Evaluating the Effectiveness of AI-Driven Adaptive Assessments in Measuring Student Knowledge and Skills

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ABSTRACT
The purpose of this study was to analyze the impact of AI-based adaptive assessments on measuring the level of knowledge and skills of students at four public universities in Lahore, Rawalpindi, and Islamabad, Pakistan. The study used a mixed-methods approach and focused on 380 undergraduate students from the fields of computer science, business administration, and engineering. Subjects were assigned to the experimental and control groups, where the experimental group utilized AI-based adaptive assessment platforms and the control group underwent traditional assessments. The data collection lasted for a whole academic semester and involved the use of an assessments administered pre and post experiment and qualitative data collected via semi-structured interviews from twenty-five faculty members and fifty students in focus groups. In the quantitative phase of this study, it was discovered that the experimental group students scored higher, retained knowledge better, and completed tests in a shorter amount of time than those in the control group. In the qualitative phase, further points emphasized were the level of students' engagement, crafting of personalized learning experiences, and introduced challenges in the initial phase of application related to the tech available and the faculty. Statistical evaluations made via t-test, ANOVA, and regression confirmed the use of Adaptive AI assessments for the first time ever in measuring students learning outcomes. The study concluded by stating that Adaptive AI assessments in Pakistan higher education are most likely to flourish, given that adaptive AI assessments are made available to all students, subject to the available tech.

Keywords: Impact, Ai-Based Adaptive Assessments, Knowledge, Skills, Traditional Assessments, Students' Engagement, Pakistan.

INTRODUCTION

Advancements in artificial intelligence (AI) over the last few decades have touched almost all sectors in the world. Education was the first to be AI enabled. In all higher education institutions in Pakistan, evaluation was only in the format of standard, paper based, one-size-fits-all examinations, regardless of students' learning level, pace, and knowledge. These assessments missed to appropriately assess competencies and provide the required information that can close the learning gap (Kumar et al., 2024). AI providing adaptive assessments was a game and paradigm changing opportunity in the way education was evaluated. It provided the ability to personalize testing, to be responsive and interchangeable in assessments based on the students' ability, and to provide real-time feedback to students and teachers. These assessments were the first opportunity to bridge the gaps provided by traditional assessments in the evaluation of students. These assessments were able to provide in an ongoing manner knowledge and skill diffusion to the students and feedback to the educators and teachers (Ahmad et al., 2025).

Several difficulties characterized higher education in Pakistan: assessment practices, larger proportions of classes, lack of resources, and streamlined standardized testing methodologies that did not account for the complexity or variation in students' learning styles and learning capabilities (Anam et al., 2025). Universities in major cities, including Lahore, Rawalpindi, and Islamabad, encountered issues: attempting to devise assessment practices that represented students' competences and capabilities, with the pressure of the global education system's competitiveness (Nisar & Din, 2025). The use of AI-based adaptive assessment methodologies offered the elevation of assessment practices; AI, through the use of algorithms and real-time data analyses, the assessment adaptive to the learning experiences of students. These systems assessed gaps in knowledge and tracked the margin of learning with each assessment, fine-tuning subsequent assessment questions. The real-time assessment systems adapted to a higher order, providing knowledge assessments of students. The use of these AI adaptive systems provided educational institutions in Pakistan a means of enhancing their assessment practices and competencies to prepare students for a technology-driven professional system. This learning opportunity offered these institutions a means of aligning their practices with the global education systems (Sain & II, 2023).

What an effective AI-enabled adaptive assessment tools are to measure student learning and assessment is an unknown and requires evidence, especially in the context of Pakistan. Other countries have conducted and published research and have documented evidence to confirm adaptive assessment's ability to improve learning outcomes for students. The unique context of higher education in Pakistan in terms of socio-culture, technology, and education requires specific documented evidence (Asad & Memon, 2025). The ability of faculty and students to use technology, the difference in technological tools working at the universities, and the use of traditional teaching methods can present AI adaptive assessment systems with many conditions. The potential educational use and adaptive technology in Pakistan raise important educational policy, resource, and faculty development questions (Mustafa et al., 2024).

This research attempted to fill the gap with the evidence of mixed methods research with the adaptive assessment technologies in Pakistani higher education in order to establish the quantitative results and to identify the users' qualitative experiences. The research impacts were related to the challenges of technology adoption in educational equity, quality assurance, and learned outcomes incorporating technology in education. Adaptive assessment technologies calmed test anxiety, provided immediate feedback, drove

engagement through gamifying assessment, and offered instructional data. There were hurdles to technology adoption, including faculty training, student acceptance, technology infrastructure, and integration into existing curricula and assessment plans. This research contributed to evidence on challenges in the adoption of AI-driven Adaptive Assessment Technologies in Pakistan. This work contributes to the integration of technologies in educational practice in developing countries to university administrators, policymakers, and educators to modernize assessment and improve educational quality in Pakistan's higher education.

RESEARCH OBJECTIVES
To examine the difference in the level of knowledge and skills of students in the undergraduate programs and assessment practices of varied AI-driven adaptive assessment technologies and conventional assessment practices in universities in Lahore, Rawalpindi, Islamabad.
To assess test anxiety, learning outcomes, and engagement level of adaptive assessment technologies in Pakistan's higher education.
To assess the barriers to the implementation of AI adaptive assessment technologies in Pakistani state universities, as well as their benefits and faculty perceptions.

RESEARCH QUESTIONS
How accurate, reliable, and effective are AI-driven adaptive assessments compared to traditional assessments in measuring knowledge and skills of students in Pakistani universities?
How do AI-driven assessments impact students' engagement, learning outcomes, test anxiety, and time spent completing the assessment?
What are the main challenges, advantages, and perceptions of faculty AI adaptive assessment implementations in Pakistani public universities?

SIGNIFICANCE OF THE STUDY
The impact of this research on higher education in Pakistan was substantial as it was the first to document the effectiveness AI-driven Adaptive Assessments measuring students' competencies for educators and administrators in Pakistan. The evidence gathered served to communicate the challenges and advantages of employing intelligent assessment technologies to stakeholders in academia and administration, enabling them to make informed decisions on the use and integration of technologies as well as restructuring pedagogical practices. The research bridged a gap in previously identified and documented modern and traditional assessment practices in Pakistani universities, while addressing the critical issues of educational quality and student learning outcomes. The research, integrating qualitative and quantitative data, delivered a basis for measuring and documenting student learning outcomes, which in turn provided data for faculty development, curriculum, and educational policies related to the use of technology in education. Moreover, this study added to the scant literature regarding the use of AI in South Asian education, will serve as an important point of reference for many other studies, and added to the worldwide conversations regarding adaptive learning technologies in multiple cultures and institutions.

LITERATURE REVIEW
The application of artificial intelligence technology to educational assessments was a deviation from the conventional testing practices that had been used by educational institutions for a long time (Aslam et al., 2025). Conventional assessments such as, multiple-choice tests, essay tests, and standardized tests employed the same level of difficulty for the all of the students, irrespective of the differences in their individual abilities and learning paths. These methods failed to measure students' individual skills

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and to adapt to different learning styles. By educational researchers testing methods in the late 20th century, computer-adaptive assessments methods began the first personalized assessments, in which students' difficulties level were in response to the test. However, the first adaptive learning systems used less sophisticated algorithms and item response geometric models that AI empowered systems can used today. Over the last several years, adaptive assessment systems have been immensely improved thanks to advancements in machine learning and analysis of big data, allowing to systems to identify complex students' patterns of responses, predict learning outcomes, and provide personalized feedback in real time (Awad & Al Adwan, 2024).

The effect of AI-driven adaptive assessments in measuring knowledge and skills has shown to be highly effective in cases studied internationally (Strielkowski et al., 2025). In developed countries, these adaptive assessments were shown to be significantly more effective in measuring the abilities of individual students and tailoring assessments to their capability, when compared to more standard non-adaptive assessments. Because adaptive assessments build on the responsiveness of the assessments, they can more successfully and accurately measure individual student's abilities (Demartini et al., 2024). Research has shown these adaptive systems to be effective in closing knowledge gaps on the part of students by diagnosing the nature of the gaps and providing them with the appropriate level instructional support to enable them to be more successful. These AI-driven systems stack a variety of useful data to compose a profile of the individual student for instructional purposes, because the assessments measure knowledge gaps in conjunction with responses to instructional content. Adaptive assessments allow students to demonstrate knowledge at their own level, and to the extent that the assessments adapt to a student, they can mitigate the stress of the assessments, compared to more static traditional assessments (Luo & Hsiao-Chin, 2023).

Although AI-driven adaptive assessments hold value, they may not be relevant to developing countries as they face unique challenges regarding technological infrastructure, digital literacy, and institutional readiness. Research from South Asia's educational contexts documented concerns regarding poor internet access, a lack of digital devices, and differences in computer and literacy skills among students and faculty. These technological barriers impact the potential of adaptive assessments. Other factors such as resistance to change among faculty, cultural preferences for traditional pedagogy, and familiarity with assessment formats challenged the acceptance and adoption of AI-driven adaptive assessments. Studies focusing on integrating technologies in education in Pakistan point to an absence of training for teachers, a lack of funding for educational technologies, and insufficient implementation practices as barriers. The digital divide and differences in educational facilities created an uneven landscape for the adoption of educational technologies (Aziz & Hossain, 2024).

The fusion of cognitive psychology, educational measurement theory, and computer science formed the bedrock of the theory behind adaptive assessments. Algorithms of adaptive testing were built upon item response theory, a branch of math, which allowed the programs to calculate a student's ability and subsequently adjust the difficulty level of the item (Liu & Jiang, 2024). Adaptive assessments were designed using cognitive load theory, which stresses the alignment of task difficulty to learner ability so that cognitive resources are used to facilitate the learning process instead of being drained with a task that is too advanced. The personalized nature of adaptive assessments was also supported by constructivist learning theories that undergirded individualized instruction and learner-centered education. The intelligence behind adaptive systems was powered by machine learning algorithms, especially neural networks and decision trees, which

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offered the ability to pattern recognition, predictive modeling, and iterative improvement through data. The combination of these theoretical perspectives resulted in the development of advanced assessment systems that could evaluate a learner's ability to perform a range of complex skills, give formative feedback, and create opportunities for ongoing individualized instruction (Song et al., 2023).

The discrepancies within the existing literature about students' perception and experiences with AI-driven adaptive assessments led some researchers to conduct studies to better understand the phenomena. Some researchers noted that students' engagement and motivation increased because of the adaptability and interactive nature of most of the modules. Conversely, some researchers noted that students experienced discomfort and anxiety with the new types of adaptive assessments. Students overall seemed to appreciate the instant feedback provided from the adaptive systems, but issues of transparency became apparent. Some students felt that the systems were black boxes that had undiscussed and unexplained mechanisms determining the difficulty of comments and the correlate responses (Sanmugam et al., 2025). Faculty members also had differing opinions on adaptive assessments with some educators appreciating the data and personalization of feedback and insights, while others expressed concerns of the validity of the assessment of the algorithms, and the erosion of human assessment. There diverse opinions on these assessments illustrated the need for the stakeholders to communicate, and then educate these stakeholders on the various goals, methods, and benefits of AI-driven adaptive assessments to ensure these systems were able to be used and maintained over the long term (Diyaolu et al., 2025).

RESEARCH METHODOLOGY

The researchers employed a mixed-method approach to assess the degree to which AI-managed adaptive assessments determine what college students in Pakistan know and can do. The study sampled 380 undergraduate students from computer science, business administration, and engineering, and took place at 4 public universities within Lahore, Rawalpindi, and Islamabad. The researchers assigned participants to an experimental group which used AI-managed adaptive assessment platforms, and a control group using standard assessment techniques. Data from the study was collected over an entire academic semester, consisting of pre- and post-testing for knowledge and skill retention in major subjects. The study employed a quantitative approach consisting of the statistical analysis of test scores, time taken, and completion accuracy; and a qualitative approach from 25 faculty members through semi-structured interviews, and 50 students from focus group discussions in order to gauge the participants' and non-participants' assessment systems. The AI-managed adaptive assessment platform customized the assessment of students through individualized question pathways, and avoided the one-size-fits-all, uniform assessment approach. The researchers hypothesized that students' anxiety levels, engagement rates, and academic outcomes, which were determined through a Likert-type questionnaire administered before and at the completion of the exercise, would contribute to the adaptive assessment architecture. To evaluate the value of different assessment methods, various statistical methodologies such as t-tests, ANOVA, and regression were employed, concurrently with thematic analysis for qualitative data, to determine the challenges and rewards of implementing AI assessment in higher education in Pakistan.

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CHAPTER 4: RESULTS AND DATA ANALYSIS
QUANTITATIVE ANALYSIS
Table 1: Comparison of Pre-test and Post-test Scores Between Experimental and Control Groups

Group	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Difference	t-value	p-value
Experimental (n=190)	62.4 (8.7)	78.6 (7.2)	16.2	12.45	<0.001
Control (n=190)	61.8 (8.9)	69.3 (8.5)	7.5	6.82	<0.001

The comparison of pre-test and post-test scores revealed significant improvements in both groups, but the experimental group demonstrated substantially greater gains. Students using AI-driven adaptive assessments showed a mean improvement of 16.2 points compared to 7.5 points in the control group. The independent samples t-test indicated a statistically significant difference between groups ($t=8.73$, $p<0.001$), confirming that AI-driven adaptive assessments more effectively enhanced student knowledge acquisition. The standard deviation decreased in the experimental group's post-test scores, suggesting more consistent performance levels among students. These findings demonstrated that personalized adaptive pathways contributed to superior learning outcomes compared to traditional assessment methods.

Table 2: Test Completion Time Analysis

Group	Average Completion Time (minutes)	SD	Minimum Time	Maximum Time
Experimental (n=190)	42.3	6.8	28	58
Control (n=190)	55.7	9.4	38	75

Test completion time analysis revealed that students in the experimental group completed assessments significantly faster than their counterparts in the control group. The average completion time for AI-driven adaptive assessments was 42.3 minutes compared to 55.7 minutes for traditional assessments, representing a 24% reduction in testing time. The smaller standard deviation in the experimental group indicated more consistent completion times across students with varying ability levels. This efficiency resulted from the adaptive algorithm's ability to bypass questions that were either too easy or too difficult for individual students, focusing instead on items that optimally measured their knowledge levels.

Table 3: Student Engagement and Test Anxiety Levels

Measure	Experimental Group Mean (SD)	Control Group Mean (SD)	t-value	p-value
Engagement Score (1-5 scale)	4.2 (0.6)	3.4 (0.8)	9.23	<0.001
Test Anxiety Score (1-5 scale)	2.3 (0.7)	3.6 (0.9)	-12.45	<0.001

Student engagement scores and test anxiety levels demonstrated significant differences

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between the experimental and control groups. The experimental group reported substantially higher engagement levels with a mean score of 4.2 compared to 3.4 in the control group. Conversely, test anxiety scores were notably lower in the experimental group at 2.3 compared to 3.6 in the control group. These findings suggested that AI-driven adaptive assessments created more engaging and less stressful testing environments. The personalized nature of adaptive assessments, which adjusted difficulty to match student abilities, contributed to reduced anxiety by avoiding overwhelming students with inappropriately difficult questions while maintaining sufficient challenge to sustain engagement.

Table 4: Knowledge Retention Assessment (Follow-up Test After 4 Weeks)

Group	Post-test Mean	Follow-up Test Mean	Retention Rate (%)	Paired t-value	p-value
Experimental (n=190)	78.6	76.2	96.9%	2.34	0.021
Control (n=190)	69.3	64.8	93.5%	3.87	<0.001

Knowledge retention assessment conducted four weeks after the initial post-test revealed superior retention rates in the experimental group. Students who used AI-driven adaptive assessments retained 96.9% of their knowledge compared to 93.5% in the control group. While both groups experienced some decline in scores, the experimental group's decline was significantly smaller. The paired t-test showed statistically significant differences in retention patterns between groups. These results suggested that the personalized learning pathways and immediate feedback provided by adaptive assessments facilitated deeper understanding and better long-term retention of knowledge compared to traditional assessment methods that offered limited individualized feedback.

Table 5: Performance Analysis by Academic Discipline

Discipline	Experimental Group Mean Post-test	Control Group Mean Post-test	Difference	F-value	p-value
Computer Science	81.3 (6.8)	71.2 (8.3)	10.1	15.67	<0.001
Business Administration	77.4 (7.5)	68.9 (8.7)	8.5	11.23	<0.001
Engineering	76.9 (7.2)	67.8 (9.1)	9.1	13.45	<0.001

Performance analysis across academic disciplines demonstrated that AI-driven adaptive assessments proved effective across all three fields studied. Computer science students showed the highest mean scores in both groups, possibly reflecting their greater familiarity with digital technologies. However, the experimental group consistently outperformed the control group across all disciplines, with differences ranging from 8.5 to 10.1 points. ANOVA results confirmed statistically significant differences between groups within each discipline. These findings indicated that adaptive assessment effectiveness transcended disciplinary boundaries and benefited students regardless of their academic specialization, though the magnitude of benefits varied slightly across fields.

Table 6: Accuracy and Reliability Metrics

Metric	Experimental Group	Control Group	Difference
Measurement Accuracy (Cronbach's Alpha)	0.89	0.76	0.13
Test-Retest Reliability	0.92	0.81	0.11
Inter-item Correlation	0.85	0.72	0.13
Standard Error of Measurement	3.2	5.7	-2.5

Psychometric analysis of assessment reliability and accuracy revealed superior measurement properties for AI-driven adaptive assessments. Cronbach's alpha coefficient for the experimental group reached 0.89, indicating excellent internal consistency compared to 0.76 for traditional assessments. Test-retest reliability was notably higher in the experimental group at 0.92, demonstrating consistent measurement across time. The standard error of measurement was substantially lower for adaptive assessments at 3.2 compared to 5.7 for traditional methods, indicating more precise measurement of student abilities. These findings confirmed that AI-driven adaptive assessments not only improved learning outcomes but also provided more accurate and reliable measurements of student knowledge and skills.

QUALITATIVE ANALYSIS
Theme 1: Personalized Learning Experience
Faculty and students alike pointed out the customizability of AI-driven adaptive assessments as the biggest advantage. Participants described how the system personalizes the assessments by varying the difficulty of the questions based on individual answer trajectories, thus helping target specific knowledge deficits. Students appreciated being able to answer questions that were differentially challenging to them, as opposed to being either too easy, leading to boredom, or too difficult, leading to frustration. Faculty pointed out how these custom pathways assisted in the early identification of students that were having difficulties and enabled intervention strategies earlier in the term. Some students, however, were unsure about the system's varying degrees of difficulty and questioned whether they were not performing well if they were receiving easier questions. They needed additional explanation about how the adaptive algorithm worked.

Theme 2: Immediate Feedback and Learning Support
The real-time feedback given by AI-powered adaptive assessment platforms stands out as the most universally appreciated feature from both learners and educators. Learners appreciated the ability to understand their errors through explanations rather than waiting several days or weeks to receive feedback on their assignments. This type of feedback also assisted learners to learn continuously and to rectify misunderstandings in real-time. Educators were also satisfied with the analytics and dashboard features of the system which revealed the patterns in their students' performances, including the most common points of struggle. Feedback received from participants confirmed that assessment-related feedback received during the assessment helped to alleviate anxiety, and that assessments were more than evaluations, but became learning experiences that facilitated the development of knowledge and skills.

Theme 3: Technological Challenges and Infrastructure Limitations
Participants noted substantial technological barriers that impacted the effective execution of AI-assisted adaptive assessments, despite the advantages. Due to unreliable infrastructure, inconsistent internet access emerged as a major issue and concern among students. Several universities did not have adequate computer labs to accommodate all students at once, resulting in the need for multiple sessions of the same assessment, which were difficult to schedule. Assessment blocks were occasionally interrupted by technical issues and students were unable to complete assessments due to system crashes and excessive loading times. Faculty expressed concern that they were ill-equipped to provide support for system and platform issues, which led to frustrations stemming from the new technology. There was a need for additional support to assist students from less computer literate backgrounds to overcome the barriers posed by digital assessments, as well as the need for a comprehensive preliminary orientation.

Theme 4: Enhanced Engagement and Reduced Test Anxiety
There were reported improvements in student engagement and less test anxiety regarding the use of AI adaptive assessments. Because of the interactive format of the digital tests and the individualized adjustments of the questions, students were able to have an assessment experience that was more engaging than traditional paper tests. Descriptions of adaptive assessments not being intimidating stemmed from the challenge of questions being adjusted to an optimal level rather than bombarding students with extremely difficult questions. Having the ability to work at one's own pace, while remaining within a time window, served to lower the pressure and anxiety of the assessments. Increased student participation and more positive attitudes regarding assessments were noted by the faculty. It was noted that some students exhibited anxiety regarding the use of new technology and the adaptive algorithm, indicating that some students did not undergo sufficient preparation and orientation which maximized the benefits of the adaptive assessments.

Theme 5: Faculty Training and Adaptation Requirements
Investments in faculty development and adaptation were necessary for the transition to AI-enabled adaptive assessments. Faculty members had difficulty understanding the technical features of adaptive systems and were unsure how to process the data generated through analytics. In response, participants recommended tailored technical training, along with training in the adaptive assessment pedagogy for curriculum integration. Concerns were noted by some faculty regarding the control of assessment design that would be ceded, along with the belief that automated assessments would be incapable of assessing higher-order thinking. In general, junior faculty members were more nimble in the adaptation to new technologies, while senior professors were found to need greater assistance to adapt. The integration of adaptive assessments into the curriculum required a commitment from the institution to sustain professional development and establish faculty support systems.

Theme 6: Data-Driven Insights for Instructional Improvement
Faculty appreciated how the AI-assisted platforms provided data-informed recommendations and how this informed their instructional planning and curriculum adjustments. Faculty appreciated the analytics that surfaced trends and patterns of student performance that were often convenient and unrecognizable. Faculty appreciated being able to monitor the progress of individual students and to identify students who were at

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risk of falling behind and needed additional intervention. Evidence of student performance data made it possible to make rational and reasoned choices to guide course content, strategies for teaching, and the allocation of resources to be used for student success. Some faculty experienced apprehension due to the substantial data sets and a lack of understanding of the ways to use the data and the strategies or analytics to be put into practice. Faculty participants noted that the demands of their current workload often made it difficult to set aside time needed for deeper reflection, and time for the analysis of the data provided, and this was the reason the data-informed insights were often neglected.

The study demonstrates how AI-powered adaptive assessments are better at measuring knowledge and skills than traditional assessment methods in Pakistani universities. Evidence demonstrates how the experimental group performed better than the control group in relation to the adaptive assessments in the areas of assessment score, knowledge retention, assessment completion time, and assessments measuring knowledge reliably. The level of the students' test anxiety and the disengagement students displayed in the control group indicate the adaptive assessments were more successful at achieving positive educational outcomes. The outcomes were congruent with the students were experiencing in higher educational institutions in Pakistan and the outcomes were the same as similar multicountry studies. Similar methods from the captured outcomes from the participants in the qualitative portion of the study indicated triage becoming participants, faculty and structure, and faculty systemic roles, were of great importance to the educational ecosystem, and to the educational technological framework if Pakistan as a country were to enrich the educational quality, to positive outcomes. Educators' ability to interpret outcomes from adaptive assessment frameworks will result in improved educational outcomes for their students, and for the educational ecosystem with measured educational quality.

CONCLUSION

This study conclusively proved that artificial intelligence-driven adaptive assessments outperformed traditional assessment methods in evaluating the knowledge and skills of students at public universities in Pakistan. The experimental group outperformed the control group in every dimension we measured as they earned higher scores, completed assessments more quickly, retained knowledge better, and had more reliable measurements. Students reported that their engagement was higher, and that they experienced reduced test anxiety. Faculty members appreciated operationalized instructional data. Notwithstanding these positive outcomes, the implementation of these assessments faced formidable challenges such as the lack of necessary technological infrastructure and the need for training faculty members who would subsequently experience difficulties adapting to the new assessments. The study verified that personalized adaptive assessment pathways offered students learning opportunities that went beyond the assessment to foster deeper learning and their knowledge retention. While the positive outcomes of the adaptive assessments were evident to the researchers of this study, the researchers also pointed out that the basic conditions of preparedness, institutional support and sufficient continuing training for faculty members professional education were the main obstacles to the effective use of artificial intelligence-driven adaptive assessments in higher education in Pakistan.

RECOMMENDATIONS

The research results yielded some suggestions for those involved in higher education in Pakistan. More universities should have advanced technological facilities such as stable internet access, adequate computer labs, and administrative assistance for the smooth functioning of AI-based adaptive tests. AI-driven adaptive assessment integration in learning activities should be incorporated as part of formalized faculty training. Educational establishments should devise plans for incremental adoption of adaptive assessments for evaluation, constructive user feedback, and program enhancement, and avoid 'big bang' approaches. Orientation sessions aim at educating students on the use of adaptive assessment programs and alleviating fears of assessment by computer algorithms. A university's capacity to assist faculty members in performance analytics should be complemented by university data facilities. Educational authorities should develop other supportive legislation and technological resources geared to the use of AI in education. The effects of adaptive assessments on students' learning and transferability of its use in various fields of study and differing educational institutions should be the focus of subsequent investigations.

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