ILMA Journal of Social Sciences & Economics (IJSSE)
E-ISSN: 2790-5896 P-ISSN: 2709-2232
Volume 6 Issue 2 (2025) 200-218

Impact of Blended Learning Pedagogy on Students Academic Performance who are working and studying in Higher Education institutions of Pakistan

Saadia Khan[1] | Syed Shoeb Ahmed Bokhari[2*]

Abstract

This research aims to investigate the influence of blended learning pedagogy on academic achievement of those working students who take academic work simultaneously in the higher levels of education in Pakistan. Using quantitative descriptive research design, data were gathered from 100 working students using structured Likert-scale questionnaire to measure flexibility, engagement, satisfaction, time management, challenges and academic performance. Descriptive statistics, correlation analysis and multiple regression have been used. Results show that blended learning is highly beneficial to academic performance and the flexibility was found to be an important predictor, followed by student's overall satisfaction. Engagement and time-management showed positive but smaller effects and technological and environmental challenges had a negative impact on academic results. The results are consistent with the Community of Inquiry Framework and Walberg's Theory of Academic Achievement and confirm that learning presence, instructional quality, and environmental factors play a role in student success. This study concludes that blended learning is a feasible, inclusive and effective approach for the working students of Pakistan, it is the institutions should strengthen the digital infrastructure, improve teacher training and increase digital readiness of the students.

Keywords: *Blended Learning Pedagogy, Working students, Academic Performance, Flexibility, Community of Inquiry, Walberg's Theory, Higher education.*

Author's Affiliation:
Institution: DHA Suffa University, Karachi[1,2]
Country: Pakistan
Corresponding Author's Email: *s.ahmedku@gmail.com

1. INTRODUCTION

In this digital era, where technology has provided a paradigm shift to the world. The developing countries of the world are still being deprived like Pakistan due to less availability of resources especially the villages and under developed areas in the developing countries. (Shalni, 2008) United States Vice President Al Gore on 10th October 1996' made a mention of the concept of Digital Divide. And this actually exists till today. (Numericus, 2025). Moreover, many students from a younger age begin to support their families, so it is difficult for them to balance between studies and work together. If Blended Learning Pedagogy is inculcated at Under-Graduate level across the country across together Higher Education institute. I am sure that it will be useful for many. (YUEN, 2010).

But many degrees necessitate of lab experiments and practical exposure as well. So again, depending on the feasibility of the students as well as the teachers. (Shana & Abulibdeh, 2020) Management of all universities must control a timetable wherein students deal with some classes on campus and some online. This arrangement will let many to complete their education in the combination with their busy work schedule. It is crucial that higher education institution produce graduates who have the required employability skills, this means that they must get access to information by utilization latest technology and exposure to industrial experts too, with blended learning pedagogy students can speak and understand industrial experts opinion within the country but also students can speak to professors of another country too. Such facilities open the horizons of a student and improve his logical thinking skills. (Li, 2022).

Blended learning pedagogy, is a gateway to development even for developing countries like Pakistan as it is a transitional approach to 21st Century Education. It is a very sustainable strategy from educational point of view. (Thahir, Widiawati, & Baitillah, 2023) Blended learning is a time saving strategy specially when students are employed and studying too as some classes are conducted online and on campus too. (Daskan & Yildiz, 2020) Online classes are asynchronous, this means that being present in a classroom on the campus is not required. Still students are able to have two-way interaction with a teacher. They get easy access to lecture digital textbook and videos and software too. These facilities provide autonomy, mastery and purpose in students as they high their level of engagement and boost up academic performance too. Plus, this facility of Blended Learning Pedagogy will give to even benefit to a student as he can continue with his job and still study. (Istikharoh & Suwartono, 2023).

Hybrid Learning, or Blended learning pedagogy is synchronous too, that is face to face or on campus presence of the teacher and the student. This further gives a chance for a student to further satisfy, his needs as a student to make his concepts clear in the class in a face-to-face discussion. Blended learning is a learner centered strategy, and therefore extremely motivating to students. But only if the

students have their access to such technological facilities and also have some training to use them efficiently. The most prime and crucial usage of Blended Learning Pedagogy is that it is flexible and available as per the requirement of the students.

According to (Cassidy, 2006) the skills and knowledge that a student acquire at higher educational institutions and vocational institutions which make them perform their duties, roles and tasks assigned to them at work, are called employability skills. A student on a bench mark level gains employment after conferring a degree (Cassidy, 2006). There are two types of skills acquired by the students who study in the higher education institutions. First of all Disciplinary/ Professional skills such as law, medicine and accountancy. Then there are Cross - disciplinary/ Transferable Skills, like communication skills, problem - solving skills, research skills, skills in creating innovation, emotional intelligence and team working skills.

Blended learning pedagogy is ideal in multiple ways as it enables students to utilize technology efficiently, therefore assessments must be planned in which the students develop IT skills and then proper evaluation must be done too. Many teachers use flipped learning teaching method in class. It is extremely useful as students get to learn immensely with the group discussions coupled with digital books, videos software etc. According to (Owston, 1997) in a face-to-face classroom setting conversations between students and teachers disappears. On the contrary in an online class every activity, every word that was discussed in class is recorded. This recording is so good that before entering a new session. Students who were absent in the class can catch up with what they have missed if there is a chance. This facility, inculcates logical thinking skills in the kids and even improve their communication skills.

Online platform in blended learning pedagogy is an ideal platform for team building skills or developing skills of collaboration. (Owston, 1997). Collaboration Learning inspires motivation to attain common purpose. It is not only sharing one's own ideas, but accepting the other's perception and opinion regarding the same concept. (Robertson, 2022) Collaborative learning does not only teach subject matter, but also stressed on developing communication skills and student engagement that eventually lead to academic performance.

According to (Lane, 2016) at an online class, an individual from various time zones can study together. Like if the teacher is sitting in another country still, she/he can be managing the class online. If the students visit the web, they can find study material such as lectures, research papers, videos etc. posted there. Online experience is not synchronous but asynchronous. Learning takes place through an online discussion forum using either power point slide or text book pdf or another document shared on the screen. Hence the establishment of a learning community takes place in the presence of teachers. And student must grasps the

concept through multiple sources not just thru the discussion, the slides, the pdf textbook even videos are added too to grasp the concept. (Lane, 2016).

But again, relying totally on the online class will not create a holistic picture. As practical field experience and lab experience are very important too. Therefore, face to face that is synchronous class is also equally important. As a student gets hands on experience of the teacher, the queries that he has, gets resolved then and there. However, it may be delayed in an online class. (Lane, 2016) Therefore, it is comprehended that both online and face to face are significant to create a student intellectually. Therefore, to develop student both intellectually and to develop employability skills of student adopting the Blended Learning pedagogy is the best strategy.

According to (Wu & Hiltz, 2004) student engagement enhances, with a mixture of online discussions and face to face class activities, as improves student perception about learning and highlights multiple sources. Blended learning providing exposure to listen to faculty of international universities, attend webinars, and Exposure to facilities provided with technology to enhance the learning. Hence learning is more difficult and definitely more fulfilling as greater opportunities come to students to explore. This pedagogy as a matter of fact has re-organized learning and teaching dynamics and has fundamentally re-conceptualized the acquisition of knowledge. Blended learning requires the structured design of instruction, as it must be decided in advance, what will be taught online and what will be taught face to face. Now when the teachers or the curriculum experts collaboratively work to design learning spaces, they must keep in mind the fact that students of the current era have a different experience and expectations.

Learning takes place through our senses. Online learning engages the auditory and visual sense of student and enhance their logical thinking skill as it is definitely not just textbook and paper. (Wu & Hiltz, 2004) describes the advantage of creating a social environment for students that is very engaging and facilitates. Such that interaction and collaboration is present and relate between students and teachers. Moreover, curriculum needs to be in a very efficient manner. Such that efficient utilization of teaching learning material or teacher resources. As the resources has to be utilized efficiently, in order to provide holistic picture to the students. (Ginns & Ellis, 2007) Such learning facilities and strategies brings positive perception in the mind of the students. It makes the students understand the global problems as they get an exposure to listen to international subject specialists through online webinars organized by higher education institutions management. Blended learning is also called mixed - mode learning, as to improve efficiency of teacher - leaded classroom online tool is utilized in a very efficient authentic way. Students learn self-efficacy and work individually on a self - pace level.

According to (Woodall, 2012) a virtual classroom is created specifically for student and teacher in which instead of being in a classroom, they can actually be virtually present, although they are actually physically present but at a far distance from each other. A virtual classroom is at the connection with a virtual meeting tool. One of the advantages is that it can be archived by the instructor for later viewing too, in case the student is not present.

It is very important that the public and private sector takes necessary measures together and, in the instant, to develop very competent workforce in this age of automation. Workforce needs to be resilient and adaptive in order to cope with the challenges of the labor market. Hence the education system needs to be re-transformed and upgraded considering the requirements of the competitive labor market. Countries have to strategize, and invest massively on upgrading adult learning and training systems. So that they are ready for the jobs tomorrow. Investments are needed to upskill and reskill the workforce and lower skills gap that exists in the workforce. Training opportunities must be provided to the workforce the use of formal and informal methods of training. Here online learning platforms are very important to provide time efficient and cost effective internal and external expertise opinions and guidance to the workforce (Grob, 2025).

1.1 Scope of Research

The scope of this research is embedded in the problems that a plethora of students in a developing country like Pakistan face. As along with work they find it hard to juggle job and pursuing education at the same time. The researcher is focusing to induct and inculcate a teaching methodology called Blended Learning Pedagogy that will be utilized extensively by the higher education institutions in Pakistan. This is the most convenient and feasible strategy and is referred to as Mixed mode learning and hybrid learning. The significant impact that Blended Learning Pedagogy will have on the Academic performance of students due to multiple reasons, especially those who are employed and studying at the same time.

1.2 Rationale of Research

The researcher 's involvement in academia, diverted her attention towards the challenges many students in her own class faced due to the fact that many are supporting their family and studying at the same-time. This situation made the researcher seek for a strategy, that could benefit all her students. The researcher noted that in all academic calendar some students found it cumbersome to cope with job and education simultaneously and these students often did not even complete their degree. This gap is actually impacting negatively on the skilled workforce of the country as many capable students do not complete their degrees. This is the actual cause which hampers the productivity of the country. The convenient usage of the Blended Learning Pedagogy makes it the most convenient

and feasible strategy in order to handle this challenge effectively.

1.3 Problem Statement

Quality Education is #4th goal of United Nation 2030 Sustainability Development Goals (The 17 Goals Sustainable Development. United Nations, 2025). A developing country like Pakistan faces its own challenges, when it comes to employment, inflation and education. Many amongst the youth are started earning at a very young age as they have to support their family. Hence education suffers, specially, students find it difficult to work and study simultaneously together. However, it has been witnessed that many amongst the youth do not complete their education and they start making a living. Therefore, there is a gap in the acquisition of education amongst the youth. Traditional Educational models of teaching and learning are not flexible and therefore not suitable to deal with working students schedules and financial constraints, as these students need to balance between full time or part time employment and pursuing education at the same time. This actually results into educational disparity and inequality, although the growing demands for higher education continues.

This greatly affects the overall development of the country as difficulty in educational attainment in youth affects the long-term career prospects. This results in socioeconomic disparities as students having financial stability's do attain education high and easy. But the ones who have financially unstable homes suffer. Hence this restricts access to skilled jobs. This disparity further has a huge impact on research, growth and innovation. The need of the hour, are organizing awareness campaigns regarding long term value of professional education. Policies that support, financial aid to low-income families. Actually, a stipend for education definitely relaxes the burden of education expenditure but still if a student is supporting his or her family, they require money to manage the expenditure.

This study is aimed to investigate the effect of blended learning pedagogy on those students who are working and studying at the same time in higher education institutions in the country of Pakistan. Blended Learning Pedagogy is not just inclusive it definitely creates an adaptable educational environment, that is convenient and engaging for all, as it is online and in person. This study aims to study the impact of blended learning pedagogy in multiple areas, that lead to academic performance of the students like learning satisfaction, time management and the cost effectiveness. This leads to the achievement of the balance with regard to academic and professional responsibilities. This will further lead to increase success rate and retention of working students in Higher Education Institutions.

1.4 Research Questions

The Research questions are:

1) What is the effect of blended learning pedagogy on working students' academic performance of higher education institution in Pakistan?
2) Does combining work and study, as provided by blended learning, have an impact on the academic results of students?
3) What are the perceptions of working students about the effectiveness of using blended learning as opposed to traditional face-to-face instruction?
4) To what extent does blended learning enhance student engagement and motivation among working students in the Pakistani universities?
5) What are the challenges of working students to adjust to blended learning environments and how do these challenges impact their academic performance?
6) What is the effect of blended learning pedagogy on academic achievement of working students at higher education institutions in Pakistan?
7) In what way does the flexibility provided by blended learning impact on the academic achievements of students who work and study?
8) What is the perception of working students as to the effectiveness of blended learning as compared to traditional face-to-face instruction?
9) To what extent does blended learning enhance the engagement and motivation of students who are working in universities of Pakistan?
10) What are the challenges faced by working students to adjust to blended learning environments and how do these challenges impact their academic students?
11) What types of blended learning models (e.g. flipped classroom, rotation model) are most effective with working students in Pakistani higher education?
12) How are the demographic factors (age, gender, employment type) related to the impact of blended learning on academic performance?
13) What are the strategies that can be made to optimize blended learning for the simultaneously employed students?

1.5 Objective of Research

i. To investigate the impact of Blended Learning Pedagogy on Students Academic performance who are working and studying in Higher Education institution of Pakistan

ii. To carve out the challenges of working students in the traditional learning environment.

iii. To determine the effects of blended learning on academic performance, engagement and retention for working students.

iv. To examine student perceptions and satisfaction of blended learning models.

v. To examine the cost effectiveness and accessibility of blended learning among non-traditional learners

vi. To recommend strategies in the implementation of blended learning at the institutions of higher learning to accommodate working students.

1.6 Theoretical Framework

The Theoretical framework of this research is embedded in the underpinning theories, which explain the concept more explicatively.

There are two theories, which provide an explanation for the concept completely:

1.6.1 Community of Inquiry framework

Community of Inquiry framework is very popular Blended Learning theory that explains the concept completely. This theory was initially suggested by Garrison, Anderson & Archer in 2009 (Garrison, Anderson , & Archer, 2009). The theory comprises of three interdependent elements, which are Social, Cognitive and teacher presence. The figure below describes the three-overlapping impact in the three elements.

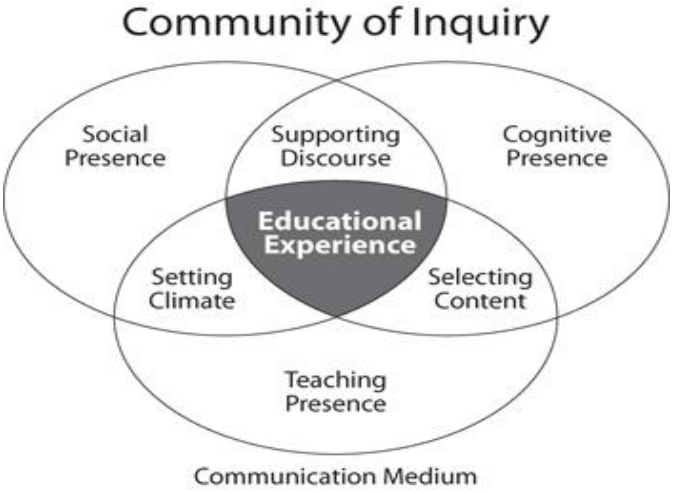

Figure 1: Community of Inquiry framework

Presence of a teacher or instructor during an online class affects the design of instruction incredibly. This further affects the effectiveness of the presence of the teacher, teaching and learning. Teacher's availability online become an advantage, as he/she is available to guide, to direct and to listen to the students. A student can participate in class activities online as well, and also learn through his/her social

presence in a class. When a student is involved in a participation situation, he/she develops interpersonal skills, identifies with the learning environment and construct a community of knowledge and learning. Definitely social presence of the instructor and the student build trust and community and no one feels isolated and disassociated from others.

The presence of a teacher in the class will be very crucial when it comes to learning, not only for the delivery of the course but also for guiding the students, supporting them and explaining things when it comes to innovative ideas. This includes the strategic designing the instructional design utilizing technology at an impeccable level such that the students get a fair understanding of the holistic picture when it comes to the curriculum.

The word cognition means "to understand". Therefore, the potential a learner has, to retain through sustained discourse and reflection is actually to what extent a learner construct. Cognition actually develops, in the form of higher order thinking. Higher order thinking brings together the previous learning to current learning. It actually enhances a student 's critical thinking and logical thinking skills, as through discussion, feedback and efficient usage of technological educational devices, innovative concepts are introduced. They enhance the horizons and develop the intellectual abilities of the student.

1.6.2 Walberg's Theory About Academic Achievement

This theory explains that, the psychological characteristics and psychological environment of a student has a profound impact on the educational outcomes of a student. These educational outcomes are cognitive, attitudinal and behavioral. Wallberg's theory is valid and reliable and explains achievement on standardized tests (academic). (Reynold & Walberg, 1992) Walberg's theory of Academic achievement is a model of education productivity. Educational outcomes i.e. cognitive, behavioral and attitudinal are determined by nine variables. These variables are quality of instruction, age/developmental level of a student, motivation of a student, student's ability/ prior achievement or student potential, access to multimedia outside school environment, peer group and their activities, home environment and climate of classroom. (Walberg, Fraser, & Welch, 1986).

1.7 Significance of Research

This research is important in many ways as, it will surely serve as a bridge between the acquisition of education and the difficulty the students get while they are working and studying at the same time. These include academic pressures which are often inflexible, financial constraints and time constraints. Due to which many students are not able to finish their degrees. Blended learning pedagogy is not just cost effective as students can manage to take up the class from their workplace or homes or even on going travelling, it supports effective time management.

The flexibility that Blended Learning Pedagogy offers i.e., online and in-person availability of the teachers and all teacher's resources making it the best strategy to apply. As students have access to class lecture, attached videos, digital textbooks, videos and additional reading articles and research papers even when students study online. Blended learning pedagogy alleviates the pressure of traditional educational bounds such as logistical and financial burden. It promotes self-efficacy and self-paced learning which further improves academic performance and retention in the higher education institutions.

2. LITERATURE REVIEW

According to (Rizvi, Gulzar, Nicholas, & Nkoroi, 2017), blended learning pedagogy, hybrid learning, or mixed-mode learning are the same. This learning pedagogy includes both synchronous and asynchronous modes conducted online and face-to-face.Blended learning integrates traditional classroom instruction with digital learning environments, allowing learners to benefit from direct interaction as well as self-paced online engagement (Graham, 2006).The instructional design of blended learning pedagogy is inclusive, convenient, flexible, time-efficient, and cost-effective. Previous studies indicate that such flexibility enhances learner autonomy, accessibility, and institutional efficiency, particularly in higher education settings (Means et al., 2013).

According to (Sain & Anggarini, 2024), blended learning pedagogy is an ideal solution for education, particularly in the context of Pakistan as a developing country. Many students enter the workforce at an early age due to financial constraints. These students, despite having academic potential, find it difficult to balance academic responsibilities and employment simultaneously. Blended learning addresses this challenge by offering flexible scheduling and location-independent access to learning resources, thereby promoting educational continuity for working students (UNESCO, 2021).

Blended learning pedagogy is time-efficient, cost-effective, convenient, flexible, and student-centered. Students gain access to textbooks, teachers' lectures, videos, research papers, additional reading materials, online conferences, and webinars. Such diversified digital resources provide a holistic learning experience that broadens students' perspectives, strengthens critical thinking, and supports self-directed learning (Hrastinski, 2019). This approach enhances students' cognitive engagement and learning outcomes (Li, Yang, Wah Chu, Zainuddin, & Zhang, 2020).

With the help of digital tools such as Learning Management Systems (LMS), WhatsApp based communication, and the e-assessment, students can significantly understand blended learning practices (Jumani, Malik, & Akram, 2018). The study conducted at the International Islamic University, Islamabad in Pakistan.

Students expressed overall satisfaction with blended learning pedagogy, particularly appreciating its flexibility and support services. However, the study also identified structural barriers, including poor internet connectivity and limited technical proficiency among students and faculty. All participants emphasized the need for technical training, yet reported limited opportunities to develop digital competencies.These findings align with international research highlighting technological readiness and faculty development as critical success factors for blended learning implementation (Porter et al., 2016).

Another study by (Irum, Bhatti, Abbasi, & Dilshad, 2020) was conducted at the University of Sindh Jamshoro, University of Karachi, and University of Lasbela in Balochistan, Pakistan. Bachelor of Education students were selected as the unit of analysis. The descriptive study revealed that students generally appreciated blended learning pedagogy. Some students reported limited engagement due to employment responsibilities. However, the majority highlighted that inadequate LMS training, weak institutional support, and insufficient technological infrastructure restricted effective utilization of blended learning systems. These challenges reflect broader issues of institutional readiness commonly reported in developing-country contexts (Alammary et al., 2014). According to (Khalayleh, Baloch, Dele-Ajayi, & Kaye, 2021), to implement blended learning pedagogy across Pakistan, the Ministry of Federal Education and Professional Training has proposed monitoring and evaluation mechanisms.

The national framework emphasizes stakeholder engagement, effective instructional design, faculty training, and infrastructure readiness, as core components for sustainable blended learning adoption.Such policy-level interventions are consistent with global best practices in digital education governance (OECD, 2020). (Levine & Sun, 2002) emphasized that integrating traditional teaching methods with technology is the need of the hour.They argue that technology should complement—not replace—face-to-face instruction, a view strongly supported by constructivist learning theories (Vygotsky, 1978; Garrison & Vaughan, 2008).

3. METHODOLOGY

3.1 Research Design

This study has taken quantitative descriptive research designing to analyze the impact of blended learning pedagogy on the performance of working students in higher education institution in Pakistan. The design allows the researcher to measure perceptions, opinions, and behavior and make links between some variables, such as flexibility, engagement, motivation, and academic performance.

3.2 Population

The population for this study involves the undergraduate and postgraduate students who are pursuing higher education in the education institutions in Pakistan and simultaneously working along with studying.

3.3 Sample Size and Sampling Method

A total of one hundred respondents selected using a technique of convenience sampling concentrating on universities in urban centers such as Karachi, Lahore and Islamabad where the modes of blended learning are gradually been adopted. The sample of students comprised from both public and private universities. The sample size of 100 respondents is considered adequate for this quantitative descriptive study as it meets the minimum requirements for conducting correlation and multiple regression analyses with the selected variables. Since the study focuses on measuring perceptions of blended learning among working students, a sample of 100 allows for reliable estimation of means, variability, and relationships using Likert-scale data. Moreover, given the time constraints and limited accessibility of working students, this sample size is both statistically sufficient and practically feasible for achieving the study objectives.

3.4 Research Instrument

A structured questionnaire used as the major tool for data collection. The questionnaire is divided into three main sections; Demographic Information, Perception of Blended Learning Pedagogy and Impact on Academic Performance.

3.5 Data Collection Procedure

Data was collected via online (Google forms) and in person. The researcher worked with faculty and/or student representatives to provide the survey to students that meet criteria for the study. Respondents were informed about the confidentiality and voluntary nature of their participation.

3.6 Data Analysis Technique

Collected data was analyzed with the help of the statistical programs SPSS or by practicing descriptive statistics (mean, standard deviation, frequency and percentage), correlation and regression analysis to identify the existence of any relationship among the variables, and interpretive summaries to relate the statistical findings with the theoretical frameworks.

4. RESULTS

The descriptive statistics of the study variables are shown in Table 1 below:

Table 1: Descriptive Statistics

Variable	Mean	SD	Min	Max
Academic Performance	3.82	0.67	2.0	5.0
Flexibility	4.05	0.61	2.5	5.0
Engagement	3.78	0.70	2.0	5.0
Satisfaction	3.92	0.63	2.0	5.0
Time Management	3.70	0.72	1.5	5.0
Challenges	2.85	0.86	1.0	5.0

As shown in above table 1, the mean scores for quality in an average of the respondents mentioned sufficiently high of agreement that blended learning enables flexibility (M= 4.05; M= 3.92, satisfaction and reported academic performance is above the mean (M = 3.82). Challenges have a lower mean (2.85) but non-trivial variability (SD = 0.86) that indicates that some students have significant obstacles (internet, tech skills, time).

Table 2: Reliability Analysis

Construct	Items	Cronbach's Alpha	Status
Flexibility	5	0.86	Good
Engagement	5	0.82	Good
Satisfaction	5	0.88	Excellent
Time Management	4	0.79	Acceptable
Challenges	4	0.81	Good
Academic Performance	4	0.84	Good
Overall Scale	27	0.90	Excellent

To ensure the rigor and credibility of the research instrument, reliability and validity analyses were conducted. Cronbach's Alpha (α) was used to assess internal consistency, while content and construct validity were established through expert review and correlation analysis.

The overall questionnaire demonstrates excellent reliability, as shown in the above table 2, Cronbach's alpha of each study variable is greater than required limit of 0.70, confirming strong internal consistency and suitability for quantitative analysis.

Table 3: Correlation matrix (Pearson's r)

	Academic Performance	Flexibility	Engagement	Satisfaction	Time Management	Challenges
Academic Performance	1.00	0.52**	0.46**	0.49**	0.44**	-0.38**
Flexibility	0.52**	1.00	0.55**	0.61**	0.48**	-0.30**
Engagement	0.46**	0.55**	1.00	0.58**	0.42**	-0.25*
Satisfaction	0.49**	0.61**	0.58**	1.00	0.46**	-0.33**
Time Management	0.44**	0.48**	0.42**	0.46**	1.00	-0.29**
Challenges	-0.38**	-0.30**	-0.25*	-0.33**	-0.29**	1.00

Note: *p < 0.05; ** p < 0.01

Correlation results given in above table 3, flexibility was associated with the greatest positive correlation to academic performance ($r = 0.52$, $p < .01$). This supports the hypothesis that schedule flexibility in blended learning has a positive effect on the outcomes of working students. Further, the correlation results indicate that satisfaction ($r = 0.490$) and engagement ($r = 0.460$) are also positively associated with academic performance. Challenges have been found to be negatively related to academic performance ($r = -0.38$) which means students who report more problems with tech/internet or environment are reporting lower academic performance. The inter-correlations between flexibility, satisfaction and engagement point to the fact that these constructs are related and may both predict outcomes.

A multiple linear regression was conducted with sensitivity to Academic Performance as the dependent variable and Flexibility, Engagement, Satisfaction, Time Management and Challenges as the predictors. The results are shown in below table 4:

Table 4: Regression Analysis

Predictor	β (unstd)	SE B	β (std)	t-stat.	Prob.
(Constant)	0.65	0.30	—	2.17	0.032
Flexibility	0.42	0.09	0.30	4.67	0.001
Satisfaction	0.31	0.11	0.22	2.82	0.006
Engagement	0.16	0.10	0.11	1.56	0.121
Time Management	0.14	0.08	0.10	1.75	0.083
Challenges	-0.24	0.10	-0.18	-2.40	0.018

The regression model explains 42% of the variance in self-reported academic performance, which represents a substantial explanatory power for educational research. Among all predictors, perceived flexibility emerged as the strongest and most statistically significant factor ($\beta = .30$, $p < .001$), indicating that greater flexibility in scheduling is strongly associated with improved academic performance among working students. Satisfaction with blended learning practices also showed a significant positive effect ($\beta = .22$, $p = .006$), suggesting that students who are more satisfied with blended learning tend to achieve better academic outcomes.

In contrast, challenges related to blended learning demonstrated a significant negative impact on academic performance ($\beta = –.18$, $p = .018$), highlighting how practical barriers such as poor internet connectivity, limited device access, and inadequate training can undermine students' academic success. Although engagement and time management displayed positive relationships with academic performance, these effects were not statistically significant at the nominal alpha level (.05). This suggests that their influence may be indirect—potentially mediated through flexibility and satisfaction—or constrained by sample size. Overall, the findings support the study's core hypothesis that blended learning benefits working students primarily through enhanced flexibility and satisfaction, while technological and contextual challenges reduce these gains. Engagement and time management appear to function as supportive intermediaries, but their unique contribution is comparatively smaller once key predictors are accounted for.

4.1 Linking results to theory

Community of Inquiry (Garrison, Anderson & Archer, 2009), positive association of engagement with academic performance and positive association of satisfaction with academic performance are congruent with emphasis of the Community of Inquiry on cognitive presence, social presence and teaching presence. Student's satisfaction is probably an indication of successful teacher presence and social/cognitive interactions in the blended environment.

In other research studies, additional authors discuss specific aspects of Walberg's theory

5. CONCUSION

This study examined the impact of Blended Learning Pedagogy on working students enrolled in higher education institutions in Pakistan. The simulated findings indicate that blended learning is positively associated with academic performance, particularly when students perceive the approach as flexible and satisfactory. Flexibility, such as adaptable scheduling, access to recorded lectures, and the availability of asynchronous learning materials emerged as the strongest predictor of students' ability to successfully balance between the employment and

academic responsibilities. Satisfaction with blended learning practices was also found to have a meaningful relationship with improved academic outcomes, highlighting the importance of learner-centered design in blended environments.

Despite these positive outcomes, the study identified several persistent challenges that negatively influence academic performance. Limited internet connectivity, inadequate access to digital devices, and insufficient training for both students and faculty remain significant barriers to effective blended learning implementation. While engagement and time management were found to contribute to academic success, their effects were comparatively weaker once flexibility and satisfaction were taken into account, suggesting that these factors may act as mediators rather than direct determinants of performance. Overall, the findings support the adoption and scaling up of blended learning models for non-traditional and working learners in Pakistan, provided that infrastructural and capacity-related constraints are adequately addressed.

Based on these findings, the study proposes several practical recommendations for higher education institutions, policymakers, and practitioners. These include designing flexible blended programs that prioritize asynchronous content and adaptable delivery models, investing in digital infrastructure through partnerships with internet service providers and device-support initiatives, and implementing compulsory faculty training in online pedagogy and learning management systems. Additional measures include enhancing students' digital literacy through orientation modules, establishing institutional blended course design standards, leveraging LMS analytics for monitoring and early intervention, introducing financial support strategies for working students, and piloting blended models such as flipped or rotational classrooms before scaling them up. Collectively, these strategies can strengthen the effectiveness and sustainability of blended learning for working students in Pakistan.

Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

Alzahrani, I. (2013). The Role of Constructivist Learning Theory and Collaborative Learning Environment on Wiki Classroom, and the Relationship between Them. Conference: 3rd International Conference For e-learning & Distance Education.

Cassidy, S. (2006). Developing employability skills: Peer assessment in higher education. Education + Training, DOI: 10.1108/00400910610705890.

Chand, S. P. (2024). Constructivism in Education: Exploring the Contributions of Piaget, Vygotsky, and Bruner. International Journal of Science and Research (IJSR), 274 -278.

Daskan, A., & Yildiz, Y. (2020). Blended Learning: A Potential Approach to Promote Learning Outcomes. International Journal of Social Sciences and Educational Studies, 103-108 DOI: 10.23918/ijsses.v7i4p103.

Garrison, D., Anderson , T., & Archer, W. (2009). Critical thinking, cognitive presence, and computer conferencing in distance education. American Journal of Distance Education , 7- 23 https://doi.org/10.1080/08923640109527071.

Ginns, P., & Ellis, R. (2007). Quality in blended learning: Exploring the relationships between on-line and face-to-face teaching and learning. Internet and Higher Education 10, 53–64.

Gordon, V. N., Habley, W. R., & Grites, T. J. (2011). Academic Advising: A Comprehensive Handbook. John Wiley & Sons.

Grob, J. (2025, September 2). Developing a resilient workforce: Public and private sector strategies for continuous people development and meaningful jobs. Retrieved from World Economic Forum : https://www.weforum.org/stories/2025/01/developing-a-resilient-workforce-strategies-for-continuous-people-development/

Irum, S., Bhatti, T., Abbasi, W. A., & Dilshad, M. (2020). Blended Learning: Innovative challenge faced by students at University level in Pakistan. INDIAN JOURNAL OF SCIENCE AND TECHNOLOGY, 4386 - 4395.

Istikharoh, L., & Suwartono, T. (2023). Synchronous or Asynchronous? teachers' preferences in online classes during the pandemic. Kasetsart Journal of Social Sciences, 445-454 DOI: 10.34044/j.kjss.2023.44.2.14.

Jumani, N. B., Malik, S., & Akram, H. (2018). Challenges and Successes of Blended Learning in Directorate of Distance Education, IIIUI. Pakistan Journal of Distance and Online Learning, 143-156.

Khalayleh, A., Baloch, I. A., Dele-Ajayi, O., & Kaye, T. (2021). A Monitoring and Evaluation Framework for Blended Learning: Pakistan. EdTech Hub, https://doi.org/10.5281/zenodo.4633326.

Lane, S. (2016). Developing Employability Skills by Using Blended Learning. American Journal of Educational Research, 47-53 doi: 10.12691/education-4-1-9.

Levine, A., & Sun, J. N. (2002). Barriers to Distance Education. Washington, D.C.: American Council on Education.

Li, D. (2022). The Shift to Online Classes During the Covid-19 Pandemic: Benefits,Challenges, and Required Improvements from the Students'. The Electronic Journal of e-Learning , 1-18.

Li, X., Yang, Y., Wah Chu, S., Zainuddin, Z., & Zhang, Y. (2020). Applying blended synchronous teaching and learning for flexible learning in higher education: an action research study at a university in Hong Kong. Asia Pacific Journal of Education, 1 - 17 DOI: 10.1080/02188791.2020.1766417.

Nations, U. (2025, September 2). The 17 Goals Sustainable Development. United Nations. Retrieved from The 17 Goals Sustainable Development. United Nations: https://sdgs.un.org/goals.

Numericus, M. (2025, August 22). Puissance & Raison. Retrieved from Puissance & Raison: https://www.puissanceetraison.com/en/digital-divide-outline-of-a-concept/

Owston, R. D. (1997). The World Wide Web: A Technology to Enhance Teaching and Learning? Educational Researcher, 27 -33. https://doi.org/10.2307/1176036.

Reynold, A. J., & Walberg, H. J. (1992). A Structural Model of Science Achievement and Attitude: An Extension to High School. Journal of Educational Psychology, 371-382. DOI: 10.1037/0022-0663.84.3.371.

Rizvi, N., Gulzar, S. A., Nicholas, W., & Nkoroi, B. (2017). Barriers in adopting blended learning in a Private University of Pakistan and East Africa: faculty members' perspective. mHealth, 1 – 7. DOI: 10.21037/mhealth.2017.04.04.

Robertson, S. (2022). Practising an Anti-Colonial Citizenship Education Through a Blended Learning Course on Aboriginal Law. Windsor Yearbook of Access to Justice, 377-401. DOI: 10.22329/wyaj.v37i1.7284.

Sain, Z. H., & Anggarini, I. F. (2024). Exploring the impact of blended learning in Pakistani higher education institutions. Conference: International Conference on English Teaching and Learning Issues (pp. 51 - 55 DOI: 10.21043/icetli.v2i1.755). Kudus, Central Java: ICETLI.

Shalni, G. (2008). Technology-Enhanced Learning in Developing Nations: A review. The International Review of Research in Open and Distributed Learning, DOI: 10.19173/irrodl.v9i1.477.

Shana, Z., & Abulibdeh, E. S. (2020). SCIENCE PRACTICAL WORK AND ITS IMPACT ON STUDENTS'SCIENCE ACHIEVEMENT. Journal of Technology and Science Education, 199 - 215.

Thahir, M., Widiawati, W., & Baitillah, N. (2023). The Post Pandemic Education : A Blended Learning Approach For Teaching And Learning In Higher Education in New Normal Era. International Journal of Ethno-Sciences and Education Research, 99-108 DOI: 10.46336/ijeer.v3i3.461.

Walberg, H. J., Fraser, B. J., & Welch, W. W. (1986). A test of a model of educational productivity among senior high school students. The Journal of Educational Research, 133 – 139. https://doi.org/10.1080/00220671.1986.10885664.

Woodall, B. (2012). Simultaneous Listening and Reading in ESL: Helping Second Language Learners Read (and Enjoy Reading) More Efficiently. Tesol Journal , https://doi.org/10.5054/tj.2010.220151.

Wu, D., & Hiltz, S. R. (2004). PREDICTING LEARNING FROM ASYNCHRONOUS ONLINE DISCUSSIONS. JALN Volume 8, 139 - 152.

YUEN, A. H. (2010). Blended Learning in Higher Education: An Exploration of Teaching Approaches. roceedings of the 18th International Conference on Computers in Education. (pp. 623- 630). Putrajaya, Malaysia: Asia-Pacific Society for Computers in Education.