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The Current Status of Digital Assessment Tools Usage in Pakistani Higher Education Institutions

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ABSTRACT

In modern education, digital assessment has become an important aspect. It allows for modifying the method of assessing students. In Pakistan, the use of digital assessment is common in educational institutions, most commonly universities. The use of digital assessment in universities depends on university culture, administrative support, technology resources available in universities, and the digital literacy of faculty members. The purpose of this study is to evaluate how much digital assessment is used in universities. A qualitative research design was used for this study. Data were collected through semi-structured interviews. Data were collected from 18 private and public universities in Islamabad and Rawalpindi, and from Deputy or Vice Controllers, IT experts, Controllers of Examinations, or Heads of Examinations. Data were analyzed using thematic analysis by Braun and Clark. Findings reveal that the use of digital assessment is different in various universities. Some universities use digital assessment too much, while on the other hand, there are also universities in which digital literacy is not common. The conclusion of this study is that the use of digital assessment in Pakistani universities is expanding day by day, and it brings a positive and effective change in the methods of assessing students' progress by using technology.

Introduction

The use of digital literacy in higher education is increasing day by day. This is because institutions all over the world are focused on adopting a technology-driven environment. There are a lot of benefits of digital tools; some of them are that they provide instant feedback, allow for personalized learning, and ensure student engagement (Yaseen et al., 2025). It also helps to keep students' important data secure. There are different digital assessment tools used all over the world, such as Turnitin, which is used to assess the similarity of text. ExamSoft is used to secure examinations online. In order to make the grading system interesting, different software is available, like Kahoot, Gradescope, and Quizizz. For taking quizzes, Moodle and Canvas can be used (Kujundziski & Bojadjiev, 2025).

Technological integration has been used in teacher education programs (Jamil et al., 2024; Razzaq et al., 2026). Some universities in Pakistan use Turnitin and Google Forms. But still, the moderate use of digital assessment tools is limited. The major problems in adopting advanced technology are a lack of teacher training and inadequate technological infrastructure (Bingimlas, 2009). Digital assessment tools are also helpful for ensuring the effectiveness of formative and summative

assessment.It is very important to address how we can improve the education system of Pakistan and which techniques we should use for the effectiveness of assessment.

Problem Statement

In universities, the use of digital assessment is increasing every day all over the world. However, empirical evidence on the current status of digital assessment tool usage in Pakistani higher education institutions remains limited. Existing studies have largely focused on e-learning and technology adoption, with little attention to the actual use of digital assessment tools across universities. Therefore, there is a need to examine the current status of digital assessment tool usage in Pakistani higher education institutions to provide an evidence-based understanding of existing assessment practices and support future digital transformation initiatives.

Objectives of the Study

The objectives of the study were to:

1. Examine the current status of digital assessment tool usage in Pakistani higher education institutions.
2. Identify the types of digital assessment tools currently used in higher education institutions in Pakistan.
3. Explore the institutional factors influencing the adoption and implementation of digital assessment tools in Pakistani higher education institutions.

Research Questions

The research questions of the study were:

1. What is the current status of digital assessment tool usage in Pakistani higher education institutions?
2. What types of digital assessment tools are currently used in Pakistani higher education institutions?
3. How do institutional factors influence the adoption and implementation of digital assessment tools in Pakistani higher education institutions?

Significance of the Study

The study provides institutions with a conceptual understanding of how digital assessment tools can enhance assessment practices and learning outcomes. This study is helpful for policymakers, administrators, and resource allocation in universities. It helps teachers address their professional needs and is also helpful for universities to design their digital assessment integration

Theoretical Framework

This study supports the Innovation Diffusion Theory (2003) by Rogers. According to this theory, there are five main aspects for the effective use of technology: relative advantage, complexity, trialability, compatibility, and observability. The meaning of relative advantage is how easy it is to use technology, and compatibility refers to addressing the need for its development. Trialability reflects the ability to use these tools temporarily before permanent use. Observability ensures the visibility of the benefits of using these tools and encourages the use of these tools. Mapping these aspects for administration, policymakers, and infrastructure readiness provides the framework of this study.

Literature Review

The use of digital equipment like mobile phones/ computers to make the teaching-learning process effective and better is called "educational technology." Many things are included in educational technology, i.e., learning management systems (LMS), multimedia, AV aids, online study material, and apps that are used by students to complete their work (Bates, 2015).

The sole purpose of digital equipment is to make learning easy, interactive, and beneficial so that both students and educators can easily work together and learn together (Mishra & Koehler, 2006).

In today's era, especially for universities and higher education, the use of digital technology has become crucial because it combines both traditional and modern ways of education, which ultimately makes the learning environment much better.

E-Learning

E-learning refers to providing information and education using the Internet, computers, and mobile phones. In this way, students can gain education while sitting in remote areas through online classes, access to video material, and virtual discussions with their teachers (Vaughan et al., 2011).

The biggest benefit of E-learning is that students can learn according to their own pace and ability. This method of education is especially beneficial for working people, those who are stuck between jobs, or those who live very far from cities where access to schools and colleges is not possible (Moore et al., 2011).

The spread of digital technology and e-learning, especially after the COVID-19 pandemic, has increased throughout universities worldwide.

E-Assessment

E-assessment means evaluating the study and performance of students using computers and digital tools. This comprises automated systems for paper checking, online exams, online quizzes, and digital methods that immediately flag the correct and incorrect options (Redecker & Johannessen, 2013).

In contrast to the traditional methods of pen-and-paper checking, E-assessment is very convenient and fast-paced. Through E-assessment, students' work can be assessed and checked automatically. This is also effective in that students get individual guidance for the correction of their mistakes, which ultimately helps them improve their studies (Gikandi et al., 2011).

In online studies in e-learning, where a teacher is not physically present, E-assessment has become crucial to judge the performance of learners.

Digital Assessment

Digital assessment is a broad method of evaluating student performance using all types of modern digital equipment. The broader aspect of E-assessment only covers online exams, while Digital assessment includes both online and offline methods of digital assessment (Bennett, 2015). This not only includes websites but also the software that is used in the classroom, i.e., clickers and portfolios. It also includes software that detects plagiarism. By using digital assessment, teachers can evaluate students separately according to their pace. For example, routine assessment of studies, students assessing each other, annual exams, and recognizing students' weak points.

Differences between E-Assessment and Digital Assessment

Although both digital assessment and E-assessment are used to evaluate the performance of students, they do have a minor key difference. E-assessment means exams or quizzes that are completely virtual and online, while digital assessment is a broad term that includes both online and offline digital tools (Stödberg, 2012).

In simple words, all E-assessment tools are digital assessment tools. However, not all digital assessment tools are E-assessment tools. For example, the use of a digital clicker that helps teachers evaluate performance immediately is a form of digital assessment but not E-assessment because the internet is not needed for digital assessment.

Digital Assessment Tools

Digital assessment tools include a wide range of technologies that make the process of evaluating students easy. The common digital tools that are used in higher educational institutions are as follows:

1. Educators use clickers and other feedback tools to assess students through a question-and-answer method to get immediate responses from students. This helps teachers to understand whether their students have grasped the concept or not (Kay & LeSage, 2009).
2. Automated grading systems are systems that use algorithms and patterns to grade multiple-choice questions (MCQs) and provide immediate scores (Bennett, 2015).
3. Learning Management System (LMS): This includes software like Moodle and Blackboard that is used to conduct quizzes, papers, marking, grading, and portals that collect students' assignments (McGill & Hobbs, 2008).
4. Digital portfolios help students keep their academic records safe and organized online. Digital portfolios keep a comprehensive record of students' data that provides an accurate picture of their learning process over time (Lorenzo & Ittelson, 2005).

Digital Assessment Tools in Higher Education

Different methods of online assessment in exams and tests are becoming very common in higher education because of digital technology. These methods are very significant compared to traditional methods of paper exams because they save a lot of time. Many students are assessed at the same time and can be provided with immediate feedback. The use of digital assessment tools is increasing globally, and many educational systems are adopting online assessment techniques. These tools help students learn and improve their overall academic performance (Redecker & Johannessen, 2013).

Digital exam tools like online quizzes, E-reports, and automated grading systems are very easy to operate and have significant benefits, especially in crowded classes where grading by hand is difficult and time-consuming. Through these tools, students get immediate responses and feedback that helps them improve their shortcomings later (Gikandi et al., 2011).

However, despite several benefits, technical difficulties become apparent when using such systems. For example, according to Selwyn (2016), many students and teachers do not trust the grading patterns of these automated systems. They question the algorithm and criteria by which a grading system marks and evaluates student performance. On the contrary, there are many concerns regarding online assessment systems. One of those is maintaining ethical standards, such as preventing cheating during virtual exams and quizzes. This alone remains a significant issue that makes educators question the integrity of the online assessment system (Farooq et al., 2019).

Adoption of Digital Assessment Tools in Pakistan

Pakistan has stayed behind when it comes to the integration of online assessment in higher education as compared to other countries. The reason behind such a gap is the lack of facilities and awareness among educators and students. Digital literacy is very low in Pakistan when it comes to such topics.

Institutions like Allama Iqbal Open University (AIOU) and Virtual University (VU) have played a vital role in providing education through an online educational system, but collectively, there are still many hindrances in integrating online assessment tools throughout Pakistan (Hussain & Suleman, 2020). Inadequate facilities in village and remote areas, no access to digital platforms, no internet or Wi-Fi, and the use of old computers and outdated software are the biggest hindrances in the implication of online assessment systems. On the other hand, there is a lack of literacy and training among teachers, which further limits such opportunities for students (Abbasi et al., 2020).

The Role of Digital Technology in Learning and Assessment

The integration of digital tools, especially in exams and assessments, is changing the traditional ways of evaluating students. The methods of online assessment are changing with the changes in the online education system. This provides immediate feedback, and students get the opportunity for improvement (Awang, 2022).

The current methods of assessment, i.e, summative and formative, are now considered outdated. However, digital tools are now innovating the mode of formative assessment by providing on-the-spot grading, feedback, and suggestions. This helps students get the guidance they're looking for in order to make the learning process more swift and efficient (Black & William, 2009).

Formative and Summative Assessment with Technology

Formative and Summative assessment play a distinct role during the teaching-learning process. The purpose of summative assessment is to evaluate students at the end of the course period, while formative assessment is used to measure student performance during the teaching-learning process. This provides immediate feedback and constructive instructions to improve student performance (Pellegrino & Quellmalz, 2010).

The use of digital technology during formative assessment ensures consistent interaction among the learners. This shifts the teaching approach from being passive to student-centered, i.e, each student gets a dynamic learning atmosphere. Moreover, these tools encourage the students to evaluate each other through peer assessment and learn from their fellows. It also creates a collaborative learning environment that makes the learning process more engaging, social, and interactive.

Benefits of Digital Assessment

There are many benefits of integrating digital tools for student assessment. One of the biggest benefits is that students are provided with immediate feedback and suggestions that help them identify their weak points and mistakes. Timely correction of mistakes helps students amend their ways and strive for betterment (Barana & Marchisio, 2019).

Moreover, digital assessment is very flexible and accessible to almost every student. This helps teachers conduct exams from any place and at any time, according to their convenience and pace. This characteristic, especially, is very significant when it comes to long-distance learning (LDR). (Al-Azawei & Alowayr, 2020).

Furthermore, with the integration of digital assessment in exams, it becomes very easy to individually cater to students' needs because technology can be molded in accordance with the needs of different educational aspects (Jurāne-Brēmane, 2023). One more benefit of digital tools is peer assessment, in which students evaluate each other's work and learn collectively from their peers. (Guerrero-Roldán et al., 2019).

Effectiveness of Digital Assessments

Research has proven digital assessment to be significant when it comes to the assessment of students, i.e, online tests and exam papers. For instance, it has become evident from research that platforms like Kahoot! and Quizizz increase students' interest, collaboration, and creative skills (Zainuddin et al., 2020).

In the same way, tools and forums like Mentimeter promote critical thinking skills and interactive learning among the learners (Anggraini et al., 2022). These tools not only help during formative assessments, but they also provide teachers with relevant data so that they can monitor students' progress and improve their instruction methods accordingly.

Critical Insights and Research Gap

Literature confirms the fact that the integration of digital tools for assessment increases the flexibility in instruction. This improves student engagement and interest and provides effective learning feedback. Moreover, it is crucial to have a structural understanding of pedagogical methods. This only comes if one has theoretical alignment between teaching methods and technology.

On the other hand, there are consistent challenges and setbacks when it comes to the prevailing use of digital assessment tools. This includes concerns regarding grading, i.e., justified marking, lack of teacher training, and limited infrastructure. Such factors are clouding the use of digital assessment, especially within the context of Pakistani educational institutions.

Research Methodology

Research Paradigm and Design

This study was based on the constructivist paradigm, in which each human understands the world according to his own experiences and culture in which he is living. This paradigm was also suitable as it helped to understand how controllers, IT experts, and vice controllers deal with the hurdles while using digital assessment tools. Qualitative descriptive research design was used in this study as it is suitable to discuss difficult aspects in detail.

Population and Sampling

The population of this study was the vice controller, IT expert, and controller of examination of 18 universities in Islamabad and Rawalpindi. Universities were selected on the basis of geographical location, data accessibility, proximity, and availability. As the population of this study was manageable, universal sampling was applied.

Instrumentation and Data Collection

For this study, a semi-structured guide was designed. The guide contains questions about the experiences of participants regarding instructional policies, technology infrastructure, and digital assessment tools. Each interview was conducted with the permission of the participant and also ensured the participant's privacy and availability. Interviews were conducted online (Zoom or Google Meet) and face-to-face. Each interview was recorded for up to 25 minutes. The interview guide was also examined by experts in technology and assessment to test the validity of content.

Data Analysis

Thematic analysis by Braun and Clark was used for the analysis of the data. Thematic analysis has six steps: familiarization, coding, generating themes, reviewing themes, naming themes, and writing up. This method helped to identify participants' views about infrastructural, administrative, key technological, and cultural patterns.

Ethical Considerations

Before recording the interview, consent was obtained. The participants were informed of the purpose of the study, expected risks, and benefits. Data from the participants were kept safe and confidential and were only used for research purposes.

Findings

Current Status of Digital Assessment Tool Usage (RQ1)

Simple digital assessment tools like Moodle, other LMS platforms, Turnitin, and Google Forms are used in many universities, but their usage is not the same everywhere.

Most tools are limited to daily studies and formative assessments like quizzes and assignments. In contrast, traditional methods are still common when it comes to summative assessments. This shows that educational institutions are using these platforms with great caution.

Their usage varies depending on different fields. The IT and business sectors are very advanced because of their use of computers. The fields of social sciences, Arts and Humanities are still behind because of their reluctance to accept these tools.

It has been observed by respondents that there are transparency, speed, efficiency, and timely feedback in work where these tools were used. An increase in student engagement has also been reported where such tools were used, especially through the tools of Google Forms and Moodle Quizzes.

Types of Digital Assessment Tools Used (RQ2)

This theme describes several digital assessment tools that are used in different higher educational institutes of Pakistan. The participants of the research identified different technologies that help in educational activities and examinations. These activities include learning management systems (LMS), plagiarism detection software, online examination platforms, automated grading systems, and digital feedback tools.

These findings show how these technologies manage exam systems, maintain academic integrity, and improve the assessment process in a much more efficient manner.

Institutional Factors Influencing Digital Assessment Tool Usage (RQ3)

This theme discusses those institutional circumstances that are significant in promoting an attitude of acceptance regarding the use and implementation of digital tools.

The participants in the research emphasized that there is a fundamental role for digital infrastructure, administrative cooperation, and institutional policies. These are necessary for the proper integration of digital assessment tools in higher education. Participants also highlighted that there should be competent teachers, technical and financial support, and a keen interest of institutional heads in this subject matter.

Discussion

These findings show that the use of digital assessment tools is gradually increasing among the higher educational institutions of Pakistan. Although there has been a rapid increase in digital assessment methods, there is an uneven application of such tools in various universities across the country. Some institutes have implemented a complete virtual semester system, while others are still relying on traditional hybrid methods of assessment and student data management (Gudoniene et al., 2025).

These differences suggest that the digital transformation of assessment is still evolving and reflects varying levels of institutional readiness. Similar trends have been reported in previous studies, which highlight that the adoption of digital assessment technologies in developing countries progresses incrementally and is largely influenced by institutional capacity and technological preparedness (Bahreini & Aslani, 2023).

The study further demonstrates that higher education institutions utilize a wide range of digital assessment tools to facilitate teaching and learning. Learning Management Systems (LMS), online examination platforms, plagiarism detection software, digital grading systems, and online feedback applications have become increasingly common in supporting assessment activities. The integration of these technologies has contributed to improved efficiency in assessment administration, enhanced transparency, strengthened academic integrity, and facilitated timely feedback to students. These findings are consistent with existing literature, which recognizes digital assessment tools as valuable resources for improving the quality, reliability, and effectiveness of assessment practices in higher education.

The findings also reveal that the successful adoption and sustained use of digital assessment tools depend on several institutional conditions. Adequate technological infrastructure, supportive institutional policies, effective administrative coordination, faculty digital competence, technical support, financial resources, and leadership commitment collectively shape the implementation of digital assessment practices. Institutions with stronger administrative support and well-established

digital strategies appear to demonstrate greater progress in integrating digital assessment technologies into routine academic processes. These results support previous research emphasizing that successful digital transformation extends beyond the availability of technology and requires comprehensive institutional planning, continuous professional development, and strategic leadership to ensure long-term sustainability.

Overall, the findings suggest that digital assessment tool usage in Pakistani higher education institutions is progressing steadily, reflecting a growing commitment to technology-enhanced assessment practices. However, variations in institutional capacity continue to influence the extent of implementation. Strengthening technological infrastructure, investing in faculty capacity building, and promoting coherent institutional policies will be essential to achieving more effective, equitable, and sustainable digital assessment systems across the higher education sector.

Conclusion

- In the universities of Pakistan, the usage of digital assessment tools is increasing day by day. This shows that our institutions are shifting to technology-based assessment practices.
- The implementation of digital assessment tools among institutions varies. Some institutions are well developed, and there are also some developing institutions that depend on the technology infrastructure and resource availability.
- Learning Management Systems are widely used in higher education for online exam platforms, digital grading and feedback, and plagiarism detection. These tools are helpful for digital assessment and also improve coursework.
- Digital assessment tools make tasks more effective and efficient and also maintain the transparency of the data. They provide students with instant feedback.
- For the successful adoption of digital assessment tools, institutional factors including administrative support, digital literacy of faculty, financial resources, technical support, institutional policies, and leadership commitment play an important role.
- Institutions with supportive institutional policies, stronger leadership, and well- developed digital strategies can use digital assessment tools in a more effective and efficient way.
- Findings show that developed institutions, professional development for teachers, and focusing on the technology infrastructure are important for the effective use of digital assessment tools.

Recommendations

1. Examine IT infrastructure every year in examination centers, update examination halls, and promote digital assessment methods in higher education institutions.
2. Assign dedicated IT specialists to examination sections during assessment cycles and establish a Digital Assessment Support Unit responsible for maintenance, troubleshooting, and data backup.
3. Design digital assessment according to university policy and needs. The policy focuses on grading protocols, data privacy through quality enhancement cells, alongside a standardized national framework coordinated by the HEC.
4. For the professional development of the teachers, digital assessment must be used. Teachers use these tools for designing exams online and checking plagiarism online. Teachers should be given awards for their positive reinforcement.
5. Include a wider range of universities across provinces and institutional categories (public, private, distance-learning) for comparative understanding.
6. Employ quantitative or mixed-methods approaches to statistically validate relationships among faculty readiness, institutional support, and student engagement.

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