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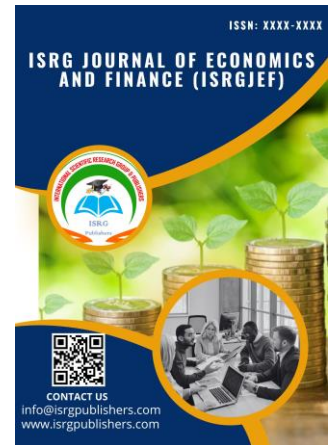
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Blended Learning Adoption in Pakistani Universities: Challenges and Recommendations

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Abstract

The study investigated the challenges that Bachelor of Science in Computer Science (BSCS) students face while attending institutions in Pakistan. A descriptive study was carried out with the participation of 219 students from three institutions in Pakistan that are operated by the state. Using a Likert scale of five points, the attitudes and experiences of the students about blended learning were evaluated. Even though many students have voiced favourable sentiments toward blended learning, they have encountered challenges such as limited time, limited skills and support, inadequate training, and restricted access to the Learning Management System (LMS). Based on the study's findings, it is recommended that university policies be developed to encourage the use of blended learning and training programs that enable educators to integrate technology into their teaching effectively.

Key Words: Blended Learning, Challenges, Standpoints, Teacher Education.

INTRODUCTION

Significant technological advancements have revolutionized higher education in the last decade, improving overall quality. However, the current epidemic has resulted in the closure of schools and the implementation of social distancing measures, which have hindered traditional methods of instruction. Developing innovative communication tactics between educators and learners in this

context is crucial, with technology emerging as a significant answer. Blended learning, the combination of online and offline education methods, has flourished worldwide. This approach not only integrates various instructional techniques but also incorporates novel perspectives.

Using blended learning in Pakistani colleges showcases its promise and current obstacles. This research aims to ascertain the magnitude of its favourable effects on pupils while pinpointing obstacles to its efficient execution. Blended learning combines conventional classroom training with digital methods, offering engaging, adaptable, and cost-effective teaching. However, this may be challenging for educators, particularly those teaching BSCS pupils who need advanced methods at an early stage. This learning method encourages a systematic and reflective approach to education, preparing pupils for what lies ahead. To achieve the most compelling contemporary teaching, educators need the skill to use face-to-face and digital resources to guarantee effective continuous learning. According to the research conducted by Roy and Farmer in 2013, knowledge is no longer limited to conventional textbooks and correspondence techniques. The progress in Information and Communication Technology (ICT) has successfully eradicated the restrictions linked to geographical distance and other limitations often connected to distance education.

Today's learners, sometimes called the "digital generation," require modernized instructional methods. Research indicates that technology increases student involvement, leading to improved academic outcomes. Blended learning addresses this need by providing a customized learning setting that can be accessed anytime and anywhere. This strategy also promotes collaborative learning and provides students with contemporary skills. Various research has evaluated the influence of it on motivation, learning preferences, academic achievement, and learning strategies. Harasim (2000) identified many key technologies that enable communication between instructors and students, including email, internet-based materials, learning management systems (LMS), and online chat platforms. The potential of blended learning to influence teacher education is considerable. Utilizing technologies such as Learning Management Systems (LMS) may enhance teaching methodologies and improve student contentment. Platforms such as WhatsApp groups and Learning Management Systems (LMS) provide effortless exchange of information among peers and instructors. However, incorporating technology into many systems has challenges, including sluggish internet connectivity, language obstacles, and a lack of clear guidance from institutions. Nevertheless, the advantages of blended learning in shaping instructors who are prepared for the future are unquestionable.

Education stakeholders in nations such as Pakistan are incorporating technology into their curricula. Institutions such as the Virtual University and Allama Iqbal Open University have used blended learning since the early 2000s. The open and distance education system has achieved remarkable progress since the establishment of Allama Iqbal Open University (AIU). This institution has utilized various digital learning resources, including e-journals, e-magazines, online courses, e-textbooks, access to the Higher Education Commission (HEC) digital library, theses, dissertations, CDs, the Open Public Access Catalogue (OPAC), online call services, SMS communication with students, podcasting, e-tutorship, and the integration of Moodle, among other techniques. These developments strive to provide convenient and extensive access to information, surpassing geographical limitations. In addition, Virtual University, another notable institution for distant learning, utilizes free-to-air television broadcasts to deliver lectures and facilitate student-instructor interaction via online platforms. The Virtual University provides

many resources, such as video lectures, reading materials, audio and video tutorials, and online learning modules. This aligns with Inglis et al.'s observation in 2003 that multimedia and web-based materials are often considered superior because they offer a greater variety of ways to present information. The Higher Education Commission has played a crucial role in promoting technology in education by providing services like online lectures, video conferencing, and the establishment of digital libraries. Several other government-run colleges in Pakistan are incorporating technology into their operations, including online attendance systems, interactive workshops, and real-time expert conversations. Despite the scarcity of resources, many individuals have transitioned to online platforms in response to the epidemic.

The study conducted by Sife et al. in 2007 emphasized that developing countries face numerous obstacles in Information Communication Technologies (ICT). These challenges include a lack of knowledge and negative attitudes towards ICT, limited resources for training staff, inadequate infrastructure, a shortage of skilled personnel, and a need for more organized efforts to integrate ICT. In addition, Surry et al.'s 2005 study further explored the difficulties associated with incorporating educational technology into teaching. These challenges include limitations in technological infrastructure, differences in student readiness and technological literacy, the willingness of educators to adopt technology, and the critical factor of successful implementation. It is essential to mention that prior studies conducted by Swarts and Wachira in 2010, Kajuna in 2009, and Ndume in 2008 have shown that many instructors and distance learners need basic abilities in using new digital gadgets. Although several students own Android smartphones and laptops, they may need more expertise to use them fully. Pakistan's trajectory parallels several emerging countries' trajectory to narrow the education technology gap. The government has taken strong measures to strengthen the implementation of blended learning in higher institutions. However, obstacles such as insufficient technological resources, intermittent power supply, and language problems continue. This research examines the readiness and challenges students face in embracing blended learning in Pakistan's teacher education field. This study is crucial as it provides valuable insights into the many complex features of blended learning in Pakistani institutions. Presenting the possible advantages and current obstacles establishes the basis for educational participants to improve and maximize blended learning methods, thus boosting the overall excellence of higher education in the area.

In a study done by Chapman et al. in 2004, it was found that internet connectivity in underdeveloped countries is expensive, which makes it challenging to ensure that distant learners have equal access to online learning. In addition, educators must have a combination of technical and pedagogical skills to incorporate technology into their teaching approaches successfully. Another significant challenge is the need for more technical proficiency among teaching staff when creating e-content. This lack of expertise hampers the effective implementation of digital learning in remote education institutions. Although some faculty members may have a basic understanding of technology, they need more support to use technology successfully. Teachers must have a high skill level in digital learning technologies to ensure effective implementation, as underlined by Tarus in 2015.

RESEARCH PROBLEM STATEMENT

The research problem statement focuses on the difficulties and possibilities of introducing blended learning in institutions in

Pakistan, specifically in the area of teacher education. Although blended learning can improve teaching effectiveness and student engagement, several barriers impede its efficient implementation. The challenges encompass the requirement for educators to possess advanced technology skills, constraints in technological infrastructure such as slow internet connectivity, language barriers, and inadequate supervision from institutions. In addition, the report recognises the endeavours of education stakeholders to integrate technology into curricula. However, it emphasises the ongoing obstacles, such as insufficient resources, sporadic power supply, and the need for improved technical expertise among teaching personnel. The research aims to examine the preparedness of students and the obstacles they encounter when adopting blended learning in the field of teacher education in Pakistan. It seeks to offer valuable insights that can guide the development of strategies to enhance and optimise blended learning approaches, ultimately improving the overall quality of higher education.

KEY RESEARCH QUESTIONS

Research Question 1: What obstacles do students face to blended learning at Pakistani universities?

Research Question 2: What strategies can be implemented to enhance blended learning in higher education institutions in Pakistan?

LITERATURE REVIEW

Blended learning, which combines traditional in-person teaching with online learning activities, has gained substantial global recognition as a method to improve educational outcomes in higher education institutions. Given the current state of technology breakthroughs in Pakistani universities, it is essential to examine the issues and recommendations related to implementing blended learning to understand its impact on the educational environment. Multiple studies completed from 2020 to 2023 have provided significant insights into the deployment of blended learning in Pakistani higher education.

A vital issue emphasised in the literature is the disparity in access to digital resources between students and lecturers in Pakistani universities. Although technology has become more widely available, digital resources still need more access, especially in marginalised communities and rural places. A study by Khan (2021) highlighted the importance of providing fair and equal access to gadgets and internet connectivity to ensure that all students can actively engage in blended learning environments. In addition, Mahmood et al. (2022) emphasised the significance of tackling socio-economic obstacles to technology accessibility to enhance inclusivity in blended learning programmes.

Furthermore, the literature highlights that institutions' preparedness is a crucial determinant in the effective implementation of blended learning in Pakistani universities, alongside the difficulties in accessing resources. As per Ahmed and Ali (2020), numerous universities need more infrastructure, technical assistance, and faculty training to implement blended learning successfully. In addition, the presence of organisational culture and reluctance to change inside universities can hinder attempts to incorporate technology into teaching methods (Zaman et al., 2023). In order to tackle these problems, engage in strategic planning and invest in infrastructure, professional development, and change management (Khalid et al., 2023).

Moreover, the literature underscores the significance of pedagogical factors in designing and implementing blended

learning. Although technology provides new possibilities for engaging and interactive learning experiences, great instructional design is critical to achieving maximum learning outcomes (Hussain et al., 2021). Research conducted by Malik (2022) and Haque et al. (2023) emphasises the importance of providing faculty with training in pedagogical methods appropriate for blended learning settings. These include active learning tactics, formative assessment techniques, and learner-centered instructional practices.

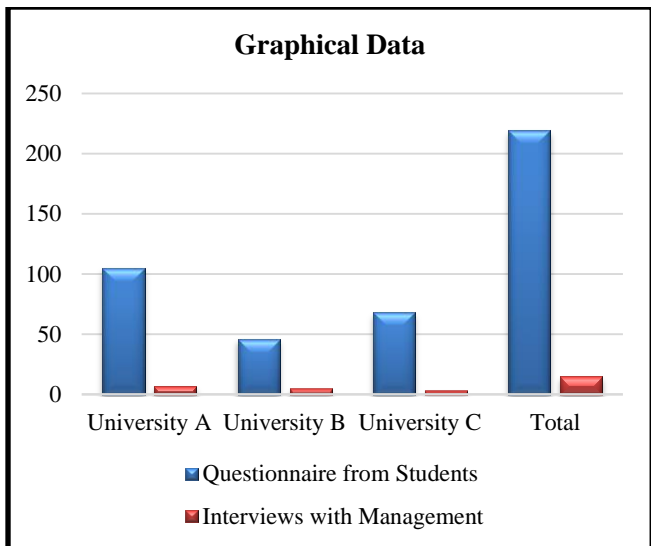
However, the research provides significant suggestions for encouraging the implementation of blended learning in Pakistani universities, notwithstanding the difficulties. Khan et al. (2020) proposes establishing cooperative alliances among universities, government agencies, and private sector stakeholders to effectively utilise resources and specialised knowledge in integrating technology. In addition, Khan and Rehman (2023) suggest creating national rules and guidelines to facilitate the organised integration of blended learning in higher education institutions in Pakistan.

The literature emphasises the complex and diverse hurdles when implementing blended learning at Pakistani colleges. These challenges encompass a wide range of concerns, including limited access to technology and infrastructure and obstacles related to teaching methods and institutional practices. Pakistani institutions may optimise the benefits of blended learning in the digital era by tackling these obstacles and implementing evidence-based suggestions, improving teaching and learning outcomes.

RESEARCH METHODOLOGY

A descriptive study was conducted to investigate students' preparedness and the obstacles they face in adopting blended learning in teacher education curriculums in Pakistan. A sample size of 219 students was determined using Yamane's technique, drawn from a bigger pool of 482 students across three nationwide public colleges. The data harvesting process included using a 19-item questionnaire, which was developed based on a thorough examination of existing literature. Participants were asked to provide their responses using a 5-point Likert scale. Furthermore, apart from the student questionnaire, we also sought information from the administrative perspective: 15 management executives from these universities were interviewed. These interviews offered a comprehensive understanding of the institutional viewpoint on blended learning, including its advantages and difficulties, as seen from an administrative standpoint. The aggregated data indicated that students had a positive attitude towards blended learning. Students acknowledged the benefits of improving understanding and providing a more captivating learning method. However, hurdles were present. In addition to individual obstacles such as limited access to technology and inadequate technical support, input from management people highlighted institutional barriers, infrastructure difficulties, and the necessity for more training.

Graph 1: Graphical Form Data



The graphical data displays input collected from students through questionnaires and interviews with management at three universities, identified as University A, University B, and University C. University A collected data from 105 students through surveys and performed seven interviews with management. University B collected input from 46 students via surveys and conducted five management interviews. University C collected data from 68 students through surveys and three management interviews. Overall, 219 questionnaire responses and 15 management interviews were conducted across all universities. This data demonstrates the universities' dedication to collecting feedback from students and administration, highlighting their commitment to comprehending and enhancing several facets of their educational institutions.

In conclusion, the study highlights the significant potential of blended learning to transform teacher education in Pakistan. However, to fully unlock its capabilities, it is necessary to tackle the difficulties that have been identified, guaranteeing a rewarding educational experience for each student.

FINDINGS AND DISCUSSION

Research Question 1: What obstacles do students face to blended learning at Pakistani universities?

A study was conducted to investigate student experiences with blended learning in higher education settings, and it revealed several prominent difficulties. Participants have noted many vital challenges:

- ✚ **Diminished Enthusiasm:** 91% of participants reported decreased desire or motivation when participating in blended learning modalities.
- ✚ **Technical Support Deficits:** An overwhelming majority, 87% of participants, expressed that they did not have sufficient technological support to fully utilize blended learning opportunities.
- ✚ **Absence of University-Driven Guidelines:** Remarkably, 98% of respondents stressed that the university's current policies or guidelines did not adequately support the blended learning strategy.
- ✚ **Time Constraints:** 83% of participants indicated that their hectic schedules hindered their full utilisation of blended learning.
- ✚ **Skill Deficiencies:** 94% of the participants said they needed the necessary skills to handle blended learning smoothly.

Table 1: Hindrances faced by the students with BL in Pakistani Universities

Challenges	Percentage (%)
Diminished Enthusiasm	91
Technical Support Deficits	87
Absence of University-Driven Guidelines	98
Time Constraints	83
Skill Deficiencies	94

Based on these observations, it is clear that a diverse strategy is necessary for blended learning to succeed in universities. To optimize the blended learning experience, addressing the problems described earlier is required, such as increasing student motivation, providing strong technical support, implementing supportive institutional policies, allocating sufficient time, and enhancing skills.

ARGUMENT

Blended learning has become a popular and cost-effective method of education. Students resonate with it because of their frequent contact with contemporary gadgets such as smartphones and computers. The emergence of platforms such as blogs and Facebook has further accelerated this strategy. Blended learning shows the potential to enhance student engagement. Assignments, particularly when combined with platforms such as WhatsApp, Facebook, and forums, become increasingly captivating for students. This fascination frequently results in increased drive and commitment to their academic pursuits compared to traditional approaches. Educational institutions promote blended learning due to its numerous benefits for teachers and students.

Studies suggest that this blended teaching method cultivates self-assurance and nurtures autonomy in students. Participating in tasks they direct themselves provides kids with problem-solving and critical thinking abilities. The abundance of online resources available to them helps further streamline complex issues. Furthermore, blended learning reduces the need for a highly supportive instructional style. Reserved children benefit significantly from digital engagement with educators and classmates since it provides a comfortable environment for communicating their academic difficulties. The introduction of blended learning has fundamentally transformed the nature of student-teacher interactions. Although it has provided students with enhanced opportunities for learning and revitalized their enthusiasm for education, it has drawbacks. The procedure, while beneficial, requires both time and a suitable setting. It is crucial to have specific requirements for this field, such as reliable internet connection, digital gadgets, and proper teacher training. Upon contemplation of their experiences, students expressed gratitude for the seamless integration of technology into the learning process, facilitating efficient understanding across many topics. However, they did not escape obstacles. Among these factors were the need for established plans for integrating technology into education, restricted time availability, gaps in skills, insufficient training, absence of technical support, underqualified staff, interruptions in energy supply, and limited funding. Blended learning is a powerful tool in education. It is essential to handle the issues that come with it to ensure a satisfying learning experience for students.

RECOMMENDATIONS

Research Question 2: What strategies can be implemented to enhance blended learning in higher education institutions in Pakistan?

- ✦ **Integration of Dedicated Learning Management System (LMS):** Educational institutions should implement blended learning strategies using a specialized Learning Management System (LMS).
- ✦ **Establishment of Clear Guidelines and Regulations:** Explicit standards and laws should be established to encourage and require implementing blended learning among teachers and students.
- ✦ **Provision of Essential Technical Infrastructure:** Universities must provide students and educators with complimentary access to licensed software, efficient servers, and high-speed internet connectivity to facilitate the seamless implementation of blended learning.
- ✦ **Promotion of Technological Expertise Among Educators:** It is essential to assist in terms of technical and logistical resources to guarantee that blended learning is efficiently utilized. In addition, educational institutions for teachers should incorporate courses that provide proficiency in contemporary technologies like Open Educational Resources, Virtual Reality, Artificial Intelligence, and Blockchain, aligning with the benchmarks set by developed countries.
- ✦ **Continuous Professional Development for Educators:** Regular training sessions and progressive seminars should be implemented to enhance educators' digital teaching competencies.
- ✦ **Enhancing Student Engagement Strategies:** Integrating mechanisms such as online assessments, quizzes, and assignments can enhance students' involvement in blended learning.
- ✦ **Maintaining Robust Technical Support Services:** To address the typical obstacles encountered in blended learning, educational institutions should establish a resilient technical support team that is accessible 24/7 to assist professors and students in resolving technological issues.
- ✦ **Ensuring Reliable Power Backup Systems:** Educational institutions should implement a dependable power backup system to mitigate the impact of power outages and guarantee uninterrupted and effective learning experiences.
- ✦ **Creation of Collaborative Online Spaces:** To maximize the advantages of blended learning, educational institutions should contemplate establishing interactive virtual platforms where students can actively participate in collaborative assignments and engage in peer-to-peer dialogues, thereby cultivating a feeling of community and augmenting educational achievements.
- ✦ **Implementation of Periodic Feedback Mechanisms:** It is essential to develop regular feedback channels. Institutions may enhance the blended learning experience by consistently seeking input from students and instructors, allowing them to pinpoint areas that need improvement and make necessary refinements.

CONCLUSION

According to the research findings, the general perception of university students in Pakistan towards blended learning is good. A

substantial number of individuals believe this strategy can improve their educational experience. They saw that tasks became more captivating, and their overall academic performance improved with integrated learning. This approach simplifies academic tasks and enhances the accessibility of complex subjects. It improves confidence among learners and promotes cooperative learning.

Moreover, it provides a digital forum for introverted students to engage with their teachers and peers. However, the research also identified specific challenges encountered by these students when embracing blended learning. The obstacles encompass a need for more supportive standards for integrating technology, limited resources, deficiencies in skills, slow internet connections, and a shortage of technical help. In summary, Pakistani universities still have a significant gap to bridge in improving their blended learning frameworks to meet international benchmarks.

FUTURE RESEARCH

Future research should compare the efficacy of blended learning in different academic fields within Pakistani universities. It is crucial to investigate the impact of cultural factors on the acceptability of blended learning, comprehend the changing dynamics between students and teachers in digital settings, and evaluate the preparedness of infrastructure for widespread deployment. Additionally, it is necessary to examine the influence of blended learning on student's ability to adapt to the labour market and assess the lasting consequences of this method on learners' advancement.

DECLARATIONS

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