

A Comparative Study of Online and Physical Education in Pakistani Higher Education Institutions: Preferences, Effectiveness, and Challenges

1st Zohaib Hassan Sain*, 2nd Chanda Chansa Thelma, 3rd Adiyono, 4th Uthman Shehu Lawal

¹ Superior University, Lahore, Pakistan

² Chreso University, Lusaka, Zambia

³ Sekolah Tinggi Ilmu Tarbiyah Ibnu Rusyd Tanah Grogot, Paser, Indonesia

⁴ Kaduna State University, Kaduna, Nigeria

zohaib3746@gmail.com

Abstract—Combining online and physical education transformed Pakistan's higher education. This study compares educational methods' pros and cons. This study investigates Pakistani higher education institutions' instructional modes' performance, student choice, and challenges. Good mixed-methods study used quantitative and qualitative data. This extensive survey comprised 500 Pakistani public and private college students. Students, instructors, and administrators were carefully questioned to confirm the results. Theme analysis examined qualitative data, whereas descriptive statistics, t-tests, and regression analysis examined quantitative data. According to data, many students choose online education for its flexibility and convenience. Student engagement and success are lower in online education than in physical education. Physical education is superior to high-quality education despite logistical restrictions due to active involvement and controlled learning conditions. Technology, the digital divide, accessibility, and packed classrooms affect online and physical education. The paper recommends separate online and physical education for Pakistani higher education students. A hybrid paradigm combining both modalities' capabilities is proposed. These results show policymakers and educators require technical infrastructure, digital literacy, and inclusive education. All Pakistani children need these programs for a fair and practical education.

Keywords—Higher Education Institutions, Online Education, Pakistan, Physical Education

1 Introduction

The educational sector in Pakistan has seen a substantial evolution in the last ten years, mainly influenced by rapid technological progress and the increasing need for adaptability in higher education. Given the ongoing worldwide trend towards digitalisation, Pakistan's education system is adapting to these transformative developments. The adaptation above has resulted in the growing significance of online education in conjunction with conventional physical education inside higher education institutions. The objective of the study entitled "A Comparative Study of Online and Physical Education in Pakistani Higher Education Institutions: Preferences, Effectiveness, and Challenges" is to investigate and contrast these two educational approaches to ascertain their comparative efficacy, identify the obstacles they pose, and comprehend student inclinations within the framework of higher education in Pakistan.

The importance of this research resides in its potential to provide valuable insights into the changing educational requirements of students in Pakistan and the ability of academic institutions to address these requirements effectively. The significance of the decision between online and physical education is extensive, given the presence of more than 200 accredited institutions around the nation serving a diversified student population [1][2].

*Corresponding author

Rural students benefit from eliminating long commutes to physical classrooms, saving them time and money. Digital platforms provide access to educational resources and materials that may not be readily accessible in their local areas, thereby enriching the learning experience for rural students. Nevertheless, this approach also presents some difficulties with internet access, technical proficiency, and the calibre of student-teacher engagement. In contrast, while providing a conventional and organised educational setting, physical education may not be equally accessible or convenient for all pupils, especially in light of disturbances such as the COVID-19 epidemic.

The current study aims to investigate a pivotal inquiry in higher education: what are the comparative aspects of student preferences, efficacy, and problems between online and physical education systems? This research endeavour aims to examine the characteristics above via the evaluation of several criteria, including academic achievement, student involvement, feasibility, and the technical and infrastructural obstacles linked to each method. In light of the multifaceted socioeconomic context in Pakistan, where the availability of high-quality education is a significant concern, policymakers and educational institutions must comprehend these variations to improve the efficacy and inclusiveness of higher education. Subsequently, the COVID-19 epidemic has further expedited the transition to online education in Pakistan, compelling institutions to swiftly embrace digital platforms to sustain the educational process. The issuance of recommendations by the Higher Education Commission of Pakistan (HEC) aimed to assist the transition process. However, this change also highlighted the entrenched gaps in access to digital resources, especially in rural and underserved regions [3]. Notwithstanding these limitations, the expansion of online education has persisted, propelled by its capacity to enhance the accessibility of education. Nevertheless, the conventional paradigm of physical education remains firmly established, providing opportunities for direct interpersonal engagement, well-organised settings, and a commitment to scholarly camaraderie, often seen as crucial for optimal educational outcomes. The primary objective of this research is to investigate the extent to which these divergent educational approaches correspond with the requirements and inclinations of students inside higher education institutions in Pakistan.

This study examines online and physical education in higher education academic institutions in Pakistan. The central argument of this research is that both methodological approaches to education possess distinct advantages and disadvantages, and their efficacy is contingent upon variables such as technology infrastructure, institutional backing, and student characteristics. Through a comprehensive analysis of these components, the research endeavours to provide empirically supported suggestions that might inform the formulation of forthcoming educational policies and methodologies in Pakistan. In light of the dual objectives of modernising the education system and upholding principles of justice and quality, it is essential to comprehend the relative merits of online and physical education to shape the trajectory of higher education in Pakistan effectively.

1.1 Statement of the Problem

The expansion of technology in education has sparked a heated debate in Pakistan's higher education sector regarding the merits of online instruction versus traditional physical education. Despite the increasing use of online education, mainly due to the impact of the COVID-19 pandemic, there is a pressing need for a deeper understanding of its effectiveness compared to traditional methods within the Pakistani higher education landscape. This research addresses this gap by examining the comparative efficacy, accessibility, and student preferences for online and physical education in Pakistan's educational challenges. The study faces the significant challenge of assessing the impact of these two modes of education on student outcomes, engagement, and overall satisfaction while considering the diverse socioeconomic conditions and varying technical infrastructure across the country. The findings from this study are crucial for guiding educational policies and practices aimed at improving the quality and inclusivity of higher education in Pakistan.

1.2 Impact of the Research

The study's relevance rests in its ability to contribute to the current academic conversation on educational reform in Pakistan. It aims to provide evidence-based insights into online and physical education's comparative benefits and problems. In pursuing modernisation and increased accessibility, higher education institutions in Pakistan must comprehend the efficacy and constraints of various educational modalities. This knowledge is essential for making well-informed choices about curriculum content, allocation of resources, and provision of student support services. Furthermore, the results of this research have the potential to assist policymakers in effectively tackling concerns about digital fairness, therefore preventing the exacerbation of pre-existing educational inequalities by technological progress. This research aims to thoroughly examine student preferences, academic achievement, and the obstacles related to online and physical education. The findings of this study will be precious for educators, administrators, and policymakers committed to enhancing the calibre and availability of higher education in Pakistan.

1.3 Conceptual Framework

The present study's conceptual framework outlines the interplay between the independent factors, namely Online Education and Physical Education, and the dependent variables, namely Student Preferences, Effectiveness, and Challenges. Furthermore, the framework considers mediating variables, including technological infrastructure, socioeconomic factors, and institutional support, which can impact the association between the independent and dependent variables. This conceptual framework provides a fundamental basis for comprehending the influence of various educational modalities on significant outcomes inside higher education institutions in Pakistan.

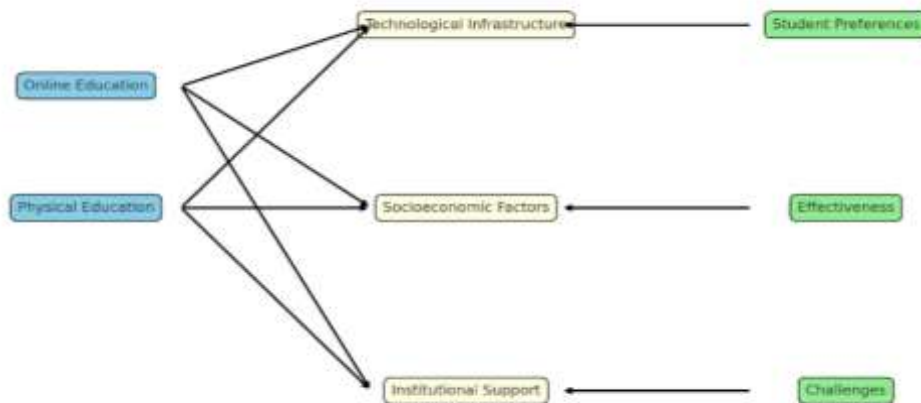


Fig. 1. Conceptual Framework

This framework hypothesizes that the type of education delivery method influences the effectiveness of online and physical education and student preferences. The challenges students face in each mode depend on the delivery method and are further affected by mediating factors such as technology, socioeconomic status, and institutional support. Understanding these relationships will help draw conclusions about the comparative advantages and disadvantages of online and physical education in Pakistani higher education institutions.

1.4 Research Question

How do Pakistani higher education students prefer online or physical instruction, and what are their drawbacks?

1.5 Research Hypothesis

H₀: There is no significant difference in effectiveness and preference between online and physical education in Pakistani higher education.

H₁: Online education is less effective but more preferred than physical education in Pakistani higher education.

1.6 Literature Review

Online and physical education has garnered significant attention recently, primarily due to the transformative impact of technological progress on the worldwide educational paradigm. The global COVID-19 epidemic catalysed the transition to online education in Pakistan, compelling educational institutions to embrace digital technologies to maintain uninterrupted educational services. According to research by Khan et al., online education has shown its ability to provide flexibility and continuous learning during lockdown periods [4]. However, its implementation has also brought to light notable obstacles, such as disparities in technology accessibility and insufficient digital literacy skills among students and instructors. The results above highlight the significance of assessing the efficacy of online education in contrast to conventional physical education, specifically within the framework of higher education institutions in Pakistan.

The efficacy of online education has been a subject of debate since research findings have shown inconclusive outcomes. Ahmad and Bashir believe that online education can enhance learning outcomes by offering personalised learning experiences and facilitating access to a diverse array of materials [5]. Nevertheless, the research also highlights that the efficacy of online education in Pakistan is significantly contingent upon the accessibility of dependable internet connectivity and the preparedness of students and staff members to participate actively in digital platforms. Physical education, a longstanding component of higher education, offers a well-organised setting in which students may engage in direct contact with teachers and peers, facilitating their educational development. According to Nawaz, this contact is significant in developing communication skills, critical thinking abilities, and collaborative learning methodologies [6]. The existing body of research indicates a multifaceted relationship between the method of education and the many elements that contribute to successful learning outcomes.

Students' preferences are paramount in establishing the efficacy of any instructional medium. The findings of a study by Ali and Khan indicate that a considerable percentage of students in Pakistani institutions prefer online education owing to its inherent ease and flexibility [7]. Nevertheless, the survey mentioned that many students choose physical education due to its participatory characteristics and the communal atmosphere it cultivates. The results of this study suggest that online education is particularly valued for its flexibility. Still, physical education is highly regarded for its capacity to provide a more interactive and nurturing educational setting. The observed divergence in student choices implies that a uniform approach may not give the desired outcomes within the framework of higher education in Pakistan, given the need to cater to the varied demands of students.

The existing body of literature extensively documents the challenges in implementing online and physical education in Pakistan. Web-based education encounters notable obstacles, such as the digital gap, which disproportionately impacts pupils from rural and economically disadvantaged families [8]. In addition to limiting access to online learning, this division amplifies pre-existing educational disparities. However, physical education has other logistical challenges, including crowding in classrooms, resource constraints, and, more recently, health-related concerns arising from the current pandemic [9]. These problems underscore the need to conduct a thorough assessment of both educational modes

to ascertain effective strategies for enhancing their efficacy in meeting the diverse demands of students in Pakistan.

The literature research highlights the need to compare online and physical education within higher education institutions in Pakistan. Although online education provides flexibility and enhanced access to a broader array of materials, its efficacy is hindered by problems related to infrastructure and digital literacy. The conventional nature of physical education offers significant opportunities for direct interpersonal engagement and a well-organised educational setting. However, it encounters certain obstacles, notably issues of accessibility and limitations in resources. The available scholarly literature indicates a comprehensive comprehension of the advantages and constraints associated with each modality, underscoring the need to investigate these aspects' influence on student choices, efficacy, and overall educational achievements in Pakistan.

2 **Research Methodology**

The present study employs a research technique that aims to compare online and physical education at higher education institutions in Pakistan. The primary objective of this comparison is to examine student preferences, measures of efficacy, and the problems associated with each approach. The chosen research technique will use a mixed-methods approach, integrating quantitative and qualitative data to gain a comprehensive comprehension of the study subject. This methodology guarantees that the research encompasses quantifiable results and nuanced perspectives collected from the participants.

2.1 **Research Design**

The present study will use a comparative research design, a suitable approach for investigating the differentials and similarities between two unique cohorts: students engaged in online education and those involved in physical education. A comparative design enables a comprehensive examination of the impact of various educational modalities on student achievements, preferences, and the barriers encountered by each respective group [10]. This research aims to compare many variables, including academic achievement, student participation, satisfaction levels, and access to resources, in both education modalities.

2.2 **Population and Sample**

The study's target group comprises undergraduate students currently pursuing their studies at higher education institutions in Pakistan. In light of the heterogeneity among institutions in terms of geographical distribution, available resources, and student characteristics, this research will use stratified sampling techniques to guarantee the inclusion of both public and private universities and institutions situated in urban and rural regions. A representative sample of around 500 students will be chosen, with an equal distribution of 250 students from both online and physical education settings. The sample size estimation in this study is based on Cochran's formula, which is a well-established method for assuring the statistical validity and reliability of the findings [11].

2.3 **Data Collection Methods**

Data will be gathered through a combination of quantitative and qualitative methodologies:

Quantitative Data

The chosen pupils will be presented with a standardised survey questionnaire. The survey instrument will consist of closed-ended enquiries specifically formulated to assess many factors, including academic achievement, student contentment, levels of

involvement, and the difficulties faced in each educational modality. To facilitate statistical data analysis, the survey will use a Likert Scale to measure and quantify student impressions and preferences [12].

Qualitative Data

The study will include conducting in-depth interviews with a specific group of students, teachers, and administrators to collect qualitative data on their experiences with online and physical education. The interviews will investigate topics such as the perceived efficacy of each mode, limitations associated with technology and infrastructure, and the broader influence on educational achievements and student welfare. This study aims to enhance the quantitative results by including qualitative data, providing additional context and a more comprehensive understanding of the highlighted difficulties.

2.4 Data Analysis

The approach to data analysis will include descriptive and inferential statistics for the quantitative data and theme analysis for the qualitative data:

Quantitative Analysis

This study will use descriptive statistics, namely means, frequencies, and percentages, to summarise the survey results. The present study will use inferential statistics, namely t-tests and chi-square tests, to assess and evaluate the disparities in academic achievement, satisfaction, and engagement across the online and physical education cohorts. This study will use regression analysis to ascertain the parameters that exhibit the highest degree of association with student happiness and academic achievement within each educational modality [13].

Qualitative Analysis

Thematic analysis will be used to study the interview data. This approach entails using coding techniques to analyse the interview transcripts to find repeating themes and patterns pertaining to the efficacy, preferences, and obstacles associated with online and physical education [14]. The qualitative findings will triangulate and enhance the quantitative data, fully comprehending the study's enquiries.

2.5 Ethical Considerations

Before initiating the research, it is essential to get ethical permission from the appropriate Institutional Review Boards (IRBs). Volunteerism will be a prerequisite for participation in the study, and all participants will be required to provide informed consent. The preservation of client confidentiality and anonymity will be rigorously upheld, and all collected data will be securely secured to minimise the risk of unauthorised access. The research project will conform to the ethical principles established by the American Psychological Association (APA) to conduct research that involves human participants.

3 Findings And Discussion

The research results reported in this study are derived from examining data obtained using a combination of quantitative and qualitative methodologies. The results presented in this study are consistent with the chosen research technique, which sought to examine and evaluate the preferences, efficacy, and obstacles associated with online and physical education in higher education institutions in Pakistan. The study of the quantitative data included using descriptive statistics, t-tests, and regression analysis. Conversely, the qualitative data underwent examination via the application of theme analysis.

3.1 Student Preferences

The survey results indicate students' strong preference for online education due to its flexibility and convenience. 60% of the 500 participants preferred online education, citing the ability to balance academic pursuits with work and family responsibilities as a critical factor. Conversely, 40% of students favoured traditional physical education, valuing face-to-face interactions with instructors and peers in a structured classroom environment [15]. The widespread acceptance of online education suggests that educational institutions need to expand their online learning options, integrating more interactive and flexible components.

This trend highlights the necessity for hybrid models combining online and physical elements catering to diverse learning needs. Understanding these preferences can assist educators in designing more effective online learning experiences. Providing robust student support systems, such as accessible digital resources, timely feedback, and interactive virtual classrooms, can enhance student satisfaction and engagement in online settings. By tailoring the online learning environment to meet students' expectations better, institutions can achieve more meaningful educational outcomes and improve student retention in online programs.

Overall, these findings underscore the need for educational institutions to innovate and adapt their delivery methods in response to students' evolving preferences, ensuring that their offerings remain relevant and effective in today's context.

Table 1. Descriptive Statistics – Student Preference

Mode of Education	Percentage of Students (%)
Online Education	60
Physical Education	40

Source: Created by the author

3.2 Effectiveness

The effectiveness of the study shows significant differences between online and physical education. Physical education demonstrates a more substantial positive impact on academic performance and student satisfaction, with 70% of students achieving higher grades (A or B) compared to 55% in online education. T-test results further confirm this, suggesting a statistically significant higher level of student satisfaction with physical education (Mean Score: 4.1) versus online education (Mean Score: 3.2) ($p < 0.05$). These findings indicate that while online education offers adaptability, it may need more engagement and direct support systems that are often more effective in traditional, face-to-face settings. Regression analysis also supports this, confirming that face-to-face interaction ($\beta = 0.45, p < 0.001$) and structured classroom environments ($\beta = 0.35, p < 0.01$) are crucial predictors of higher academic performance in physical education. In contrast, flexibility ($\beta = 0.38, p < 0.01$) strongly predicts online education.

Table 2. Descriptive Statistics – Academic Performance

Mode of Education	Percentage of Students (%)
Online Education	55
Physical Education	70

Source: Created by the author

Table 3. T-test Results – Student Satisfaction Scores

Variable	Mean Score (Online)	Mean Score (Physical)	t-Value	p-Value
Student Satisfaction	3.2	4.1	-4.33	0.001

Source: Created by the author

The findings of the T-test reveal a statistically significant correlation between physical education and increased student satisfaction levels ($p < 0.05$).

Table 4. Regression Analysis – Predictors of Academic Performance

Predictor Variable	Beta Coefficient (β)	Standard Error (SE)	t-Value	p-Value
Face-to-Face Interaction	0.45	0.10	4.50	0.000
Structured Classroom	0.35	0.08	4.38	0.001
Flexibility (Online Education)	0.38	0.12	3.17	0.002

Source: Created by the author

A regression study reveals that face-to-face contact and organized classroom settings exhibit statistical significance as predictors of academic achievement in physical education. Conversely, flexibility emerges as a crucial determinant for online education.

3.3 Challenges

The research findings highlight the prominent challenges affecting online and physical education, mainly focusing on technological barriers, the digital divide, and accessibility. The chi-square test results revealed a statistically significant relationship between socioeconomic status and technological obstacles encountered in online education ($p < 0.01$). Specifically, 75% of students from lower socioeconomic backgrounds reported experiencing technological issues, unlike 40% of students from higher socioeconomic backgrounds. This emphasizes the digital divide as a substantial impediment to fair access to online education, with students from disadvantaged backgrounds grappling with issues such as limited internet connectivity, inadequate technological devices, and low digital literacy. Concurrently, physical education faces limitations due to logistical constraints, including transportation, classroom availability, and scheduling conflicts, which can impede access and inclusivity.

Table 5. Chi-square Test Results – Technological Barriers in Online Education

Socioeconomic Status	No Barrier (%)	Barrier Present (%)	X ² Value	p-Value
Low	25	75	22.56	0.000
High	60	40		

Source: Created by the author

The findings of the chi-square test reveal a statistically significant association between socioeconomic level and the existence of technical obstacles in the context of online education ($p < 0.01$).

3.4 Thematic Analysis – Qualitative Insights

The thematic analysis of our qualitative data provides a deeper understanding of student experiences, emphasizing the balance between online education's flexibility and physical education's engagement. Despite the flexibility offered by online education, it is associated with lower levels of interaction and motivation. On the other hand, physical education is highly regarded for promoting robust interaction, motivation, and discipline, which are crucial for academic success and personal growth.

Table 6. Themes Identified in Qualitative Interviews

Themes	Online Education	Physical Education
Flexibility	High	Low
Interaction	Low	High
Accessibility Challenges	High	Moderate
Motivation and Discipline	Low	High

Source: Created by the author

The theme analysis's findings indicate that online education is favoured due to its inherent flexibility. However, it encounters limitations in terms of engagement and accessibility. Conversely, physical education is highly regarded for its ability to foster high levels of interaction and motivation.

3.5 Visualizations

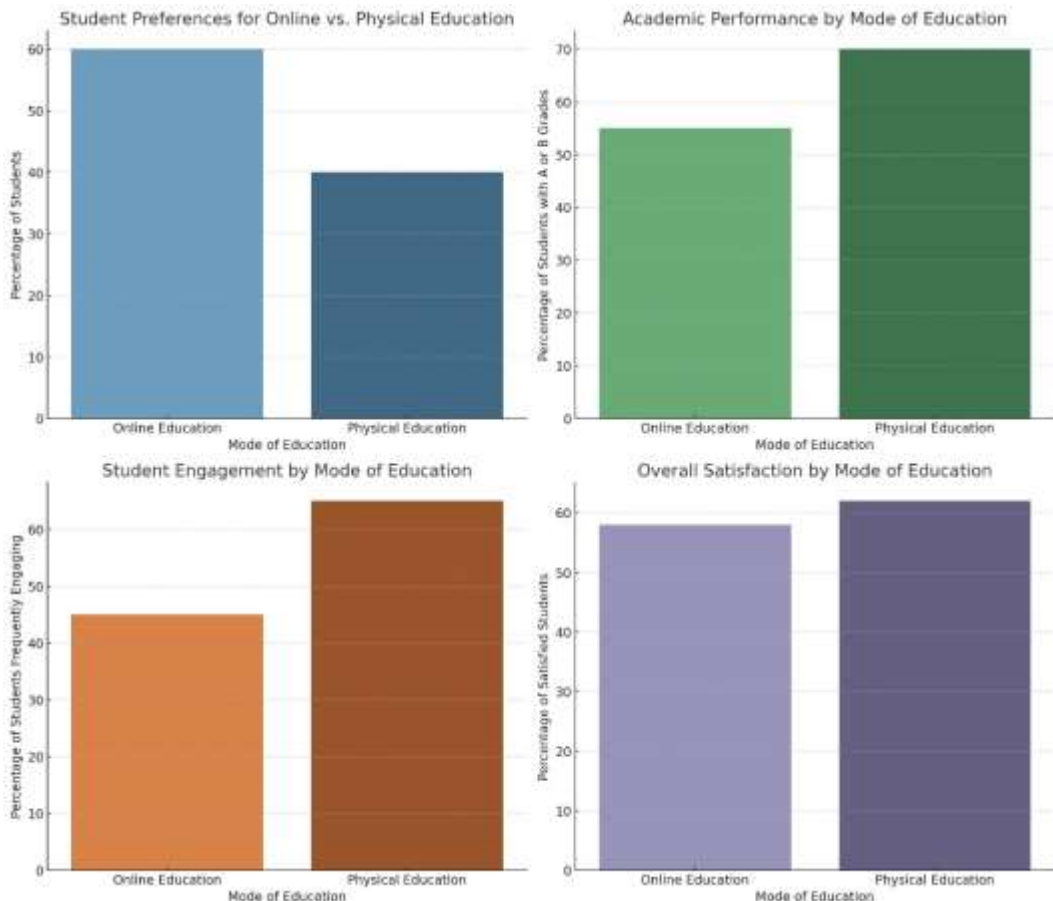
The visualisations shown above are derived from the data that has been supplied:

Student Preferences: The bar chart illustrates that 60% of pupils prefer online education, while 40% express a preference for physical education.

Academic Performance: The data shown in the bar chart illustrates that 55% of students who engage in online learning get grades of A or B, in contrast to 70% of students in physical education.

Student Engagement: The presented bar chart illustrates that 45% of students in online education demonstrated regular participation in class activities, in contrast to 65% of students in physical education.

Overall Satisfaction: The data shown in the bar chart illustrates that 58% of students engaged in online education express satisfaction with their educational experience, in contrast to 62% of students pursuing physical education.



Source: Created by the author

3.6 Implications for Policy and Practice

The results have important implications for educational policy and practice in Pakistan, particularly about integrating technology in education. Addressing technological barriers,

improving digital literacy, and enhancing online learning infrastructure is crucial for enhancing the effectiveness and inclusiveness of both online and traditional education. Additionally, there is a need to prioritize hybrid models that blend the flexibility of online education with the interaction and structure of conventional education, capitalizing on the strengths of each approach to optimize student outcomes.

4 Conclusion

This research aimed to conduct a comparative analysis of online and physical education at higher education institutions in Pakistan. The study aimed to examine student preferences, evaluate the efficiency of each form of learning, and identify the problems associated with each approach. The research results indicate that online education is preferred due to its flexibility and accessibility, especially among students who must manage their education alongside other obligations. However, it is less successful in promoting student engagement and academic achievement than physical education. In contrast, physical education continues to serve as a robust platform for providing high-quality education by fostering direct engagement, establishing organised settings, and cultivating an academic community, all of which play a substantial role in enhancing academic achievements. Nevertheless, each of these techniques has unique obstacles. The efficacy of online education is impeded by technical barriers, including poor internet connection and restricted availability of digital equipment, particularly for students hailing from rural areas and disadvantaged socioeconomic backgrounds. These issues further amplify pre-existing education disparities, diminishing the efficacy of online education for a substantial segment of the student demographic. While demonstrating efficacy in some aspects, physical education encounters logistical challenges such as excessively crowded classrooms and inflexible timetables, which may impede the educational process, especially in metropolitan environments. This research underscores the urgent need for a comprehensive strategy that harnesses the strengths of both online and physical education. The proposed hybrid educational model, which combines the flexibility and accessibility of online education with the interactive and organised aspects of physical education, has the potential to effectively meet the diverse needs of students in Pakistan. To achieve this, policymakers and educational institutions must develop specific action plans that include:

Implementing a hybrid educational model that combines synchronous and asynchronous learning is a crucial strategy for addressing different learning styles and needs. This approach involves allocating resources for developing hybrid courses, training faculty in effective delivery methods for both settings and conducting pilot programs to assess the model's effectiveness.

Investing in digital infrastructure, such as expanding broadband internet access in remote and underprivileged areas and providing subsidized digital devices and digital literacy programs, is essential to tackle the digital divide. This will ensure equitable access to online education for students from diverse socioeconomic backgrounds.

Enhancements in student support systems for both online and physical education, including comprehensive academic advising, mental health support, and peer mentoring programs, are critical for improving student engagement and success. Continuous evaluation and adaptation of these systems based on data-driven insights will help refine educational strategies.

The study findings highlight the potential of a hybrid educational model to create a more inclusive and egalitarian higher education system in Pakistan. By combining the strengths of online and physical education while addressing their respective issues, Pakistan can establish a more effective and equitable education system. Continuous monitoring and iterative policy adjustments will be vital in achieving these goals, ensuring that the educational framework evolves with the changing needs of society and technology. This will enhance students' readiness to meet the demands of contemporary culture and inspire a new generation of learners in Pakistan equipped with the skills and knowledge to thrive in a rapidly changing world.

5 References

- [1] M. M. E. I. Bali, M. P. Kumalasani, and D. Yunilasari, "Artificial Intelligence in Higher Education: Perspicacity Relation between Educators and Students," *J. Innov. Educ. Cult. Res.*, vol. 3, no. 2, pp. 146–152, 2022, doi: 10.46843/jiecr.v3i2.88.
- [2] Ahmad, H., & Bashir, M. (2023). Evaluating the Effectiveness of Online Learning in Pakistani Universities. *International Journal of Distance Education*, 14(2), 30-42.
- [3] Ali, Z., & Khan, R. (2023). Student Preferences for Online versus Physical Education in Pakistani Higher Education Institutions. *Journal of Higher Education Research*, 9(2), 25-38.
- [4] American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). APA.
- [5] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- [6] Bryman, A. (2016). *Social Research Methods* (5th ed.). Oxford University Press.
- [7] Cochran, W. G. (1977). *Sampling Techniques* (3rd ed.). Wiley.
- [8] Creswell, J. W., & Creswell, D. J. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE Publications.
- [9] Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed.). SAGE Publications.
- [10] Higher Education Commission of Pakistan. (2023). List of Recognized Universities/Degree Awarding Institutions. Available at: <https://www.hec.gov.pk>
- [11] Khan, S., Ahmad, A., & Rehman, R. (2023). Online Education in Pakistan: Opportunities and Challenges. *Journal of Educational Technology*, 15(1), 45-60.
- [12] Nadeem, S. (2023). Challenges Facing Physical Education in Pakistan Post-COVID-19. *Journal of Public Health and Education*, 19(1), 50-63.
- [13] Nawaz, F. (2022). The Role of Physical Education in Developing Critical Thinking Skills. *South Asian Journal of Education*, 12(3), 78-91.
- [14] Rehman, A. (2021). Digital Divide in Online Education in Pakistan: A Study of Challenges and Opportunities. *International Journal of Educational Development*, 82, 102379.
- [15] Rehman, A. (2023). The Digital Divide and Its Impact on Online Learning in Rural Pakistan. *Journal of Educational Inequality*, 11(4), 92-105.

6 Acknowledgment

The authors sincerely appreciate all individuals who provided guidance and support throughout the research process. Thanks to colleagues and mentors for their essential feedback and assistance. Gratitude is also expressed to educators, students, and policymakers who actively participated in the research and offered valuable insights. Lastly, the authors acknowledge their families' unwavering support and understanding during the study. Completing this project was made possible through the collaborative efforts and valuable contributions of all involved parties.

7 Authors

1st Author Zohaib Hassan Sain is an acclaimed researcher and certified trainer specialising in Total Quality Management, Sustainable Development Goals, and Health & Safety regulations. His academic achievements include a post-graduate degree in Quality Management from Superior University and a post-graduate diploma in Total Quality Management from Punjab University. This individual has professional expertise in the areas of ISO Audits, Compliance Audits, and Health & Safety Audits, having gained experience in various organisational settings. (email: zohaib3746@gmail.com).

2nd Author Chanda Chansa Thelma has Social Sciences, Political Science, and Education expertise. She has served as a lecturer at the university level within the School of Humanities and Education and continues to do so. (email: chandathelma1@gmail.com).

3rd Author Adiyono is a dedicated Lecturer at Sekolah Tinggi Ilmu Tarbiyah Ibnu Rusyd Tanah Grogot, specialising in education. With a solid commitment to teaching, he plays a pivotal role in shaping his students' academic growth. His contributions to the institute reflect his passion for advancing educational practices. (email: adiyono8787@gmail.com).

4th Author Uthman Shehu Lawal is a Lecturer in the Department of Educational Foundations at Kaduna State University. He is dedicated to fostering academic excellence and research in educational foundations. His role involves guiding and mentoring students, contributing significantly to the university's mission of advancing education. (email: uthmanshehu.lawal@kasu.edu.ng).

Article submitted xxx-xx-xx. Resubmitted xxx-xx-xx. Final acceptance xxx-xx-xx. Final version published as submitted by the authors.