning in higher education, many studies have applied TAM to examine the usage and acceptance behavior of the users. The findings suggest that both PU and PEOU significantly affect user attitudes and intentions to use blended learning DigitalCommons et al., 2010). Therefore, the TAM comprehensively examines the various factors that influence user utilization and acceptance of blended learning systems in higher education. By employing the technology acceptance model, we can better identify the causal factors and identify strategies to effectively implement blended learning systems in educational settings.

Research Model and Hypotheses Development

After an in-depth literature survey, a research model based on the TAM was developed to investigate the acceptance of the blended learning system by potential users.

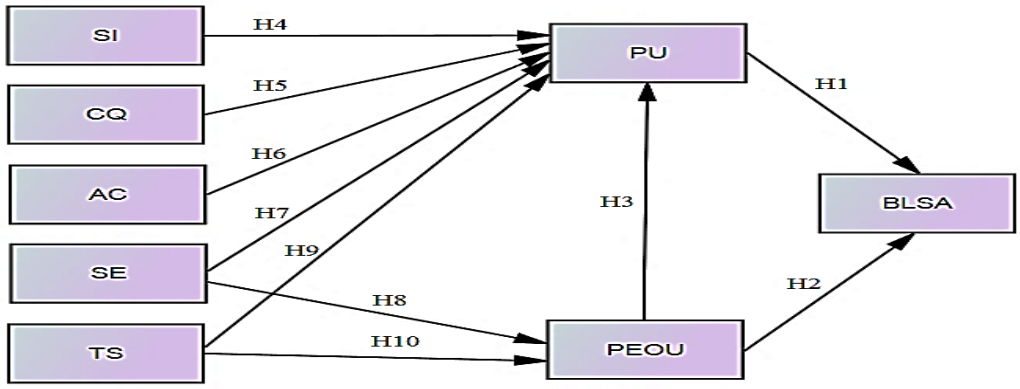


Figure. 3 Blended Learning System Acceptance Model

Based on the literature review, the proposed model hypothesizes the following:

H1: PU positively influences BLSA.

Perceived Usefulness is a key determinant of technology adoption, where users believe that technology will improve their performance. In the case of blended learning, students will accept and use (Blended Learning System Acceptance (BLS) when they perceive it as beneficial to their learning outcomes.

H2: PEOU positively influences BLSA.

H3: PEOU positively influences PU.

Perceived Ease of Use refers to the level of effort that users believe will be required to use the technology. PEOU significantly influences technology acceptance, both directly and indirectly through its influence on PU. In the context of blended learning, students will perceive BLS as useful if they believe it is easy to use.

H4: SI positively influences PU.

Social influence (SI) reflects the user's perception that important social referents, such as teachers, parents, or peers, think that the user should adopt a system. In the case of blended learning, if a teacher recommends BLS to a student, they are more likely to perceive it as useful for learning.

H5: CQ positively influences PU.

Content Quality (CQ) is an important predictor of user satisfaction and acceptance of a system. This construct represents user satisfaction with the quality of relevant course content. In blended learning implemented with a learning management system, users have direct and timely access to useful and updated content, which impacts users' perception of the usefulness of the system.

H6: AC positively influences PU.

System Accessibility (AC) represents the convenience and ease of use with which users access a system. In a blended learning system, users are more likely to perceive the system as useful when it is easily accessible to them.

H7: SE positively influences PU.

H8: SE positively influences PEOU.

Self-efficacy refers to the user's belief in their capabilities in effectively utilizing a system. This construct is a crucial determinant of the perceived usefulness and perceived ease of use of a system. In a blended learning system, learners' belief in their abilities influences their perception of the system's usefulness and easiness of use.

H9: TS positively influences PU.

H10: TS positively influences PEOU.

Technical Support (TS) relates to users' belief about the presence of a technical infrastructure within a domain to aid the usage of a system. This support encompasses training, and prompt assistance and guidance. In a blended learning system, when learners perceive the accessibility of technical support, they are inclined to view the system as both useful and easy to use.

RESEARCH METHODOLOG

Design and Characteristics of the System

This study utilizes the face-to-face driver model of blended learning. This particular model works ideally in classroom settings where traditional teaching methods are prioritized, and technology plays a supportive role in enhancing the learning process. By smoothly combining technology with physical instruction, this model takes the learning experience to the next level, enabling students to engage with course material diversely. This model has been tried and tested in fostering students' active participation and boosting their success rate, and it has thus gained acceptance in various educational settings, including K-12 schools and higher education (D. R. G. Garrison & Vaughan, 2012; Graham, 2004b; Harvey Singh, 2003).

Research Design

The study aimed to assess how the users accept the blended learning mode. The blended learning mode was implemented using the Moodle-based learning management system. By applying a cross-sectional methodology data was collected from BS (Computer Science) students at the University of Turbat, Balochistan, at the end of the blended learning courses.

Sampling Techniques

The purposive sampling method was applied to select the sample of the study. This method allows the selection of the participants based on their availability and willingness to participate in a study. The selected sample consisted of an entire class of 48 undergraduate students who participated in the study. To implement blended learning, a Moodle-based LMS named the Baloch LMS was designed.

Figure. 4 Blended learning system

A course, Introduction to Computing (ITC) was designed within the Baloch learning management system, and the study participants were enrolled in the course.

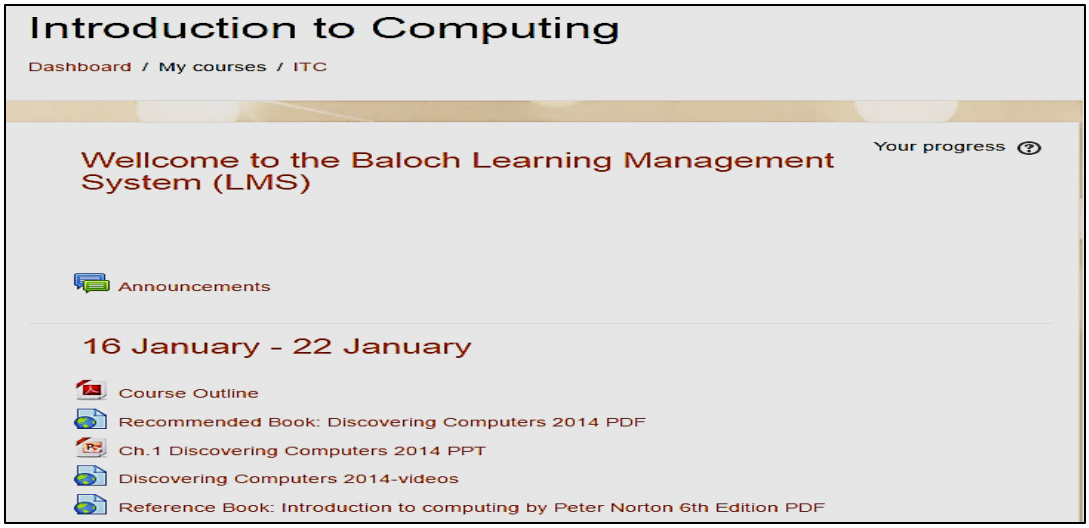


Figure. 5 ITC Course Contents in the LMS

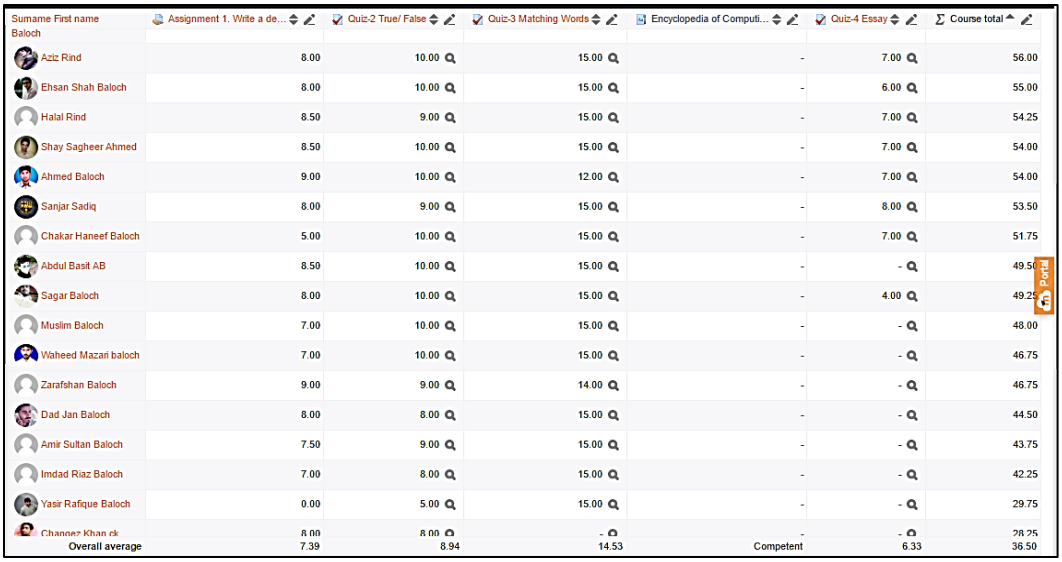
Keeping in mind to maintain the effectiveness of the system, the course was designed to be user-friendly and convenient for first-time users. The course contents were analyzed thoroughly to design an effective hybrid course in the following way;

Table 1. Blended Learning Course Design

Online	**Face to Face**
Calendar	Lectures
Announcements	Book
Electronic Book	Daily Class
PowerPoint	Attendance
Presentations	Term Exams
Study Notes	
Video Lectures	
Assignments	
Quizzes	
Glossary of Terms	
Discussion Forum	
Chat	
URLs to external websites	
GradeBook	

When inquired the participants reported to be inexperienced with such systems, they were essentially provided hands-on practical training in the computer lab to effectively utilize the system. The technical support was made available throughout the intervention. For this purpose, the researcher provided his email id and the chat tool was enabled for instant queries and answers. Further, the mobile application of the LMS was also configured to be utilized.

The points and grades served as incentives. They were either awarded by the system or by the teacher. The obtained incentives were automatically recorded to the gradebook which was configured to be visible to the students to show their progression in the study course.



Surname First name Baloch	Assignment 1. Write a de...	Quiz-2 True/ False	Quiz-3 Matching Words	Encyclopedia of Computi...	Quiz-4 Essay	Course total
Aziz Rind	8.00	10.00	15.00	-	7.00	56.00
Ehsan Shah Baloch	8.00	10.00	15.00	-	6.00	55.00
Halal Rind	8.50	9.00	15.00	-	7.00	54.25
Shay Sagheer Ahmed	8.50	10.00	15.00	-	7.00	54.00
Ahmed Baloch	9.00	10.00	12.00	-	7.00	54.00
Sanjar Sadiq	8.00	9.00	15.00	-	8.00	53.50
Chakar Haneef Baloch	5.00	10.00	15.00	-	7.00	51.75
Abdul Basit AB	8.50	10.00	15.00	-	-	49.50
Sagar Baloch	8.00	10.00	15.00	-	4.00	49.25
Muslim Baloch	7.00	10.00	15.00	-	-	48.00
Waheed Mazari baloch	7.00	10.00	15.00	-	-	46.75
Zarafshan Baloch	9.00	9.00	14.00	-	-	46.75
Dad Jan Baloch	8.00	8.00	15.00	-	-	44.50
Amir Sultan Baloch	7.50	9.00	15.00	-	-	43.75
Imdad Riaz Baloch	7.00	8.00	15.00	-	-	42.25
Yasir Rafique Baloch	0.00	5.00	15.00	-	-	29.75
Changez Khan ck	8.00	8.00	-	-	-	28.25
Overall average	7.39	8.94	14.53	Competent	6.33	36.50

Figure. 6 Gradebook of the LMS

Data Collection Methods

At the end of the blended learning experiment, data was collected from the participants through a well-structured questionnaire that comprised close-ended Likert scale questions. The data collection process through a questionnaire was administered to the participants in a face-to-face setting.

Research Instruments

The instrument utilized in the study comprised three sections. The first section contained instructions for the respondents on how to fill out the questionnaire. The second section comprised demographical information of the participants including age, gender, and qualification. The third section contained 24 Likert-style 5 scale rating questions adapted from previous studies relating to technology acceptance (Lee, 2006; S. S. Liaw, 2008; Rym, Olfa, & Mélika, 2013). These questions were intended to measure the various constructs of the study.

Data Collection

After the completion of the course using the blended learning system, the developed questionnaire was distributed among the test users to gather their feedback on their experience with the system. Out of 48 students, 43 voluntarily provided feedback on the system usage.

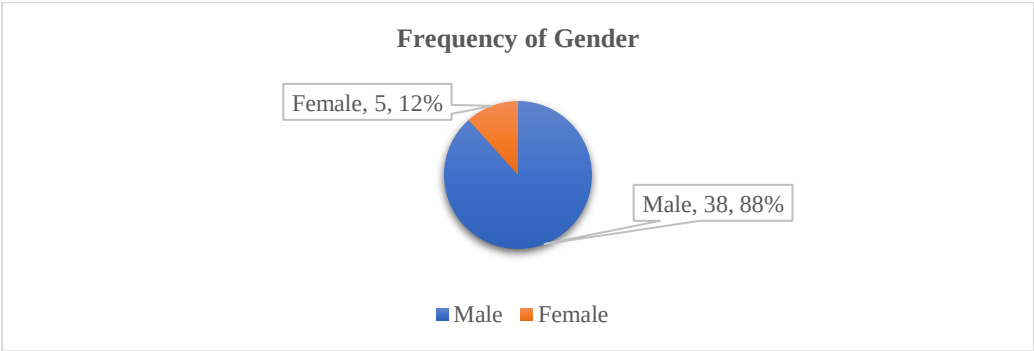


Figure. 7 Gender-wise Distribution of Respondents

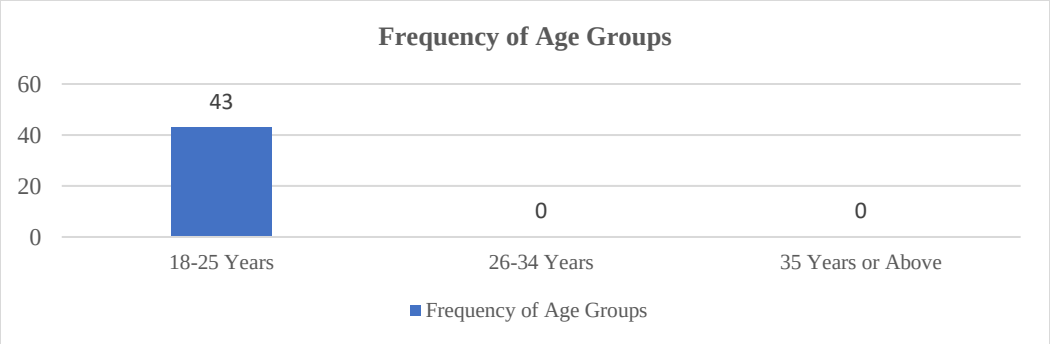


Figure. 8 Age-wise Distribution of Respondents

Data Analysis

The data collected were carefully analyzed using the Statistical Package for the Social Sciences (SPSS) to provide insightful descriptive analysis. The data were also analyzed using path analysis in the Analysis of Moment Structures (AMOS) to test the research hypotheses.

RESULTS AND DISCUSSION

Instrument Reliability

Reliability is a measure of consistency in the scores obtained. Cronbach's Alpha is a statistical measure of the internal consistency of a scale, indicating the level to which all the items of a scale measure the same idea.

The current study adapted the questionnaire items from previous research studies relating to user acceptance of technologies to represent the constructs of the theoretical framework (Lee, 2006; S. S. Liaw, 2008; Rym et al., 2013).

Further, the internal consistency of these items was assessed through the Cronbach's alpha statistical technique. This analysis produces a Cronbach's alpha value from 0 to 1. A value of 0.7 or higher is generally acceptable while in certain cases a value of 0.6 is also acceptable (Robert F. DeVellis, 2017).

Table 2. Instrument Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.862	24

The Cronbach's alpha analysis was performed using IBM SPSS analysis tool, the analysis produced a Cronbach's alpha value of 0.862. This determined the reliability of the measurement instrument.

Descriptive Analysis

Descriptive analysis is a statistical method used to describe the basic characteristics of data. Descriptive analysis produces a comprehensive summary of the data represented in the quantitative form as tables or in visual form as charts and graphs. This method simplifies a large amount of data into a clear and meaningful summary.

In the initial stage of data analysis, the descriptive analysis of the data was performed using the SPSS software. This helped to summarize the data and provide a valuable understanding of the sample characteristics.

Table 3. Item-wise Descriptive Analysis Statistics

Items	Mean	SD
SE1 I can easily find information in the BLS.	4.907	.2939
SE2 I can easily interact with course members in the BLS.	4.860	.3506
SE3 I feel confident using the BLS.	4.651	.4822
SE4 I have the necessary skills for using the BLS	4.791	.4116
SI1 My teachers think that I should use the BLS.	4.953	.2131
SI2 Blended learning is important for higher education.	4.953	.2131
SI3 Blended learning is important for future jobs.	4.977	.1525
AC1 I have no difficulty accessing the BLS at the university.	4.953	.2131
TS1 Necessary instructions to use the BLS are available.	4.744	.4415
TS2 Technical help to use the BLS was available.	4.884	.3244
CQ1 The contents of the BLS are updated regularly.	4.884	.3244
CQ2 The contents of the BLS are useful.	4.907	.2939
PU1 Using the BLS improves my learning performance.	4.977	.1525
PU2 Using the BLS increases my learning productivity.	4.907	.2939
PU3 Using the BLS gives me control over my learning.	4.814	.3937
PEOU1 It is easy to learn how to use the BLS.	4.814	.3937
PEOU2 It is easy to become skillful at using the BLS.	4.860	.3506
PEOU3 It is easy to accomplish tasks with the BLS.	4.744	.4415
PEOU4 My interaction with the BLS is clear and understandable.	4.977	.1525
PEOU5 I find the BLS to be easy to use.	4.953	.2131
BLSA1 Studying through blended learning is a good idea	4.977	.1525
BLSA2 I will get blended learning courses in the future.	4.744	.4415
BLSA3 I am satisfied with the functionalities of the BLS.	4.744	.4415
BLSA4 I strongly recommend others to use the BLS.	4.977	.1525

The statistics of descriptive analysis suggest a significant level of user satisfaction pertains to the implementation of blended learning in higher education. The obtained mean scores ranging from 4.651 to 4.977 highlight a consistently high level of satisfaction in addition, the standard deviation values ranging from .1525 to 4822 highlight minimal variations in user perceptions.

Overall, these findings strongly endorse the effectiveness of blended learning as a well-received and promising pedagogical approach within the higher education landscape.

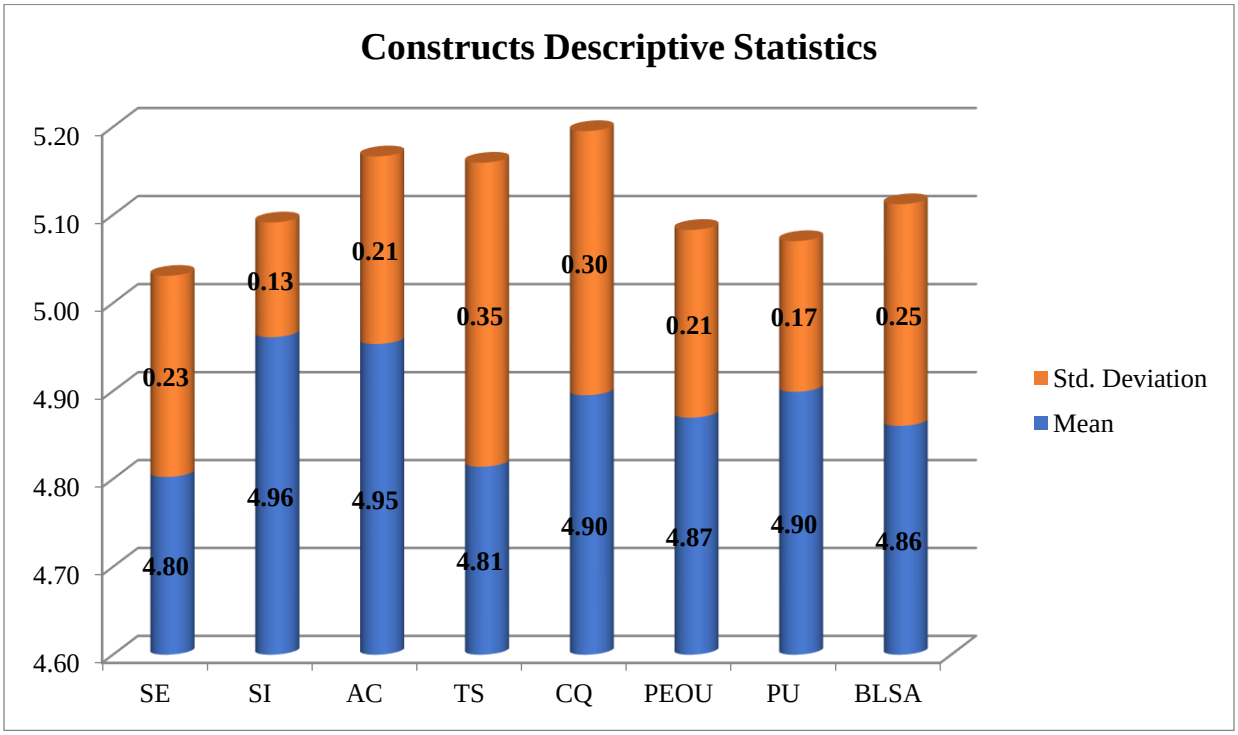


Figure 9. Construct-wise Descriptive Statistics

Overall, the findings demonstrate strong levels of consent across all constructs, as evidenced by the consistently high mean scores ranging from 4.96 to 4.80, well above the midpoint of 2.50. Moreover, the aggregate mean score of 4.88 further emphasizes the overwhelmingly positive evaluation of all constructs. The standard deviation scores, ranging from 0.35 to 0.13 suggest minimal variation in the respondents' ratings, indicating a harmonized consensus on the diverse constructs under investigation.

These findings align with prior research which has reported significant levels of satisfaction with blended learning systems(S.-S. Liaw, Huang, & Chen, 2007; Russell T. Osguthorpe & Charles R. Graham, 2003). The high mean scores for items related to the importance of blended learning for higher education and future jobs are also consistent with the increasing popularity and use of blended learning in educational institutions (D. R. Garrison & Kanuka, 2004).

Path Analysis

Path analysis also referred to as causal modeling, is a widely used form of structural equation modeling that allows researchers to test the relationships among multiple variables simultaneously.

The path analysis was conducted using the Amos 23 software, which is a commonly used program for SEM (Barbara M. Byrne, 2016). Maximum likelihood estimation was selected to estimate the path coefficients. The results of path analysis are useful for examining the strength and direction of relationships between variables, as well as for testing hypotheses about the mechanisms that underlie these relationships (Rex B. Kline, 2015).

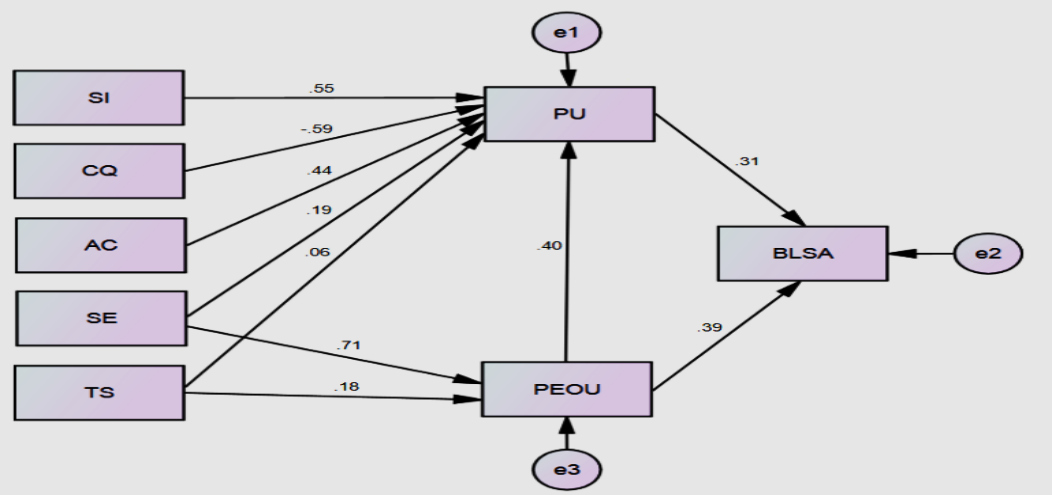


Figure 10. Path Analysis Estimates

The statistics of path analysis confirm that Perceived Usefulness positively influences Blended Learning System Acceptance (Davis, 1989). The obtained coefficient of 0.31 states that a one-unit increase in PU causes a 0.31-unit increase in BLSA. Similarly, Perceived Ease of Use positively influences Blended Learning System Acceptance (Davis, 1989). The obtained coefficient of 0.39 states that a one-unit increase in PEOU causes a 0.39-unit increase in BLSA. Further, Perceived Ease of Use positively influences Perceived Usefulness (Davis, 1989). The obtained coefficient of 0.40 indicates that a one-unit increase in PEOU causes a 0.40-unit increase in PU. Moreover, Social Influence positively influences Perceived Usefulness (Viswanath Venkatesh et al., 2003). The obtained coefficient of 0.55 indicates that a one-unit increase in SI causes a 0.55-unit increase in PU. Moreover, Content Quality negatively influences Perceived Usefulness (Bhattacherjee, 2001). The obtained coefficient of -.59 indicates that a one-unit increase in CQ causes a 0.59-unit decrease in PU. Furthermore, Accesibility positively influences Perceived Usefulness (Viswanath Venkatesh et al., 2003). The obtained coefficient of 0.44 indicates that a one-unit increase in AC causes a 0.44-unit increase in PU. Furthermore, Self-efficacy positively influences Perceived Usefulness (Compeau & Higgins, 1995). The obtained coefficient of 0.19 indicates that a one-unit increase in SE causes a 0.19-unit increase in PU. Furthermore, Self-efficacy positively influences Perceived Ease of Use (Bandura, 1978). The obtained coefficient of 0.71 indicates that a one-unit increase in SE causes a 0.19-unit increase in PEOU. This is the strongest recorded effect among all the relationships in this study. Furthermore, Technical Support positively influences Perceived Usefulness. The obtained coefficient of 0.06 indicates that a one-unit increase in TS causes a 0.06-unit increase in PU. Additionally, Technical Support positively influences Perceived Ease of Use. The obtained coefficient of 0.18 indicates that a one-unit increase in TS causes a 0.18-unit increase in PEOU.

Overall, these empirical results indicate that PU, PEOU, SI, AC, SE, and TS are key predictors of blended learning system acceptance.

Model Fit

Structural Equation Modelling is a popular method for researchers across various disciplines. One of the key aspects evaluated in SEM is the model fit, which assesses how well a model represents the data. During the path analysis in Amos, the model was tested for fit using

various indices. Among the most informative indices for model fit is RMSEA (Root Mean Square Error of Approximation), which determines the extent to which the model would suitably accommodate the population. Other commonly reported indices for model fit include CFI (Comparative Fit Index), GFI (Goodness of Fit Index), NFI (Normed Fit Index), and NNFI (Non-Normed Fit Index) (Hair, Black, Babin, & Anderson, 2019; Rex B. Kline, 2015).

Table 4. Model Fit Indices

RMSEA	CFI	GFI	NFI	NNFI (TLI)
0.069	0.985	0.928	0.925	0.962

The fit indices indicate a good fit of the model to the data. values of RMSEA less than 0.08, CFI and NFI values greater than 0.90, and GFI values greater than 0.80 are considered acceptable model fit (Li-tze Hu & Peter M. Bentler, 1999). The results show that the model has an RMSEA value of 0.069 which is below the acceptable threshold, indicating a good model fit. The CFI value of 0.985, GFI value of 0.928, NFI value of 0.925, and NNFI (TLI) value of 0.962 also indicate a good model fit (Rex B. Kline, 2015). Therefore, the model can be considered a good fit for the data.

Pearson Correlation Analysis

Correlation is a statistical technique for determining the correlations between variables (Frederick J Gravetter & Larry B. Wallnau, 2014). Pearson's Correlation analysis yields a correlation coefficient (r) and a significance value (p) that assesses the strength and significance of the relationship. A positive correlation indicates a positive association between the variables, while a negative correlation suggests an inverse relationship. Typically, a p-value of 0.05 or lower is deemed statistically significant, indicating the rejection of the null hypothesis and support for the alternative hypothesis. Conversely, a p-value above 0.05 implies the null hypothesis is valid, and the alternative hypothesis is rejected. In this study, the data collected were analyzed using Pearson's Correlation test in SPSS, and a significance level of 0.05 was used as the threshold.

Hypotheses Testing

The present study proposed ten hypotheses that were examined using both Pearson's Correlation and path analysis tests.

Based on the results, the following hypotheses were accepted:

H1: PU positively influences BLSA ($\beta = .31$, $R = .371$, $p = .014$)
H2: PEOU positively influences BLSA ($\beta = .39$, $R = .497$, $p = .001$)
H3: PEOU positively influences PU ($\beta = .40$, $R = .457$, $p = .002$)
H4: SI positively influences PU ($\beta = .55$, $R = .726$, $p = .001$)
H7: SE positively influences PU ($\beta = .19$, $R = .315$, $p = .040$)
H8: SE positively influences PEOU ($\beta = .71$, $R = .729$, $p = .001$)
H10: TS positively influences PEOU ($\beta = .18$, $R = .342$, $p = .025$)

On the other hand, the following hypotheses were rejected:

H5: CQ positively influences PU ($\beta = -.59$, $R = .223$, $p = .151$)
H6: AC positively influences PU ($\beta = .44$, $R = .114$, $p = .468$)
H9: TS positively influences PU ($\beta = .06$, $R = .209$, $p = .179$)

While numerous studies have found a correlation between content quality and perceived usefulness, it is worth recognizing that this relationship can vary depending on the context. Certain research indicates that if users come across content that is too difficult or irrelevant to their needs, it may decrease their perception of usefulness (Bagozzi, Davis, & Warshaw, 1992; Viswanath Venkatesh et al., 2003).

In support of the previous literature, it is generally suggested that Accessibility influences Perceived Usefulness (Davis, 1989; Viswanath Venkatesh et al., 2003), studies also suggest that this relationship is affected by various user and context-based characteristics (Viswanath Venkatesh et al., 2003). Venkatesh et al. (2003), for example, propose that users with different demographic characteristics and experience levels may have various effects on the relationships between System Accessibility, and Perceived Usefulness.

Literature also implies that Technical Support influences technology adoption (Viswanath Venkatesh et al., 2003), the study found that Technical Support is important, but it has no significant impact on Perceived Usefulness. This finding is supported by the literature, which proposes that perceived usefulness is a multidimensional construct caused by a number of factors, such as user and context-based characteristics. As a result, studying user perceptions of technology usefulness demands considering a number of factors (Viswanath Venkatesh et al., 2003).

CONCLUSION

The study used descriptive analysis to assess user perception of blended learning implementation and discovered that users perceived the system to be easy to use and effective in their learning process. The findings revealed a high level of user satisfaction with the blended learning system in all dimensions.

When assessing the predictors of blended learning system acceptance, the study found that both perceived usefulness and perceived ease of use positively influence user acceptance of the blended learning system. Further, perceived ease of use, social influence, and self-efficacy positively influenced the perceived usefulness. Technical support and self-efficacy were also found to positively influence perceived ease of use and social influence. However, the study could not find evidence to support the positive influence of content quality, accessibility, and technical support on perceived usefulness.

Research Implications

This study offers general and managerial implications for educational institutions and organizations for effective blended learning implementations.

General Implications: This study highlights the importance of blended learning systems perceived by students as easy to use and useful. Prioritizing the user-friendly design of blended learning systems that users can understand and use with minimal effort raises the adoption and acceptance rates of the systems. The study further focuses on the role of social influence in increasing the adoption and use of blended learning systems. The influence of instructors and peers can be leveraged to promote higher adoption rates of the systems.

Managerial Implications: This study highlights the importance of the provision of training and support to enhance the self-efficacy and technical skills of instructors and students. Enhancement in these skills boosts their confidence level to adopt a blended learning system. Investment in training and support contributes to higher success rates in implementing blended learning systems.

Recommendations

The empirical results of the study enable the presentation of the following recommendations:

- This study emphasizes the importance of perceived ease of use for encouraging the perceived usefulness and acceptance of blended learning systems. Educators, developers, and course designers should focus on the design of user-friendly systems to boost the learners' motivation to embrace blended learning systems.

- Social influence is another important factor impacting system use and adoption. Teachers should exert their influence to encourage their learners to use the blended learning system and to encourage their peers to do the same.

- To raise instructors' and learners' self-efficacy and technical skill levels, institutions should provide training and support services that not only boost their confidence but also reduce the likelihood of resistance to adopting the systems.

- The study also suggests that the success of blended learning systems be evaluated regularly to improve learner engagement and learning results. This will lead to the identification of areas for improvement and the refinement of system design to better meet the needs of learners and instructors.

Future Directions for Research

This study suggests several future directions for research in blended learning.

- Future research could examine how blended learning affects learning outcomes such, as grades, critical thinking, and problem-solving abilities. This investigation would assess the effectiveness of blended learning on a scale. Determine its contribution to the development of these skills.

- Additionally, future studies could focus on evaluating models of learning. This analysis will consider the pros and cons of each model. Identify the factors that contribute to successful implementation.

- Long term effectiveness of learning systems could also be explored in research. This would involve conducting studies to measure engagement levels and academic performance over time. Furthermore, investigating the factors that facilitate implementation, in educational settings would be valuable.

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