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# IMPACT OF AI TOOLS ON QUALITY ASSESSMENT TOWARDS FOSTERING UNIVERSITY STUDENTS' LEARNING

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## Abstract
*The purpose of this study was to examine how Artificial Intelligence (AI) technologies affect quality assessment in higher education and their impact on university students' learning outcomes. The goal of the study was to offer information that were useful to academic institutions, instructors, legislators, and educational technology producers, among other stakeholders in higher education. The current study was conducted in The Superior University Faisalabad Campus. The population of the study was consisting of 600 postgraduate students and convenient sampling technique was used to select a sample of 200 postgraduate students. Data was collected through likert questionnaire from the respondents. Quantitative data was analyzed by using SPSS through descriptive statistics, correlation analysis and regression models. The findings showed that students generally perceive AI tools as beneficial for enhancing learning. It was suggested that AI training should be given to the students in classrooms. There was a strong positive correlation between the use of AI tools and the assessment quality of students in their learning, and further, the higher the students used AI tools and better evaluation practices, the better their learning was. The use of AI tools and quality assessment were significant predictors of learning in students and quality assessment was a stronger predictor of learning.*

**Keywords:** AI tools, quality assessment, personalized learning, university students, academic feedback

## Inroduction
Artificial intelligence (AI) is a quickly growing branch that seeks to achieve intelligent systems with capabilities that are traditionally linked to human thought, including language understanding, pattern recognition, learning, and decision-making (Naza-retsky et al., 2022; Huang et al., 2023b). AI is concerned with developing computer applications and systems capable of simulating and exceeding human-equivalent thinking with resulting machines capable of learning through experience, resolving problems and adapting to new conditions. Because of its disruptive nature, AI has been applied to numerous aspects, such as healthcare, transportation, and especially education (Delgado et al., 2020).
Nowadays, AI technologies find their way to the educational environment to enhance the quality of teaching and learning. ChatGPT and Bing are also helpful tools that allow students to develop critical thinking, innovativeness, problem-solving abilities, and conceptual knowledge (Halaweh, 2023). Learner-centered teaching strategies have also been supported through AI that enables the analysis of student performance, the rate of learning, and the effectiveness of the teaching technique. The student work can be processed by AI-based assessment systems and provide them with per-sonalized feedback on their work, enabling the learners to realize their strengths and areas of weakness, as well as provide teachers with

valuable data to improve their learning methods (Adiguzel et al., 2023; Anderson and Krathwohl, 2021).

What is more, different assessment processes, including the grading of essays based on grammar, structure, and content can be automated by AI, which greatly was decrease the administrative work-load of teachers (Braun and Clarke, 2006). Artificial intelligence-based analytics may also be used to determine students who are at risk of failing academically by detecting trends in performance information, attendance and engagement. This was allow the teachers to implement quick and specific interventions in order to help the struggling learners (Chatterjee & Dethlefs, 2023). In general, AI can be used to trans-form education, providing personalized, evidence-based education and improving instructional choices (Cotton et al., 2023; Creswell and Clark, 2023).

Although these are the advantages, there are some problems with the implementation of AI in education. The issue of academic dishonesty is significant because students can use AI technologies to create assignments without critically analyzing them and citing (Elliott and Soifer, 2022). The use of AI systems also attracts the privacy and data security concerns. Besides, educa-tors also have challenges with identifying AI-produced plagiarism and distinguishing between human-created and machine-created content, with the existing detection tools being unre-liable (Chatterjee, 2023; Tovani, 2023).

The willingness of teachers to use AI is an important determinant of successful implementation. Preparedness includes technical ability, expertise in digital resources, confidence, and institutional aid. It has been demonstrated that digitally literate teachers who are well trained are more at ease with use of AI in teaching and assessment practices (Zulfiqar and Farooq, 2021). However, limited access to training, insufficient infrastructure, and insufficient and unreliable internet connectivity are the obstacles affecting many secondary school teachers in Pakistan, especially in public schools and rural schools (Khan et al., 2021).

The rural to urban gap in AI integration is still a policy problem. Although in big cities, teachers have more opportunities to gain access to AI and opportunities to improve their professional development, teachers in the countryside do not always have access to them and are not exposed. The only solution to this gap is to develop concerted efforts by the government and the private sector in order to have equitable access to AI technologies and training. In the absence of them, the benefits of AI in education was be distributed unequally, reducing the transformative opportunities of AI nationwide (Awan & Imran, 2021; Ahmad et al., 2023).

**Objectives**

1. To find out the relationship between AI tools and students' learning.
2. To evaluate the effectiveness of AI-powered assessment tools in quality assessment.
3. To explore the impact of AI-based assessments on students' learning.
4. To identify the problems in using AI-based assessments.

**Significance of the Study**

For a large number of investors in the higher education industry, this study is crucial. Understanding how AI technologies impact quality assessment could assist educators and educational institutions in developing more reliable, equitable, and genuine assessment methods (Wardat et al., 2023). By using AI-driven assessments, instructors can gain a better knowledge of student performance and learning outcomes to provide tailored learning experiences and focused interventions (Almasri, 2024).

Artificial Intelligence (AI) technologies have the ability to help students learn more profoundly and build critical thinking skills because they provide immediate, tailored feedback and flexible learning pathways (Weng, 2023). As a result, they might become more

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motivated and involved, which could ultimately improve their academic performance and make their time in school more satisfying (Slimi, 2023).

The ultimate goal of this project is to close the knowledge gap regarding the application of AI in educational assessments by providing practical data that can spur innovation and raise the standard of higher education overall (Gonzalez et al., 2021).

**Research Questions**

1. What is the relationship between AI tools and student learning?
2. How effective are AI-powered assessment tools in ensuring quality assessment?
3. What is the impact of AI-based assessment on students' learning?
4. What problems are faced in the use of AI-based assessment?

**Hypothesis ($H_o$)**

a. There is no relationship between AI tools and quality assessment.
b. There is no relationship between AI tools and students' learning.

## Literature review

The increasing integration of Artificial Intelligence (AI) tools in higher education has sparked significant transformation in assessment practices, enhancing both the quality of assessments and student learning outcomes (Halaweh, 2023). AI's ability to deliver personalized, data-driven, and efficient assessment methods has provided a powerful tool for educators to improve their approach to student learning. These AI-driven tools contribute to the accuracy, efficiency, and adaptability of assessments key elements in maintaining high educational standards (Zawacki et al., 2019). As universities embrace these advancements, understanding the implications of AI on quality assessment becomes essential to fostering student success and educational equity (Mena et al., 2023).

Baker and Salazar (2021) studied how AI adoption differs between urban and rural schools due to the digital divide. They found that urban schools are more advanced in using AI tools because they have better technology, stable internet, and trained teachers. On the other hand, rural schools struggle with outdated infrastructure, slow internet, and a lack of AI awareness. The study highlighted that rural teachers often feel left behind because they do not get the same opportunities for AI training as urban teachers. Another key finding was that students in urban schools benefit more from AI-driven personalized learning, while students in rural areas miss out due to limited resources. The research also showed that teachers in both settings believe AI can help improve education by automating administrative tasks and providing smart feedback. However, rural teachers feel they need more government support and funding to bridge the digital gap. The study concluded that equal access to AI technology and training should be a priority to ensure all teachers and students, regardless of location, can benefit from AI in education. The researchers suggested increasing investment in digital infrastructure and AI-focused teacher training programs in rural areas.

**The Role of AI Tools in Higher Education Assessment**

Adiguzel et al., (2023) found that Artificial Intelligence (AI) is fundamentally reshaping assessment practices in higher education, offering both significant opportunities and notable challenges.AI techniques are becoming essential for improving university assessment procedures. By automating and improving conventional assessment techniques, these tools enable educators and administrators to give students more accurate, tailored feedback.

Hew et al., (2022) concluded that AI's capacity to handle enormous volumes of data enables more individualized learning experiences by providing real-time, data-driven judgments about student development. According to studies, by tailoring content to the needs of the student, AI-powered solutions like personalized learning platforms and intelligent tutoring

systems (ITS) improve the overall quality of assessments. These tools provide tailored feedback, pinpointing particular mistakes and misunderstandings and facilitating the development of customized lesson plans. By attending to each student's specific needs, this promotes improved learning results.

Gonzalez and Womble (2023) investigated teachers' perspectives on AI adoption and digital transformation in education. Their study found that while many teachers recognize AI's potential to enhance learning, there are mixed feelings about its implementation. Teachers who had prior experience with digital tools were more likely to accept AI as a useful addition to their quality assessment strategies. However, some educators worried that AI could depersonalize learning by replacing human interaction with automated systems. The researchers also highlighted that AI could help teachers by automating administrative tasks, such as grading and lesson planning, allowing them to focus more on student engagement. A key finding was that teachers who received training on AI tools felt more confident in integrating them into their classrooms. However, many teachers expressed concerns about data privacy, ethical issues, and the possibility of AI reinforcing biases in education. The study concluded that successful AI adoption in schools depends on proper teacher training, clear ethical guidelines, and ongoing technical support. The researchers recommended that school administrations work closely with teachers to ensure that AI is used as a tool to support quality assessment rather than replace traditional methods.

Hong and Zhou (2024) explored teachers' wasingness to use AI-powered educational tools and identified key barriers in urban and rural schools. Their study found that urban teachers were more open to adopting AI due to better infrastructure, digital literacy, and access to training programs. In contrast, rural teachers faced significant challenges, including poor internet connectivity, lack of technical support, and limited awareness of AI applications in education. One of the key findings was that teachers who had prior experience with digital tools, such as interactive learning platforms and online assessments, were more confident in integrating AI into their teaching. However, concerns about AI's reliability, ethical issues, and fear of job displacement were common among teachers in both settings. The study also revealed that institutional support plays a crucial role in AI adoption. Schools that provided workshops, hands-on training, and technical assistance helped teachers feel more comfortable using AI tools. The researchers concluded that overcoming AI adoption barriers requires targeted policies, infrastructure improvements, and professional development programs tailored to teachers' needs. They recommended that governments and educational institutions work together to bridge the urban-rural digital divide and ensure equal AI adoption opportunities for all teachers.

**Challenges and Ethical Concerns of AI in Assessment**

Kang and Im (2013) found that AI algorithms can perpetuate existing biases if trained on biased data, leading to unfair assessment outcomes.AI-driven assessment decisions can be difficult to understand and interpret, making it challenging to identify biases or errors.AI-powered assessment tools can be prone to technical glitches, affecting the assessment experience and outcomes.AI assessment tools require high-quality data, and ensuring the security and privacy of student data is crucial.

King (2023) summarized that AI assessment tools collect and analyze sensitive student data, raising concerns about data protection and privacy. As AI takes on more assessment-related

tasks, questions arise about who is accountable for assessment decisions and outcomes. Over-reliance on AI assessment tools can lead to diminished critical thinking and problem-solving skills in students.AI assessment tools may exacerbate existing inequalities if not designed to accommodate diverse student needs and abilities.

Jiang and Tang (2023) examined how secondary school teachers perceive AI in education and their readiness to adopt AI tools. The study found that teachers' perceptions of AI were influenced by their level of digital literacy, professional development opportunities, and institutional support. Teachers with prior experience using digital platforms were more open to AI integration, whereas those with limited exposure to technology felt hesitant. One of the key findings was that teachers viewed AI as a tool that could assist with administrative tasks, grading, and personalized learning. However, concerns about AI's ethical implications, including data privacy and the potential loss of teacher-student interaction, were common among participants. The study highlighted that schools with structured AI training programs saw higher teacher readiness levels. Jiang and Tang concluded that AI adoption in education requires targeted professional development and institutional policies that address teachers' concerns. They recommended that schools provide continuous AI training, establish ethical guidelines, and ensure that AI tools support rather than replace traditional quality assessment methods.

Raza and Aslam (2023) investigated teachers' readiness to integrate AI into their pedagogical practices in both urban and rural areas. Their study revealed that teachers in urban schools were more prepared for AI adoption due to better technological access and institutional support. Rural teachers, however, faced challenges such as inadequate training, limited resources, and resistance to technological change. The study also identified factors influencing AI adoption, including teachers' digital literacy, institutional policies, and perceived benefits of AI in enhancing student learning. A key concern among educators was the potential impact of AI on traditional quality assessment roles and the need for clear guidelines on AI integration. Raza and Aslam concluded that addressing these challenges requires targeted teacher training, investment in digital infrastructure, and policy reforms that promote AI integration in both urban and rural schools. They recommended national AI education programs to ensure that all teachers, regardless of location, are equipped with the necessary skills to use AI effectively in their classrooms.

## Theoretical Framework

The theoretical basis of the current study is based on the notion of constructivist learning theory (Vygotsky, 1978), which advocates active learning and the use of technology in helping individuals to have individualized learning experiences. The Artificial Intelligence (AI) is presented as a tool that has the capacity of individualizing the learning to suit the needs and capabilities of the students to enhance deeper engagement and higher learning outcomes. Quality assessment is viewed as one of the most important aspects of learning experience not only in terms of student performance but also in terms of the feedback mechanism that leads to the constant refinement of the educational practice. This framework also relies on the technology acceptance models to determine the impact of the perception of students concerning AI tools, their perceived ease of use, and perceived usefulness on their learning experience and the effectiveness of quality assessment in general. The idea behind AI is to improve formative and summative testing by giving feedback in real-time and in an actionable manner that facilitates individualized learning in students.

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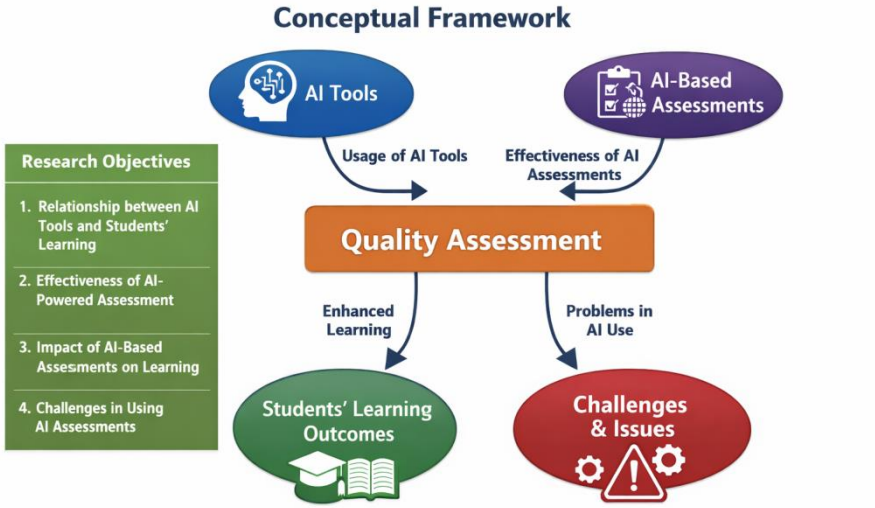


## Research Methodology

This study on the "Impact of AI Tools on Quality Assessment towards Fostering University Students' Learning" utilizes a quantitative correlational research design to comprehensively investigate the influence of AI-powered tools on educational assessment processes. Present study was conducted in district Faisalabad. The population of the study was consisting of more than 600 postgraduate students of "The Superior University, Faisalabad Campus". A convenient sampling technique was used to select a sample of 200 postgraduate students. Data was collected through Likert questionnaire to gather quantitative information on 5-point scale. Quantitative data was analyzed by using SPSS through descriptive statistics, correlation analysis, and regression models.

## Results and Findings

**Table 1**

*Frequencies and Percentages of Gender (N = 200)*

| Variables | Category | f | % |
|---|---|---|---|
| Gender | Male | 80 | 40.0 |
| | Female | 120 | 60.0 |
| **Total** | | **200** | **100.0** |

Table 1 displays the gender distribution of the study participants. Of the 200 respondents, 60.0% (n = 120) were female and 40.0% (n = 80) were male, indicating a higher representation of female participants.

**Table 2**

*Frequencies and Percentages of Degree Program (N = 200)*

| Variables | Category | f | % |
|---|---|---|---|
| Degree Program | MS | 90 | 45.0 |
| | MPhil | 110 | 65.0 |
| **Total** | | **200** | **100.0** |

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As shown in Table 2, the largest portion of the sample was enrolled in MS programs (45.0\%, n = 90), followed by MPhil students (65.0\%, n = 110),

**Table 3**

*Frequencies and Percentages of Previous Experience with AI Tools (N = 200)*

| Variables | Category | f | % |
|---|---|---|---|
| Previous Experience | Yes | 130 | 65.0 |
| | No | 70 | 35.0 |
| **Total** | | **200** | **100.0** |

Table 4 indicates that a significant majority of participants (65.0\%, n = 130) had previous experience with AI tools, whereas 35.0% reported no prior experience.

**Table 4**

*Frequencies and Percentages of AI Tool Usage Frequency (N = 200)*

| Variables | Category | f | % |
|---|---|---|---|
| Frequency of Use | Rarely | 20 | 10.0 |
| | Sometimes | 60 | 30.0 |
| | Often | 70 | 35.0 |
| | Frequent | 50 | 25.0 |
| **Total** | | **200** | **100.0** |

Table 5 describes how often participants use AI. The most common response was "Often" (35.0\%, n = 70), while 25.0% used tools frequently. Only 10.0% of respondents reported using AI tools rarely.

**Table 5**

Frequencies and Percentages of AI Tools Used by Participants (N = 200)

| Tool | Usage Frequency (F) | % |
|---|---|---|
| Perplexity | 90 | 45.0 |
| Copilot | 80 | 40.0 |
| Otter.ai | 50 | 25.0 |
| Research Rabbit | 40 | 20.0 |
| Bingo | 30 | 15.0 |
| Brainly | 100 | 50.0 |
| Jenni.ai | 25 | 12.5 |
| Tutor.ai | 35 | 17.5 |
| ChatGPT | 150 | 75.0 |

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| Tool | Usage Frequency (F) | % |
|---|---|---|
| Connected Papers | 20 | 10.0 |
| Grammarly | 140 | 70.0 |
| Canva | 120 | 60.0 |
| DeepSeek | 15 | 7.5 |
| Quizlet (AI) | 110 | 55.0 |
| Elicit | 40 | 20.0 |
| Gradescope | 50 | 25.0 |
| Turnitin | 130 | 65.0 |
| Google Forms | 90 | 45.0 |
| Quillionz | 30 | 15.0 |
| Jasper.ai | 25 | 12.5 |
| QuillBot | 120 | 60.0 |
| Evalgator | 20 | 10.0 |
| ZipGrade | 15 | 7.5 |
| Copyleaks | 35 | 17.5 |
| Khanmigo | 50 | 25.0 |
| Quizizz | 80 | 40.0 |
| RedMarker | 20 | 10.0 |
| Edulastic | 30 | 15.0 |
| Duolingo | 60 | 30.0 |
| Notion AI | 70 | 35.0 |

The analysis of AI tool usage among participants (N = 200) shows that students employed a wide range of AI tools for academic purposes, with a clear preference for tools that directly support learning and assessment tasks. ChatGPT emerged as the most frequently used tool (75.0%), followed by Grammarly (70.0%) and Turnitin (65.0%). Other commonly used tools included Canva and QuillBot (60.0% each) and Quizlet AI (55.0%), indicating a strong reliance on AI for writing, editing, paraphrasing, revision, and academic preparation.

Moderate usage was observed for tools such as Brainly (50.0%), Perplexity and Google Forms (45.0% each), Copilot and Quizizz (40.0% each), and Notion AI (35.0%). In contrast, research-focused and creative AI tools demonstrated comparatively lower adoption, with Research Rabbit, Elicit, and Connected Papers used by only 10.0% to 20.0% of students. The least utilized tools included DeepSeek, ZipGrade, Evalgator, and RedMarker.

The findings indicate that students primarily favor AI tools that provide immediate and practical support for writing, plagiarism detection, and study preparation, while more specialized AI applications remain underutilized.

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**Table 6**
Correlation between AI Tool Usage, Quality Assessment, and Students' Learning (N = 200)

| Variables | 1 | 2 | 3 |
|---|---|---|---|
| 1. AI Tool Usage | 1 | | |
| 2. Quality Assessment | .62** | 1 | |
| 3. Students' Learning | .68** | .71** | 1 |

**Note. p** < .01.

The correlation analysis showed that the use of AI tools and quality assessment have a strong and statistically significant positive relationship (r =.62, p <.01), which means that the greater the use of AI tools, the higher the quality assessment practices. It was also evident that AI tool usage and learning of students showed a strong positive correlation (r =.68, p <.01), which provided the suggestion that the regular and successful use of AI tools has a positive impact on the learning outcomes of students. Also, it was revealed that the quality measurement was highly positively correlated with the learning of students (r =.71, p <.01), which makes the role of a well-formulated and artificial intelligence-based assessment effectively improving the learning process significant. In general, the correlation findings indicate that the use of AI tools and quality evaluation are directly related and are both important to facilitate learning among the students on the university level.

**Table 7**
Regression Analysis Predicting Students' Learning from AI Tool Usage and Quality Assessment (N = 200)

| Predictor | B | SE B | β | t | p |
|---|---|---|---|---|---|
| Constant | 1.12 | .24 | — | 4.67 | .000 |
| AI Tool Usage | .36 | .07 | .41 | 5.14 | .000 |
| Quality Assessment | .44 | .06 | .52 | 7.33 | .000 |

**Model Summary:**
$R = .76$, $R^2 = .58$, Adjusted $R^2 = .57$, $F(2,197) = 135.42$, $p < .001$

The regression analysis model was used to analyse the predictive value of the AI tools use and their judgement on the learning of students. The entire regression equation was found to have statistically significant value F(2,197) = 135.42, p <.001) with 58 percent of variance of learning of the students (R 2 =.58). The two predictors had also important contribution to the model. The use of AI tools was also observed to have a considerable positive predictor of student learning ( = -.41, p = -.001) meaning that the more students are exposed to AI tools, the better they learn. Quality assessment was a more effective predictor ( =.52, p =.001) which indicates that effective assessment practices are important in increasing student learning. These results indicate that AI tools can be used as direct aids to the learning process, but their utility is optimal when applied as a part of high-quality assessment systems.

## Discussion

The current paper reviewed the effect of artificial intelligence (AI) technologies on the quality measurement and their contribution to the learning of university students. According to the findings, there are significant trends concerning the demographic factors, previous

experience, AI use frequency, and preference towards particular AI tools, which was help to learn how AI is used in the assessment practices and learning outcomes in higher education.

Distribution of participants according to gender was more on female participants (60 percent) than on male (40 percent). This is in line with the new trends in tertiary education whereby women are now enrolling higher in postgraduate education especially in social sciences and education related courses. Although the gender factor does not directly affect the adoption of AI, earlier research indicates that female students tend to exhibit high use of digital learning tools when they believe it was support their academic performance and the fairness of evaluations (Nazaretsky et al., 2022). This study has also taken into account a balanced gender representation hence presenting a non-biased context of examining the use of AI tools.

In terms of the degree of study, most of the respondents were undertaking the MS and MPhil programs, which implies that the participants were under strict academic study that normally includes research writing, analysis of data, and constant evaluation. This scholarly scenario is probably the reason why AI tools in writing, plagiarism checkers, and support of research are highly adopted. Graduate-level students are already more demanding in their originality, coherence, and academic integrity, and this aspect could be a driving factor to use AI tools and improve the quality of their assignments and assessment performance (Huang et al., 2023).

Findings of the mode of study revealed that the sample consisted majorly of on-campus students then online and hybrid students. Although on-campus study is dominant, online and hybrid learners are significant, and it evidences the increasing significance of technology-mediated education. The appearance of AI tools seems to fill the gaps between the various learning modes as they are flexible, on-demand academic assistance. According to previous studies, AI-based assessment tools seem especially efficient in blended and online settings, and in these cases, timely feedback and self-regulated learning are paramount (Adiguzel et al., 2023). Therefore, the results imply that AI tools promote the quality of assessment irrespective of the mode of instruction.

Another important finding of the research is that 65 percent of the respondents said that they had previously used AI tools, meaning that the exposure and familiarity are rather high. This observation indicates that AI is not an experimental and new technology to the eyes of university students anymore but a constituent element of their learning ecosystem. In line with the Anderson and Krathwohl (2021) framework, acquaintance with digital tools increases the capacity of the students to perform higher-order cognitive processes of analyzing, evaluating, and creating which are core in the production of good assessment.

This conclusion also can be supported by the frequency of using AI tools. Most students said that they used the AI tools on a regular or frequent basis, and only a small percentage seldom did so. Constant use of AI tools suggests that students feel real advantages in terms of productivity, clarity, and student success. Repeated exposure to AI-based feedback systems can also facilitate formative assessment, in that case, students can continuously revise their work and present a final copy (Cotton et al., 2023). This trend helps to prove the claim that AI has a positive impact on learning, making it more iterative and learner-centered.

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The results concerning the learning styles reveal that there is a slight difference in favor of non-visual types of learning styles, with auditory or the kinesthetic one. Such a difference in learning preferences points to the flexibility of AI solutions, with most of them being multimodal, such as text, audio, interactive quizzes, and visual design features. The capability of AI to support various learning styles reinforces its purpose in both inclusive and individualized assessment, which is one of the aspects of quality assurance in higher education (Creswell and Clark, 2023).

The inquiry of the great variety of AI tools that students utilize is one of the most prominent results of the research, and there is a big tendency to the tools that assist in the writing, editing, and assessment-related tasks. ChatGPT became the most popular tool and is ranked second after Grammarly, Turnitin, Canva, QuillBot, and Quizlet AI. According to this trend, students mostly apply AI to improve the quality of written work, guarantee linguistic correctness, prevent plagiarism, and study tests. Such findings are consistent with the past studies which generally show that AI tools can be the most effective when they serve to offer practical, immediate assistance with academic tasks (Halaweh, 2023).

The moderate use of tools like Brainly, Perplexity, Copilot, and Notion AI point to the fact that students find AI helpful in solving problems, research support, and structuring of academic materials as well. Nevertheless, more research-specific tools (like Research Rabbit, Elicit, and Connected Papers) were less frequently used, which might imply that the students are either unaware or not trained on more advanced AI research tools. This observation poses a discrepancy between the presence of AI tools and student access to utilizing them to the full extent of conducting scholarly research, which Chatterjee and Dethlefs (2023) also observe.

The results indicate that AI tools can be used to improve the quality of assessments by offering a timely feedback, improving academic writing, aiding the preparation of exams, and self-regulated learning. Nevertheless, the unequal use of specialized tools implies that some institutional guidance and training is necessary. The absence of the structured support means that students might still use the basic AI capabilities and underutilize the tools that can further improve the quality of the research and the quality of thinking. As such, AIs can only be effectively integrated into the assessment practice with the help of the tools and, crucially, pedagogical approaches that would help students become ethical, reflective, and purposeful in their use of AI in higher education (Elliott and Soifer, 2022).

**Conclusion**

The study concludes that AI tools and AI-based assessments offer considerable advantages in higher education by supporting learning, motivation, engagement, and efficiency. At the same time, students recognize limitations that must be addressed to ensure equitable, reliable, and ethical use of AI. While AI complements traditional learning and assessment methods effectively, it cannot replace human guidance, mentoring, and interaction. The successful adoption of AI in education requires careful implementation, institutional support, training, and ethical oversight.

**Recommendations**

- It is recommended that institutions adopt AI tools in a blended approach, integrating them with traditional teaching to enhance learning without reducing critical thinking or human interaction.
- Universities can offer organized training to help students learn about how to use AI tools ethically and effectively in learning and assessment.
- The faculty must incorporate the chosen AI tools into the assessment practices to provide more feedback and engage students.

- Academic institutions ought to encourage the use of research-oriented artificial intelligence tools to facilitate high-level academic writing and research.

- Clear policies about the use of AI should be created to suppress the utilization of AI and reduce academic dishonesty and promote responsible learning.

- The digital infrastructure and provision of AI tools to all students should be made equal regardless of their programs and the mode of learning.

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