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Artificial Intelligence, Digital Grades and Human Voices: Students Perceptions on AI Grading in Higher Education

By

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Abstract

The use of artificial intelligence in higher education has sparked significant debate, revealing two distinct perspectives: one highlighting the opportunities it presents and the other addressing the challenges it poses. Despite these discussions, both sides acknowledge the transformative impact AI will have across various sectors, including education. This study employed an explanatory sequential mixed methods design to investigate student perceptions of AI grading systems in higher education. Data were collected from 49 students through a quantitative questionnaire and qualitative semi-structured interviews with 17 students. The study used the Technology Acceptance Model (TAM) as a theoretical framework, and the research reveals a general scepticism among students regarding AI grading. While concerns exist, students also recognise the efficiency, speed, personalisation, and consistency of AI grading compared to traditional human grading. The findings reveal that students would be more accepting of AI grading systems when human oversight is incorporated and when they are allowed to consent to using AI in their assessments. For theoretical inquiry, the study proposes a model that answers the need for policies and human oversight in the implementation of AI technologies, the Artificial Intelligence Technology Acceptance Model (AITAM). Additionally, students expressed apprehensions about the potential impact of AI grading on the roles of human facilitators and the integrity of academic standards. The study emphasises the necessity for educational institutions to develop the requisite capabilities to implement AI grading effectively and to raise awareness about its usage among both students and faculty. The study recommends that by fostering an environment of transparency and engagement, institutions can facilitate a more positive reception of AI technologies in academic assessment.

Keywords*: Assessment, Artificial Intelligence, AI grading, teaching and learning, technology acceptance model*

Introduction

In education, assessment quality is important for both educators and students. For these reasons, the higher education system is even more cautious about how assessments are delivered to students. As noted by

Opesemowo, Abanikannda and Iwintolu (2024) “assessments play a pivotal role in determining students' understanding and proficiency in the subject matter, representing a fundamental aspect of education. Thorough and comprehensive assessment procedures are essential in evaluating the depth and breadth of student learning. Educational assessment serves to measure academic performance and provides educators with insights into teaching methods and curricula, facilitating personalised adjustments to enhance the educational experience”. The higher education system has been met with technological integration and innovation that seek to change how teaching and learning are approached. The pedagogical practices in education are therefore being challenged by the new technologies that showcase potential and drawbacks for educational institutions. As the landscape of higher education evolves, technology integration has emerged as a focal point of discussion, particularly in the realm of assessment and grading. One of the most transformative advancements is the use of Artificial Intelligence (AI) grading systems, a development that promises to reshape how students and educators approach learning and evaluation (Ragolane & Patel, 2024). With AI systems gaining traction worldwide, their implications for educational practices, particularly in diverse contexts like Africa and South Africa, warrant careful examination (Patel & Ragolane, 2024). ChatGPT, a chatbot built upon Open AI’s generative pre-trained transformer, has generated a major public interest and caused quite a stir in the higher education sector, where reactions have ranged from excitement to consternation (Kolade, Oweseni & Egbetokun, 2024). While the use of AI tools such as ChatGPT seeks to provide digital accessibility and performance in communication and support digital content, they have however remained a topic of debate in higher education (Rahman & Watanobe, 2023). For example, ChatGPT provides a platform for students to seek answers to theory-based questions and generate ideas for application-based questions. It also provides a platform for instructors to integrate technology in classrooms and conduct workshops to discuss and evaluate generated responses, however “ChatGPT, if unethically used by students, may lead to human unintelligence and unlearning.” (AlAfnan *et al.* 2023). The global education system is currently at a crossroads, facing pressures to improve efficiency, objectivity, and scalability. Traditional grading methods often rely on subjective judgment, which can lead to inconsistencies and biases. In this context, AI grading systems offer a new solution by using algorithms to assess student work quickly and accurately (Ragolane & Patel, 2024). Educators in higher institutions are increasingly adopting these systems, which has sparked debates about their effectiveness and their role in the learning process. For example, in Nigeria, lecturers who used ChatGPT for instructional assessment showed a low level of interest and poor perception in exploring the potential of ChatGPT for instructional assessment considering their varying demographic profiles (Opesemowo et al., 2024). In South Africa, students have shown a level of acceptance of the use of AI tools in grading their

assessments but revealed concerns about human involvement, security and fees (Ragolane & Patel, 2024). Literature suggests that both students and lecturers need to be trained in using AI tools and that there should be a balance between using AI tools and traditional teaching methods to enhance personalised learning in higher education (Mulaudzi & Hamilton, 2024).

The use of AI grading systems in education raises important questions about the future of teaching and learning. Firstly, will AI compromise the human aspect of teaching, or can it complement traditional teaching methods? And secondly, understanding students' perceptions is crucial in navigating this transformation, as their experiences and feedback will influence how AI is integrated into educational settings. To answer these questions research has explored students' perspectives on the use of AI tools to enhance personalized learning (Mulaudzi & Hamilton, 2024), as well as lecturers' attitudes and perceptions of the potential of ChatGPT for instructional assessment (Opesemowo et al., 2024). Additionally, an empirical survey has been conducted to understand the perspectives of both students and staff on AI (Olawele & Mutongoza, 2024). While research by Ragolane & Patel (2024) provided insights into the use of AI grading systems from student perspectives from one province through interviews in a South African institution. The current research will explore students' perceptions and views of AI grading from various provinces in South Africa, backgrounds, and levels of study. The current research adds to the limited research by providing an overarching exploration of the diverse backgrounds of students in South African higher education institutions. Through this research, we aim to contribute to a deeper understanding of the relationship between technology and education, paving the way for a future where AI catalyzes positive change in higher education, particularly within the diverse contexts of South Africa.

Theoretical Setting

For this paper, the authors selected the Technology Acceptance Model (TAM) as relevant to this argument. The TAM was introduced by Davies (1989) to understand the use and acceptance of technology by individuals. According to Burgess and Worthington (2021) the TAM by Davies (1989) posits that actual technology use is directly determined by an individual’s intentions to use the technology. As the individual’s intentions to use the technology increase, they are more likely to use the technology. The TAM model is based on two intentions (a) an individual’s Perceived Usefulness (PU) of the technology and (b) an individual’s Perceived Ease of Use of the technology (PEoU). According to Davies (1989), PU refers to the degree to which a person believes that using a particular technology will enhance their performance or outcomes and PEoU refers to the individual's expectation of the technology to be effortless and easy to use.

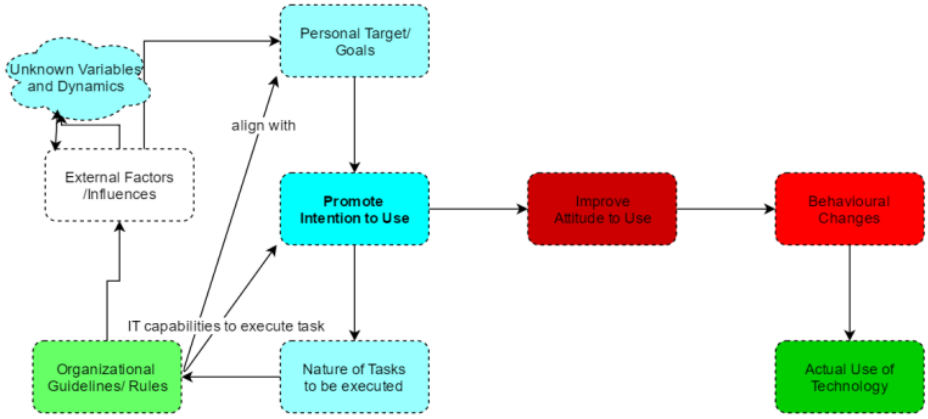


Figure 1: A Modified Technology Acceptance Model (TAM). Adapted from Ajibade (2018).

The authors used the modified TAM model by Ajibade (2018) (See Figure 1) and Davis (1993) (see Figure 2) to investigate the use and acceptance of technologies in institutions, focusing on the implementation of AI grading systems in higher education institutions. The model suggests that the adoption of AI grading systems depends on the institutions' policies regarding the use of technologies, which take precedence over the attitudes and preferences of users (Ajibade, 2018). Therefore, the adoption of AI grading systems will depend on the IT capabilities and infrastructure of the institutions, as well as the promotion of the technology to improve attitudes towards its use. Ajibade (2018) also points out that staff members assess the tasks to be performed, review the organization's guidelines, and align their personal goals with the organizational guidelines on the use of technology to ensure compliance, which moderates the staff members' intentions. This intention, in turn, influences the attitude towards the use of technology, and this attitude impacts actual behaviour and the real use of the technology from the institution to stakeholders.

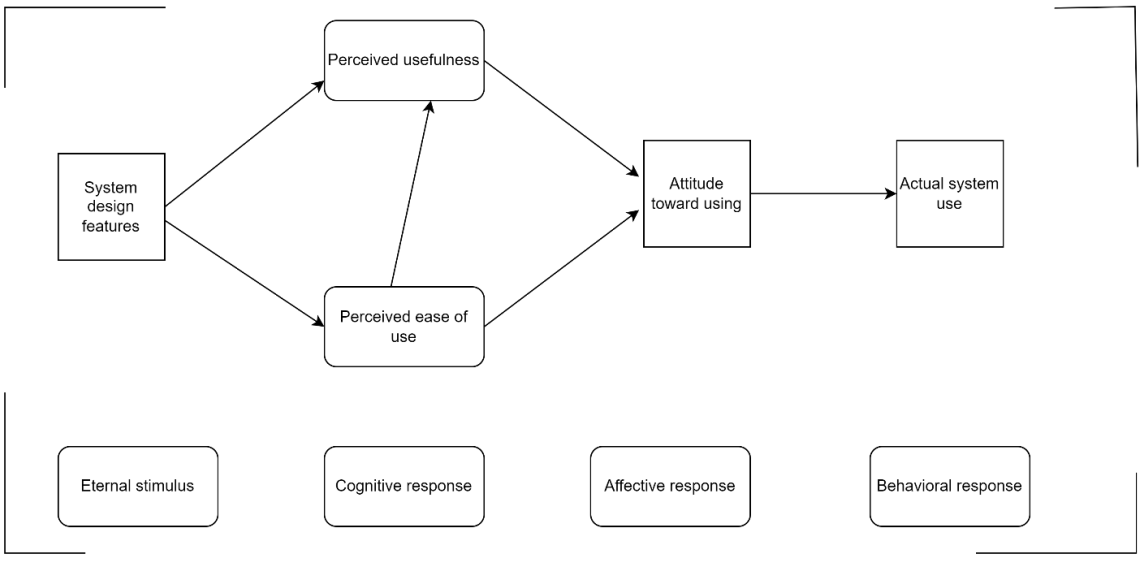


Figure 2 Technology Acceptance Model (TAM). Adapted from Davis (1993).

On the other side, Davis (1993) further adds that user acceptance is often a pivotal factor in determining the success or failure of a technology. According to Davis (1993), a prospective user's attitude towards using a given system is hypothesized to be a major determinant of whether or not he or she uses it. Attitude, in turn, is a function of two beliefs: PU and PEOU have a causal effect on perceived usefulness. System design features directly influence PE and PEOU and have an indirect effect on attitude towards using and actual usage behaviour through their direct effect on PE and PEOU. This study argues that in higher education, where assessment outcomes are crucial in shaping students' academic journeys, it is essential to understand how students perceive the benefits of AI systems on their perceived usefulness and ease of use. For example, students may see AI grading as a tool that could reduce bias, streamline the grading process, or facilitate personalized learning pathways. Exploring how students define and evaluate the usefulness of AI grading systems can shed light on their acceptance and potential adoption of such technologies. The authors also believe that integrating AI in education often requires a shift in traditional practices, and students' perceptions of how easy or challenging it is to engage with these new systems will significantly influence their acceptance. In essence, if students find AI grading intuitive and straightforward, they are more likely to embrace its implementation. On the contrary, if they perceive it as complex resistance to its adoption may arise. Therefore, it is crucial to assess not only the functionality of the AI systems but also the user experience from the students' perspectives. Additionally, external variables such as prior experience with technology, familiarity with AI, and institutional support can also affect students' perceptions. For example, students who have previously engaged with AI tools may exhibit higher levels of comfort and acceptance, while those lacking experience may require more guidance and reassurance. Furthermore, the role of educators and institutional frameworks in facilitating the integration of AI grading systems cannot be overlooked; their support can enhance both perceived usefulness and ease of use.

Materials and Methods

This study adopted both quantitative and qualitative research methodologies. Qualitative research is the process of collecting, analysing, and interpreting non-numerical data, such as language. Qualitative research can be used to understand how an individual subjectively perceives and gives meaning to their social reality. Whereas quantitative research involves the process of objectively collecting and analysing numerical data to describe, predict, or control variables of interest (McLeod, 2023). Therefore, the combination of these led to the use of mixed methods approaches. The researchers opted for this approach because the quantitative approach helps a researcher to collect the data from a large number of participants; thus, increasing the possibility to generalise the findings to a wider population. The qualitative approach, on the other hand, provides a deeper understanding of

the issue being investigated, honouring the voices of its participants. Whereas quantitative data brings breadth to the study and qualitative data provides depth to it (Dawadi et al. 2021). This enables an in-depth exploration of the use of AI grading systems and their acceptance by students. This study will address students' perceptions of the use of AI grading systems for their assessments in higher education. An explanatory mixed methods design was used, and it involved collecting qualitative data after a quantitative phase in order to explain or follow up on the quantitative data in more depth. The researchers followed the postpositivist assumption to select instruments and moved to the interpretivism or constructivist assumption as they value multiple perspectives and in-depth exploration (Creswell & Plano Clark, 2018 in Dawadi et al. 2021). In the first quantitative phase of the study, survey instrument data to be collected from students at a higher education institution in Johannesburg, Cape Town, Eswatini, Durban and East London to test the student's acceptance and perceptions towards the use of AI grading systems on assessments. The second qualitative phase was conducted to explain and contextualize the quantitative findings. In this exploratory follow-up, the perceptions of students towards the use of AI grading systems were tentatively explored with students at higher education institutions in Cape Town and Durban through semi-structured interviews. The reason for the exploratory follow-up is, to help explain or build upon initial quantitative results.

A total of n=49 students from the higher education institution completed the survey. The survey was distributed to students' emails and via WhatsApp groups to participate in the study. This was aided by n=11 interviews from Cape Town and n=6 interviews from Durban. Participants were selected purposively to ensure that they offer a diverse representation of students in higher education institutions. The study used the quantitative approach in unpacking and analysing the raw data collected from n=49 respondents on how they perceive the use of AI grading systems on their assessments. Furthermore, the study used qualitative data that covers responses from semi-structured interviews, which the researchers had with n=17 participants. The researchers used a thematic data analysis aimed at developing an understanding of the perceptions, attitudes and feelings of respondents on the subject of the use of AI grading systems on assessments in higher education. Both the survey and interviews provided the participants with assurance on their privacy and confidentiality in participating in the study. The participant's consent was obtained before the interviews and survey. To achieve credibility and reliability, the study used a triangulation research strategy through the use of multiple methods or data sources to develop a comprehensive understanding of a research problem or to test validity through the convergence of information from different sources (Carter et al., 2014 in Dawadi et al. 2021).

Quantitative Data Analysis

The study included the following demographics and characteristics of the participating students: 63.3% (n=31) were female, 26.5% (n=13) were male, 2% (n=1) identified as non-binary, and 8.2% (n=4) preferred not to disclose their gender. In terms of academic level, 93.3% (n=46) were undergraduates, 4.1% (n=2) were postgraduates, and 2% (n=1) were pursuing master's degrees. Furthermore, 46.9% (n=23) were in their first year, 28.6% (n=14) in their second year, 22.4% (n=11) in their third year, and 2% (n=1) at the master's level. The age distribution was as follows: 65.3% (n=32) were aged 17-21, 24.5% (n=12) were aged 21-25, 2% (n=1) were aged 25-30, and 8.2% (n=4) were 30 or older. Their qualifications included, among others, a Master of Business Administration, Bachelor of Commerce in Accounting, Bachelor of Commerce in Law, Bachelor of Commerce in Supply Chain Management, and a Higher Certificate in Business Management. Geographically, 44.9% (n=22) of the students were from Durban, 28.6% (n=14) from Johannesburg, 22.4% (n=11) from Cape Town, and 2% (n=1) from both Eswatini and East London.

Perception and Confidence in AI Grading

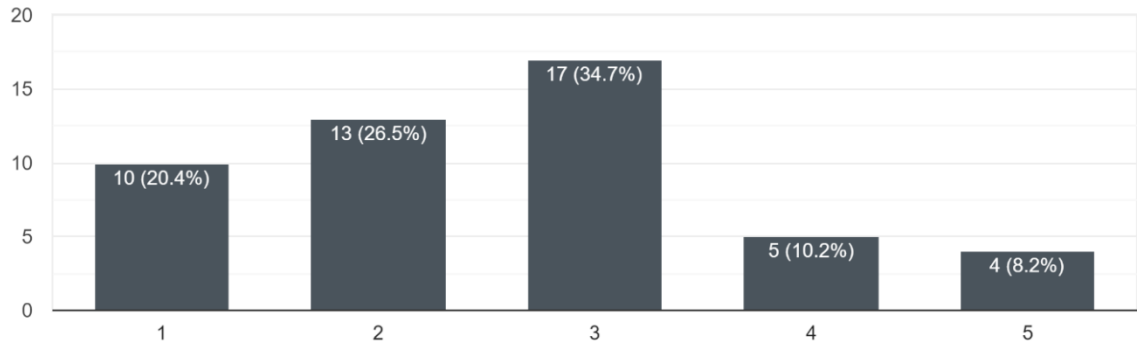


Figure 3: AI vs Human Graders

In Figure 3, the confidence levels of the 49 respondents are depicted on a scale from 1 to 5, with 1 representing "Not Confident at all," 2 representing "Slightly confident," 3 representing "Moderately confident," 4 representing "Very confident," and 5 representing "Extremely confident" in the potential of AI tools to grade assessments compared to human facilitators. Figure 3 reveals that the majority of participants (34.7%) fall in the middle of the confidence spectrum, indicating a degree of ambivalence or cautious optimism toward AI's grading capabilities. This group may recognize AI's potential but also remain unsure of its current ability to match human judgment. Interestingly, a significant portion of respondents, 26.5%, leaned toward the lower end of the confidence scale, selecting a 2, while 20.4% chose 1, suggesting that nearly half of the respondents (46.9%) are either sceptical or not confident at all about AI tools being effective substitutes for human facilitators in grading. This highlights potential concerns about AI's ability to understand nuanced responses or apply subjective judgment as effectively

as humans. On the other hand, only a small fraction of respondents expressed high confidence in AI tools, with 10.2% selecting a 4 and just 8.2% selecting a 5. This suggests that while there is some belief in AI's potential, a very limited number of participants are fully convinced that AI can perform on par with or better than human graders at this point. Overall, the data paints a picture of cautious skepticism. Most respondents are either uncertain or unconfident, with a smaller group showing optimism about the future of AI in this role. The fact that the largest group (those who selected 3) falls right in the middle suggests that while AI tools may have promise, they have not yet won over the majority in terms of grading accuracy or fairness when compared to human facilitators.

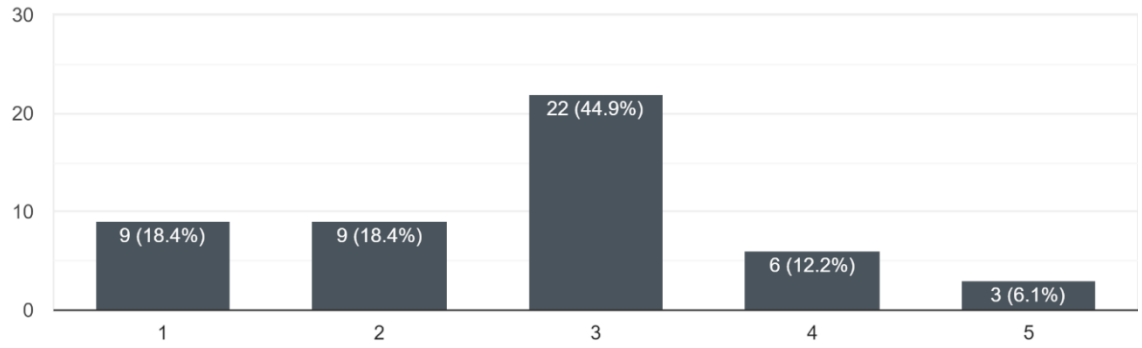


Figure 4: Acceptance of AI Grading on Assessment Without Complaint

Figure 4 suggests that most respondents are either neutral or unwilling to completely trust AI-graded assessments. The largest portion, 44.9%, indicated a neutral stance, suggesting they may be open to the idea of AI grading but are not fully convinced or are waiting to see more evidence of its reliability and fairness. Interestingly, a significant portion of respondents 18.4% each are on the more sceptical side, choosing 1 (very unlikely) or 2 (unlikely). This suggests that over one-third (36.8%) of the participants are hesitant or would be unlikely to accept AI-generated grades without raising concerns, reflecting a level of distrust in AI's ability to accurately assess their work. On the other hand, the number of respondents expressing confidence in AI grading is relatively low. Only 12.2% selected 4 (likely), and just 6.1% chose 5 (very likely). This indicates that a small but notable group would be willing to accept AI-generated grades with little to no resistance, though they remain a minority.

Overall, the responses reflect a cautious attitude toward AI grading, with the majority of respondents either neutral or hesitant about trusting AI to grade their assessments without dispute. This aligns with the broader trend seen in the previous graph, where most respondents expressed moderate confidence in AI tools but still held some reservations.

Advantages and Disadvantages of AI Grading and Human Grading

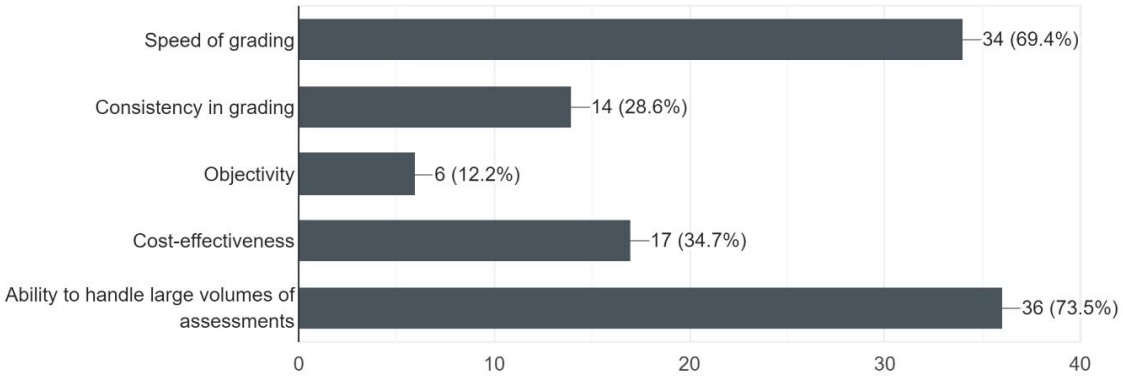


Figure 5: Advantages AI Has Over Traditional Human Grading Methods

Figure 5 reveals that the most commonly perceived advantage of AI in grading is its ability to handle large volumes of assessments, with 73.5% of respondents selecting this option. This indicates that most participants acknowledge AI's scalability, especially in contexts where large numbers of assessments need to be processed quickly and efficiently, such as in massive open online courses (MOOCs) or large educational institutions. Closely following is the speed of grading, selected by 69.4% of respondents. This suggests that many participants view AI as a faster alternative to human graders, capable of delivering results more quickly, which could be especially useful for time-sensitive assessments or frequent testing scenarios. Cost-effectiveness is also seen as a significant benefit, with 34.7% of participants recognizing AI's potential to reduce costs associated with human grading, such as salaries, training, and administrative overheads. This may be especially attractive to institutions aiming to reduce operational expenses. On the other hand, consistency in grading is seen as an advantage by only 28.6% of respondents. This relatively lower number could reflect concerns about AI's ability to apply consistent standards, especially in cases requiring nuanced judgment, such as essays or creative work, where subjective interpretation can play a role. Surprisingly, only 12.2% of respondents believe that objectivity is a key advantage of AI. This may reflect scepticism about AI's ability to completely eliminate biases, particularly in more complex tasks where human intervention or oversight is typically required. In summary, the most valued advantages of AI grading are its scalability and speed, with cost-effectiveness also being recognized by a notable portion of respondents. However, fewer participants see consistency or objectivity as significant strengths of AI over traditional human grading methods, highlighting ongoing concerns about AI's ability to handle subjective and nuanced tasks effectively.

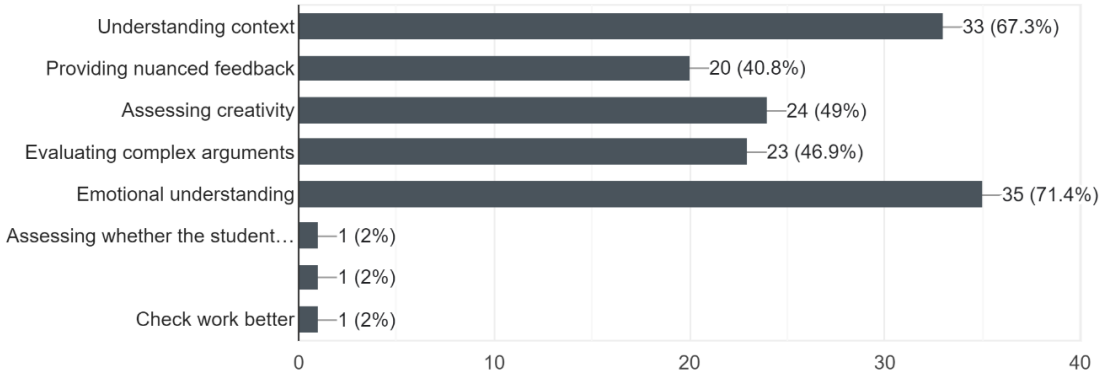


Figure 6: Characteristics Humans Excel in Compared To AI

Figure 6 indicates a strong belief among respondents that humans excel over AI in areas that require emotional intelligence and contextual understanding. The top two aspects emotional understanding (71.4%) and understanding context (67.3%) highlight human advantages in recognizing subtleties, emotions, and the broader situational factors that often come into play when assessing work. This suggests that respondents perceive human graders as more capable of picking up on emotional cues and interpreting student responses in a way that AI may struggle with. Assessing creativity (49%) and evaluating complex arguments (46.9%) are also seen as areas where humans outperform AI. These tasks likely involve subjective interpretation and a deeper understanding of nuanced ideas, which may explain why humans are viewed as better equipped to handle such assessments. Respondents may feel that AI struggles with the flexibility and openness required to evaluate creative work, or the intricate reasoning involved in complex arguments. In terms of providing nuanced feedback, 40.8% of respondents see humans as excelling in this area compared to AI. This may reflect the belief that human graders can offer more detailed, personalized insights, whereas AI might deliver more generalized or rigid feedback.

The responses for the last two categories *assessing whether the student properly understands the subject or whether he just copy-paste arguments* and *checking work better* were additional options from the participants, with only 2% of respondents selecting these options. This suggests that these aspects are not seen as significant differentiators between human and AI grading. In summary, respondents believe that humans excel over AI in areas that require emotional intelligence, creativity, and the ability to interpret complex ideas. Emotional understanding and contextual awareness are viewed as particularly strong human advantages, while AI is seen as more limited when it comes to providing personalized feedback and assessing creativity.

Impact on Behaviour and Comparison

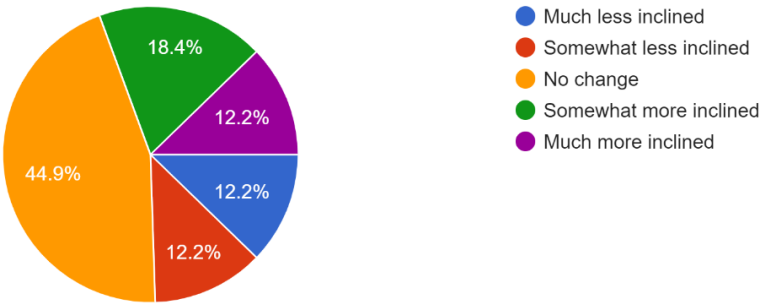


Figure 7: Student's Results Comparison When AI Graded

The majority of respondents in Figure 7 (44.9%) believe that AI-driven grading would not affect their tendency to compare their results with peers, suggesting that for almost half of the participants, the method of grading whether human or AI does not play a significant role in their comparison behaviour. A notable portion, 18.4%, indicated they would be somewhat more inclined to compare their results with others. This could reflect curiosity about how AI grading compares across different individuals and whether peers are receiving similar feedback or marks. On the other hand, 12.2% of respondents felt they would be somewhat less inclined, while an equal 12.2% stated they would be much less inclined to compare their grades with peers. This could suggest that these participants are either more sceptical about the fairness of AI grading or less interested in peer comparison under AI-driven systems. Lastly, 12.2% indicated they would be much more inclined to compare their results with their peers, possibly reflecting heightened interest in understanding how consistently AI applies grading criteria. while the largest group of respondents (44.9%) feels that AI-driven grading wouldn't change their behaviour in comparing grades, others are divided between being inclined to compare, indicating varying levels of curiosity or scepticism regarding AI's consistency and accuracy.

Mental Health and Ethical Considerations

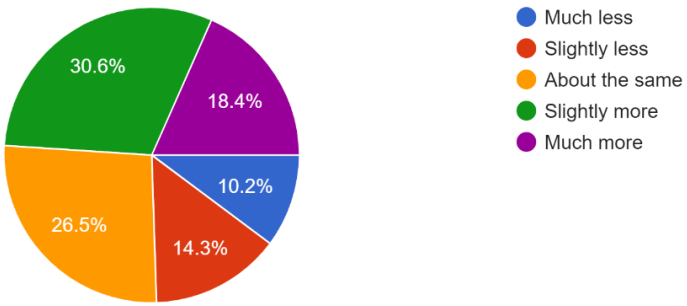


Figure 8: Impact on Mental Health

The largest group of respondents (30.6%) believes that AI-driven grading could contribute to slightly more anxiety

or mental health issues among students. This suggests concerns that AI grading might lead to increased stress, possibly due to perceptions of impersonal grading, lack of transparency, or concerns over the accuracy of automated assessments. Similarly, 18.4% of respondents believe that AI grading could result in much more anxiety, indicating a significant portion of respondents feel strongly that AI grading could exacerbate mental health issues. Together, these two groups (49%) reflect a considerable concern about AI grading potentially having negative psychological impacts. In contrast, 26.5% of respondents believe AI grading would have about the same impact on mental health as traditional human grading, suggesting that for these individuals, the shift to AI would not dramatically change students' anxiety levels. Smaller percentages of respondents (14.3% and 10.2%) believe AI grading could lead to slightly less or much less anxiety, respectively. These respondents may view AI as potentially reducing stress due to its speed, consistency, and perceived objectivity compared to human graders, who might introduce biases or subjectivity.

The researchers argues that while some respondents see AI grading as potentially neutral or even beneficial in terms of student anxiety, a significant proportion believes that AI-driven grading could increase anxiety or other mental health issues. This indicates a notable level of concern about the psychological implications of transitioning from human to AI grading systems.

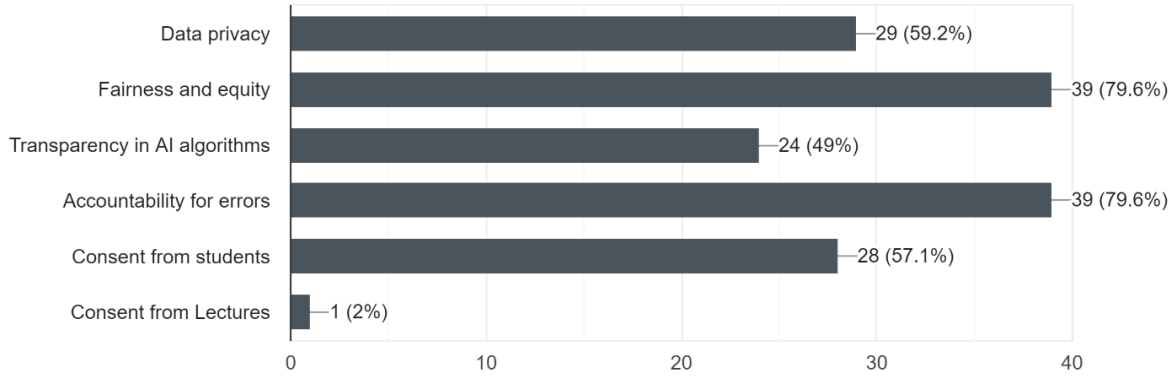


Figure 9: Ethical Considerations Implementing AI Grading Systems

The most critical ethical considerations for respondents are fairness and equity as well as accountability for errors, both selected by 79.6% of participants. This indicates a widespread concern that AI-driven grading systems must ensure equitable treatment for all students and provide clear mechanisms to address and correct errors. Fairness may involve preventing bias in AI algorithms, while accountability emphasizes the need for a process to manage mistakes or disputes over grades. Data privacy is also a major concern, with 59.2% of respondents identifying it as a key ethical issue. This reflects the sensitivity around the use of personal and academic data in AI systems, with respondents likely worried about the protection and secure handling of student information in these digital

environments. Consent from students was chosen by 57.1% of respondents, highlighting the importance of obtaining clear, informed consent from students before their work is graded by AI systems. This suggests that many respondents feel students should have a say in whether AI grading is used in their assessments. Transparency in AI algorithms, selected by 49% of respondents, underscores the need for clarity about how AI systems make decisions. Respondents may feel that AI grading should be explainable, allowing students and educators to understand how grades are derived and ensuring that the process is not a "black box." Lastly, consent from lecturers was deemed important by only 2% of respondents, suggesting that the ethical concerns focus more on student rights and protections rather than on lecturer consent in the implementation of AI grading systems. Fairness, accountability, data privacy, and transparency are viewed as the most crucial ethical considerations when using AI grading systems, reflecting a desire for a fair, transparent, and secure process that respects both students' rights and the integrity of the grading system.

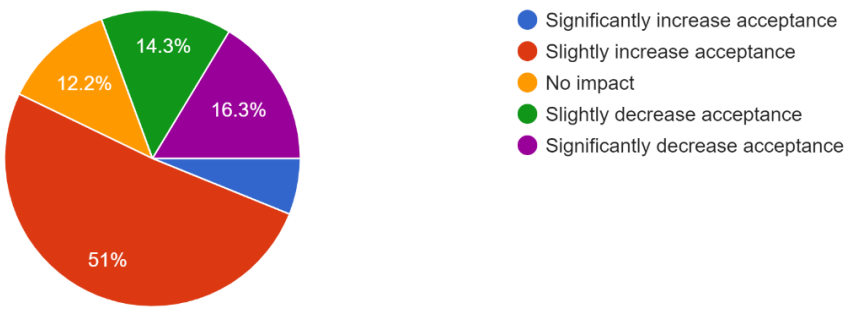


Figure 10: Ethical Considerations Influence on Acceptance of AI Grading

Figure 10 indicates that ethical considerations have a notable influence on respondents' attitudes toward AI grading. A significant majority, 51%, indicated that these ethical factors would slightly increase their acceptance of AI grading. This suggests that addressing key ethical concerns, such as fairness, accountability, and data privacy, could positively impact the willingness of many participants to embrace AI grading systems. However, there remains some scepticism, with 16.3% stating that these ethical concerns would significantly decrease their acceptance and 14.3% indicating they would slightly decrease acceptance. These respondents may feel that despite efforts to address ethical considerations, AI grading still poses unresolved risks or challenges, particularly in areas like accountability or transparency. A smaller portion of respondents (12.2%) indicated that ethical considerations would have no impact on their acceptance of AI grading, suggesting that these individuals may be either indifferent to the concerns or already set in their views about AI's role in grading. Finally, only 6.1% of respondents believe that addressing these ethical issues would significantly increase their acceptance of AI

grading. This could indicate that while ethical considerations are important, other factors (such as the effectiveness of the technology itself) might play a larger role in shaping their acceptance.

Cost and Efficiency

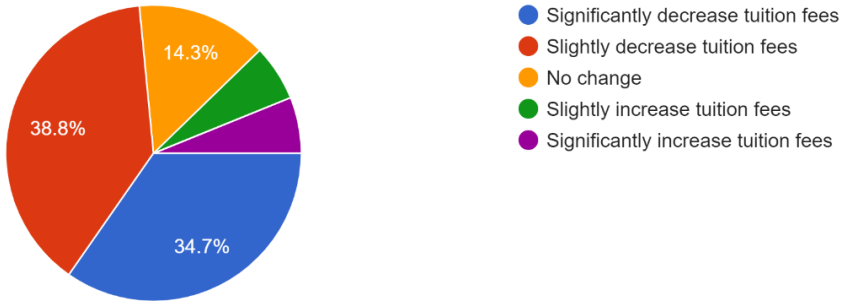


Figure 11: AI Grading and Impact on Fees

The majority of respondents believe that the implementation of AI-driven grading should result in a reduction in tuition fees. Specifically, 38.8% of respondents indicated that tuition fees should slightly decrease, while 34.7% believe that AI grading should significantly decrease tuition fees. These responses suggest that many participants view AI as a cost-saving measure, likely due to expectations that automated grading would reduce the need for human resources and related administrative costs, which could in turn lower overall tuition expenses. On the other hand, 14.3% of respondents believe that the introduction of AI grading should result in no change to tuition fees, suggesting they view AI as either a neutral factor in the overall cost structure of education or as a feature that may balance out in terms of efficiency gains and implementation costs. Interestingly, a small portion of respondents, 6.1%, believe tuition fees should slightly increase or significantly increase due to the use of AI grading. These individuals may consider the cost of implementing and maintaining AI technologies as an investment that institutions might need to pass on to students in the form of higher tuition fees. In figure 11 the majority of respondents expect that AI-driven grading should lead to a decrease in tuition fees, likely due to perceived cost savings from automation. However, a minority believe there could be either no change or even an increase in fees, reflecting differing views on the economic implications of implementing AI systems in education.

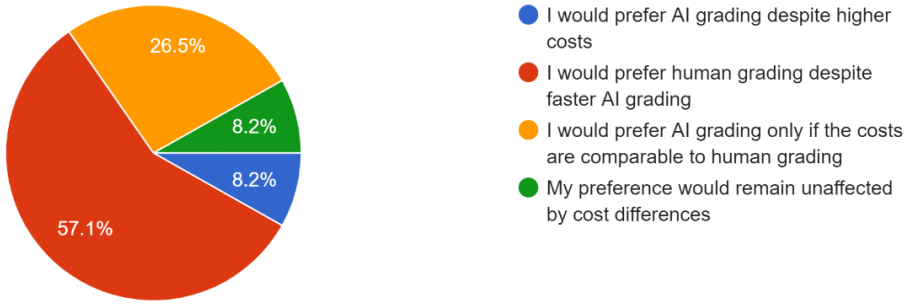


Figure 12: AI Grading, Costs and Human Grading

The majority of respondents, 57.1%, indicated they would prefer human grading despite the promise of faster AI grading and the additional costs associated with AI. This suggests that many participants value the human element in grading, likely due to concerns about fairness, accuracy, or the nuanced understanding that human graders provide, even if AI can deliver faster results. Meanwhile, 26.5% of respondents would prefer AI grading only if the costs are comparable to those of human grading. These individuals appear to prioritize cost-effectiveness over the speed of grading, indicating that faster AI grading alone is not enough to justify higher costs. A smaller group, 8.2%, stated that their preference would remain unaffected by cost differences, suggesting that for this group, factors other than cost—such as grading quality or the turnaround time—play a more important role in their decision-making. Another 8.2% would prefer AI grading despite higher costs, reflecting a minority that values the faster grading times enough to accept increased expenses. These respondents likely believe that the benefits of speed and efficiency outweigh the additional financial burden. Figure 12 reveals a clear preference for human grading, particularly if AI incurs additional costs, despite its faster turnaround time. While a small portion is willing to pay more for the advantages AI offers, most respondents will only consider AI grading if it remains cost-competitive or would still favor human grading altogether.

Effectiveness and Acceptance

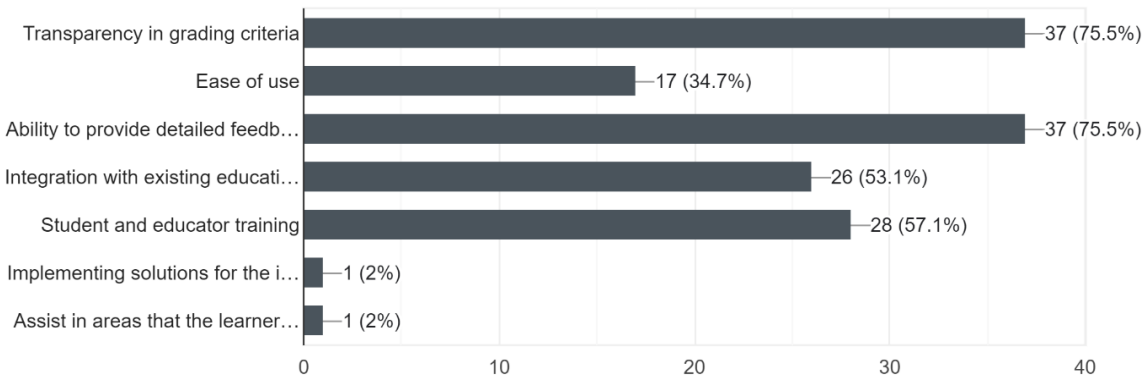


Figure 13: Factors on Effectiveness and Acceptance of AI Grading

The two most important factors for respondents are transparency in grading criteria and the ability to provide detailed feedback, with both receiving 75.5% of the responses. This highlights a strong emphasis on the need for AI grading systems to be clear in how grades are determined and to offer insightful, constructive feedback that aids in the learning process. These concerns reflect the importance of trust and clarity in the adoption of AI systems, especially when replacing or supplementing human grading. The third most cited factor, with 57.1%, is student and educator training, emphasizing that effective AI grading systems require adequate preparation for both students and faculty. This ensures that users can effectively interact with the system, understand how it works, and make the most out of its capabilities. Integration with existing educational systems was selected by 53.1% of respondents. This indicates that the success of AI grading systems depends not just on their standalone functionality but also on how seamlessly they fit within current educational frameworks and processes. Ease of use was noted by 34.7% of respondents, reflecting that simplicity and user-friendliness are also important for wider acceptance and functionality.

Two factors, implementing solutions for the individual learner and assisting in areas that the learner finds difficult, were added by 2% of respondents, suggesting that these more personalized aspects are seen as less critical to the overall effectiveness and acceptance of AI grading systems compared to other factors. Furthermore, respondents view transparency, detailed feedback, training, and integration with existing systems as the most important elements for ensuring the success and acceptance of AI-driven grading systems. These factors focus on clarity, usability, and support, reflecting the concerns about making AI grading systems both effective and trusted.

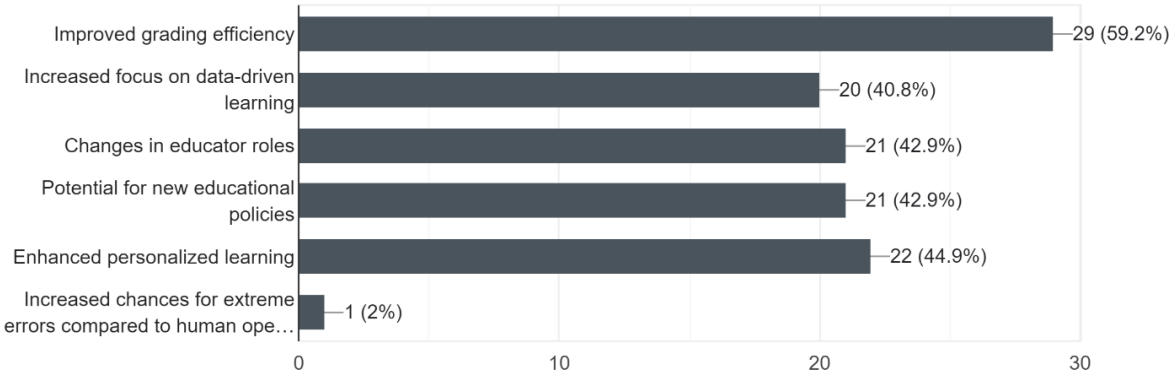


Figure 14: AI Grading Implication in Education

The most commonly perceived implication is improved grading efficiency, selected by 59.2% of respondents. This suggests that a majority of participants view AI-driven grading systems as having the potential to significantly streamline grading processes, making them faster and more consistent than traditional methods. Enhanced personalized learning was noted by 44.9% of respondents, indicating that many believe AI can help

tailor feedback and learning experiences to individual students' needs, contributing to a more personalized educational approach. Changes in educator roles and the potential for new educational policies were each selected by 42.9% of respondents. This implies that many expect AI to not only influence the direct grading process but also drive systemic changes, including shifts in how educators' function (e.g., more focus on facilitation and less on grading) and the creation of new policies to govern AI use in education. An increased focus on data-driven learning was cited by 40.8% of respondents, suggesting that AI's ability to analyze large amounts of student data could lead to more informed, evidence-based decisions in teaching and learning practices. only 2% of respondents highlighted the risk of increased chances for extreme errors compared to human operation. This indicates that while errors are a concern for some, it is not perceived as a major long-term implication of AI grading by the majority. According to Figure 14 respondents largely view AI-driven grading as a tool for enhancing efficiency, personalizing learning, and prompting shifts in educator roles and policies. While the possibility of errors is acknowledged, it is seen as a relatively minor concern compared to the anticipated benefits.

Role of Educators

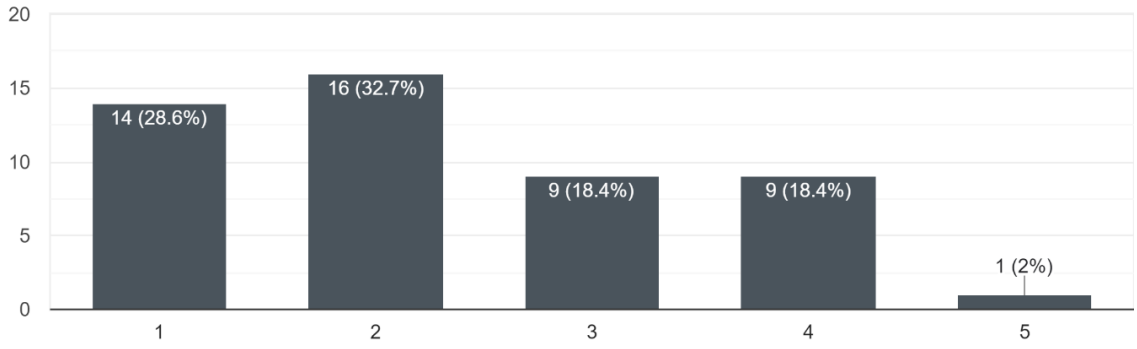


Figure 15: AI Garding Impact on Educators

A notable proportion of respondents 32.7% selected 2, indicating that many believe AI-driven grading systems may slightly reduce the role of educators, though not drastically. An additional 28.6% selected 1, suggesting that more than a quarter of respondents feel AI could significantly diminish educators' roles in grading, potentially shifting their responsibilities away from assessment towards other functions like facilitation or mentorship. On the other hand, 18.4% of respondents each selected 3 and 4, reflecting a more neutral (no impact) or slightly positive view on the potential impact of AI. These respondents may feel that AI could either balance or enhance educators' roles by alleviating time spent on grading while allowing them to focus more on teaching, providing support, and personalizing learning experiences. Finally, 2% of respondents (1 individual) chose 5, believing that AI-driven grading systems could significantly enhance the role of educators, perhaps by freeing them from administrative tasks and enabling them to concentrate more on engaging with students in creative and meaningful

ways. However, while the majority of respondents (61.3%) lean toward a belief that AI-driven grading may reduce or slightly reduce the role of educators, a smaller group holds neutral or positive views, suggesting a divide in expectations regarding how AI will reshape educators' responsibilities in the future.

Fairness and Equity

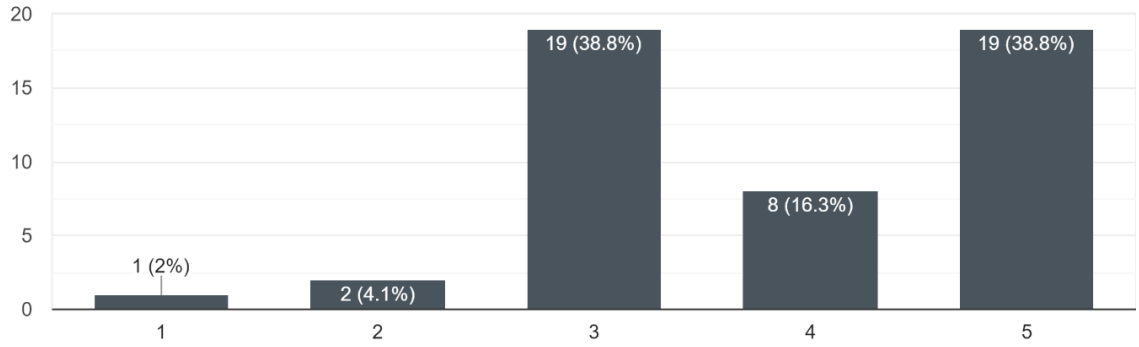


Figure 16: AI Grading Fairness and Equity

Figure 16 reveals that a significant proportion of respondents are either moderately concerned or extremely concerned about fairness and equity in AI-driven grading systems, particularly due to the potential biases in AI algorithms. Both categories received 38.8% of the responses, indicating that nearly four-fifths of respondents have notable worries about the fairness of AI grading and its ability to treat all students equitably. An additional 16.3% are very concerned, meaning that over half of the respondents (55.1%) fall into the upper range of concern (either very or extremely concerned), reflecting widespread unease about the potential for AI algorithms to exhibit or amplify biases in grading. Only a small percentage of respondents are unconcerned: 2% are not concerned at all, and 4.1% are slightly concerned. This suggests that very few participants believe AI systems are immune to bias or that the risk is minimal. the majority of respondents express significant concerns about the fairness and equity of AI-driven grading, particularly in relation to biases in AI algorithms. This highlights a critical issue that would need to be addressed to foster trust in AI systems within educational contexts.

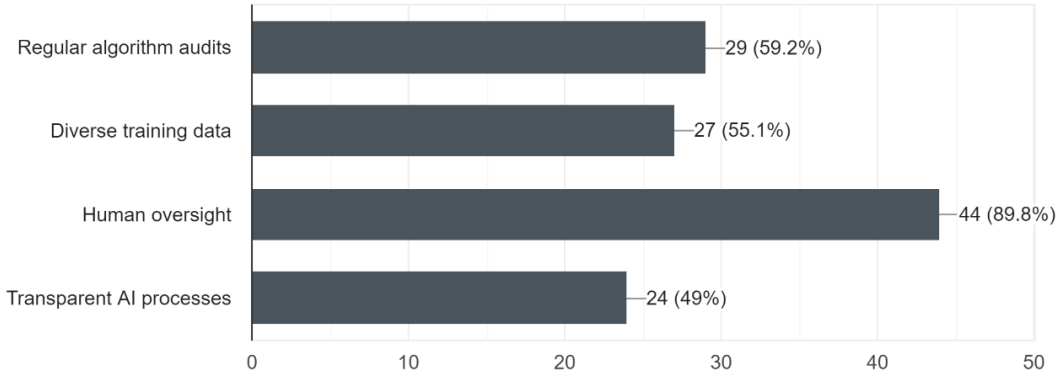


Figure 17: Measures to Mitigate AI Concerns

The overwhelming majority of respondents 89.8% indicated that human oversight is the most critical measure to mitigate concerns about AI grading. This suggests that most participants believe a system combining human and AI efforts, where humans review or validate AI decisions, is essential to maintaining fairness and reducing bias. Regular algorithm audits, selected by 59.2% of respondents, are also considered a key measure. This highlights the importance of continually reviewing and assessing AI systems to ensure that the algorithms are functioning as intended and do not develop or perpetuate biases over time. Diverse training data was chosen by 55.1% of respondents. This reflects the understanding that AI systems need to be trained on a wide range of data to ensure that they can accurately and fairly assess a diverse set of students without being biased toward specific groups. Finally, transparent AI processes were selected by 49% of respondents. This shows that nearly half of the participants believe that openness about how AI systems operate particularly how grading decisions are made can help alleviate concerns and build trust in the system. respondents overwhelmingly favour human oversight as the most effective measure to address fairness and equity concerns in AI grading systems, with algorithm audits, diverse training data, and transparency also viewed as important steps to mitigate these issues.

Learning Experience

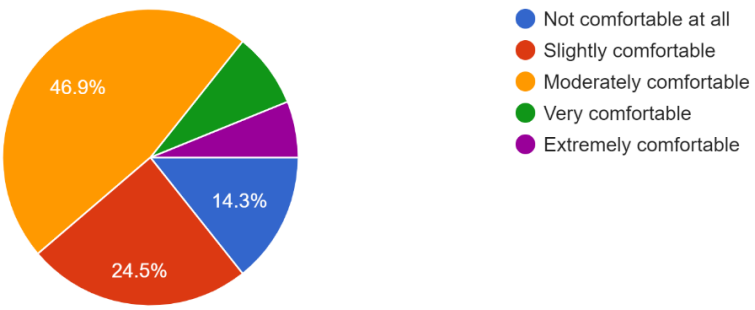


Figure 18: Comfortability Of AI Analyzing Learning Patterns And Suggesting Learning Paths

Figure 18 shows 46.9% of respondents indicated that they are moderately comfortable with the idea of AI

analyzing their work beyond grading. This suggests that while most participants are open to the concept, they may still have some reservations or uncertainties about the extent to which AI can effectively analyze and personalize learning. 24.5% of respondents are slightly comfortable, indicating some level of hesitation, possibly due to concerns over privacy, accuracy, or the effectiveness of AI in making meaningful suggestions for learning paths. On the more positive side, 14.3% of respondents are very comfortable, and 6.1% are extremely comfortable with AI's role in personalized learning. This shows that a small but significant portion of respondents is fully embracing the potential of AI in shaping and enhancing learning experiences beyond grading. However, 8.2% of respondents are not comfortable at all with AI taking on this extended role. These participants may have strong concerns about the implications of AI analyzing their learning patterns, whether due to issues of data privacy, trust in AI's interpretive abilities, or a preference for human involvement in such processes. the majority of respondents are at least moderately comfortable with AI analyzing learning patterns and suggesting personalized paths, but there is still a portion of participants expressing reservations, reflecting the need for careful consideration of AI's role in education beyond grading.

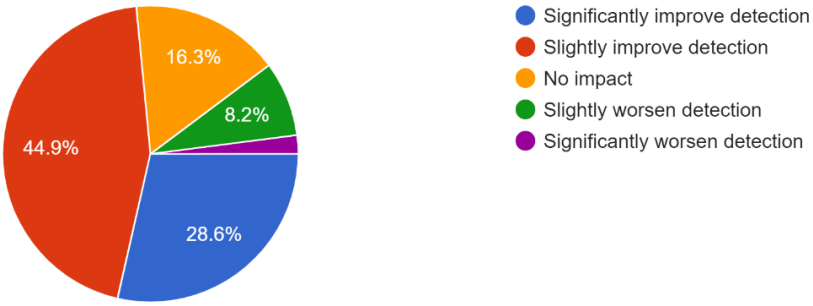


Figure 19: Impact on Academic Integrity and Plagiarism Detection

Most respondents believe that AI-driven grading has the potential to enhance plagiarism detection, with 44.9% stating it would slightly improve detection and 28.6% believing it would significantly improve detection. This suggests that over two-thirds of participants (73.5%) are optimistic about AI's ability to improve academic integrity by identifying plagiarism more effectively and consistently than human evaluators alone. A smaller proportion, 16.3%, think AI-driven grading would have no impact on plagiarism detection, indicating that these respondents do not expect AI systems to make a significant difference in maintaining academic integrity. However, 8.2% of respondents feel that AI would slightly worsen detection, and 2% believe it would significantly worsen detection. This indicates that a minority of participants are concerned that AI could miss plagiarism or generate false positives, which could undermine the integrity of the grading process. most respondents are optimistic about AI's potential to improve plagiarism detection and uphold academic integrity, while a smaller

group remains sceptical or neutral regarding its impact. This reflects a general expectation that AI could enhance the objectivity and efficiency of detecting academic dishonesty but with some reservation.

Human vs. AI Capabilities

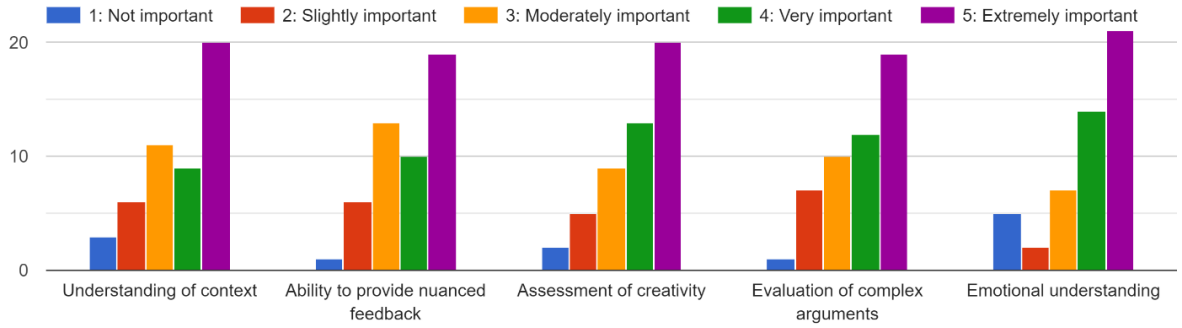


Figure 20: Qualities or Skills in Human Graders That AI Might Struggle to Replicate

Across all five skills, the majority of respondents rated these qualities as either very important (4) or extremely important (5), especially in areas such as understanding of context, evaluation of complex arguments, and emotional understanding. This suggests a strong belief that these human qualities are difficult for AI to replicate, especially in tasks requiring emotional intelligence, nuanced judgment, and the evaluation of creativity or complex reasoning. The relatively lower number of respondents rating these skills as not important (1) or slightly important (2) indicates that few participants believe these skills can be easily replicated by AI, reinforcing the idea that human graders possess critical qualities that AI is currently less adept at mirroring. emotional understanding, creativity, and the ability to evaluate complex arguments are seen as essential skills in grading, which respondents believe AI may struggle to fully replicate. This underscores the importance of maintaining human oversight in grading, especially in tasks requiring deeper cognitive and emotional engagement.

Qualitative Data Analysis

The researchers conducted interviews with 17 participants and used qualitative data analysis to analyse the collected data. The interviews took place in Durban and Cape Town, South Africa, and involved students from higher learning institutions. The researcher transcribed the audio recordings of the interviews into texts and then analysed the data, grouping it into themes. The demographic of the students was as follows: there were 6 male and 11 female respondents, ranging in age from 18 to 38 years. The students were in their 3rd and 1st year of studies in fields such as Supply Chain Management, Business Management, Accounting, Law, and Public Management. The data was analysed in the following themes:

Fairness and Bias in AI Grading

The respondents frequently expressed concerns about fairness and potential biases in AI grading systems. Several noted that AI might provide more objective assessments but could lack the nuanced understanding that human graders possess. For instance, one respondent remarked, "*AI would be fair and straightforward... AI grading will eliminate procrastinating".* Another respondent emphasized the concern of bias in algorithms, noting, "*If the data used to train the AI contains biases, the AI will likely replicate these biases in its grading"*

Emotional Understanding and Empathy

A common theme was the lack of emotional understanding in AI-driven grading. Many respondents believed that human graders offer empathy and can take into consideration various factors such as learning styles or the specific context of a student's answer. One respondent pointed out, "Humans understand the simpler way... AI wants a straightforward answer". Another said, "Humans can feel. Humans can see what's not there, and that's what you need when you teach someone".

Efficiency and Timesaving

Respondents highlighted AI's ability to grade assessments faster than human facilitators. This efficiency was viewed positively, with one respondent stating, "*AI grading ensures consistent evaluation criteria... reducing potential bias*". However, some respondents remained cautious about whether this speed justified increased costs or the loss of personal interaction with educators. One respondent commented, *"If AI grading incurs additional costs compared to human grading but offers faster turnaround times, I would still prefer human grading*". Moreover, the ability to quickly process large volumes of assessments was a recurring theme, with one respondent stating,

> "*The thing that there could be several benefits. Off the top of my head, I can see efficiency and speed. Okay, so AI can grade a large amount in a very short time. Another one would be data-driven insights, so AI can analyse student patterns, how they perform exams, tests, and assignments, whatever it is, the case may be, and it could provide data and ways to make it so that easy on the students. You know, find their faults, find their flaws, offer a different kind of, let's put say, teaching method, lecturing method, to the lecturer, just to kind of ease the students in areas where they struggle*."

This points to a clear recognition of AI's potential to enhance operational efficiency in educational settings.

Objectivity and Consistency

A number of respondents praised AI for its ability to offer consistent and objective grading, reducing human biases. One participant observed, "*AI applies the same criteria to every assignment, ensuring consistent grading and reduction in human error*". However, there was also caution that AI lacks the human capacity for understanding nuanced responses, as another interviewee noted, "*While AI can flag issues, human judgment is still needed for a complete assessment*". This indicates that respondents see AI as a valuable tool for certain types of assessments, particularly those that are more objective in nature, like multiple-choice questions.

Lack of Emotional Understanding and Nuance

One of the major drawbacks of AI highlighted in the interviews is its inability to understand emotion and nuance in student work. Many respondents felt that AI would struggle to interpret creative or subjective tasks, such as essays or projects. One participant said, "*AI cannot understand tone, creativity, or arguments that a human grader would pick up on*", which limits its usefulness in assessing more complex or subjective work. Another added that AI lacks empathy, explaining, "*AI has no emotion... it does its job and then moves on, unlike human graders who can provide richer, more personalized feedback*".

Implications for Educators' Roles

There was notable concern about how AI grading would impact the role of educators. Respondents believed that AI could reduce teachers' responsibilities, but not always in a positive way. One respondent mentioned, *"It would save teachers time, and they would have more time for increased student contact*". Another feared it could negatively affect student-teacher dynamics: "*Teachers will just be there to explain, and there's a high probability students won't need to listen since they can just put these things into AI*". Some feared that AI could reduce the need for human graders, leading to job losses. As one respondent remarked, "Introducing AI into grading could cut jobs, as fewer human graders are needed", raising concerns about the economic implications of such a shift. Others, however, viewed AI as an assistant rather than a replacement for educators. One respondent suggested a hybrid approach, stating, "*AI grading should be paired with human oversight to ensure the best of both worlds*". This highlights a desire for AI to complement rather than replace human involvement in grading.

Impact on Students' Mental Health

Several respondents expressed concerns about how AI-driven grading might increase anxiety among students.

The rigor of AI and its focus on correctness over understanding could add stress. As one respondent stated, *"A person would be more stressed to get the precise answer… they would have to be diligent in the answering of the question"*. Another added, "*It will increase depression and anxiety because some of us prefer more interaction, like teaching, rather than just having AI".*

Financial Implications

The cost of implementing AI systems was another point of discussion. Several respondents noted the potential for long-term savings but were concerned about the initial costs. One of the respondents expressed enthusiastically that:

> "*I think that they are quite a bit of positive and negative. Reasons for that, positive and negative arguments, should I say? Rather, so some of the positive aspects could be cost saving for institutions. You know, it can reduce the I guess it can reduce the need for large numbers of human graders. This saves the money, saves the institution money. But, on the opposite end of the coin, in that situation, it could be a negative as well, because introducing AI into an institution costs a lot of money. Yeah, it's very high maintenance. So, the cost of maintaining, the cost of introducing, but I guess over in the long run, it could work out to be cheaper".*

This highlights the dual perspective on AI's financial impact, with some seeing it as a cost-saving measure in the long run, while others are wary of the upfront investment required.

Academic Integrity and Plagiarism Detection

AI's potential to enhance plagiarism detection was widely acknowledged. Many respondents believed that AI-driven grading could improve academic integrity by providing more accurate plagiarism checks. One respondent commented, "*AI-driven grading would like stop students from procrastinating and take charge of their work"*. while another mentioned, "*AI will be able to detect plagiarism faster, which is an advantage*". However, concerns were also raised about AI's ability to understand and properly assess the nuances of original thought and creativity.

Long-Term Implications for Education

Respondents offered mixed views on the long-term implications of AI in education. Some saw AI as a step toward a more digital, efficient future, as one respondent noted, "We are moving into a digital era, so the long-term

applications will be higher". Others, however, were worried about the loss of human interaction, which they deemed essential for learning. One respondent expressed, "*It doesn't shape a good future because there's no physical interaction... the future generation will be so narrow-minded".*

Discussion of Findings

The study used the Technology Acceptance Model (TAM) to explore how students perceive AI grading technology. While the TAM framework helps assess students' views on the usefulness and ease of use of this technology, it falls short in addressing a key aspect: students are recipients of the technology rather than active users. To better understand acceptance from an institutional perspective, the researchers argue that Ajibade's (2018) model offers a more comprehensive approach. This model emphasizes the relationship between institutions and students in promoting AI technology. In light of this, the researchers propose a Modified Artificial Intelligence Technology Acceptance Model (AITAM), illustrated in Figure 21. According to the AITAM framework, organizational policies, guidelines, and rules significantly influence the design features of AI systems. These factors are crucial for ensuring compliance with the Protection of Personal Information Act (POPI Act) and for safeguarding student data, as well as for raising awareness about AI technologies among students. The implementation of these policies relies on the institution's IT capabilities and infrastructure, ensuring that the AI system aligns with student interests. The study findings revealed students' concerns regarding the diminishing role of human involvement in AI-driven assessments. Therefore, it is essential for the technology to be both beneficial and responsive to student needs, highlighting the importance of human oversight in the assessment process. Students' attitudes toward AI systems for assessments are shaped by policies and the dynamics of system-user relationships. As such, students' behavioural responses can vary, ultimately influencing their acceptance of the technology in practice.

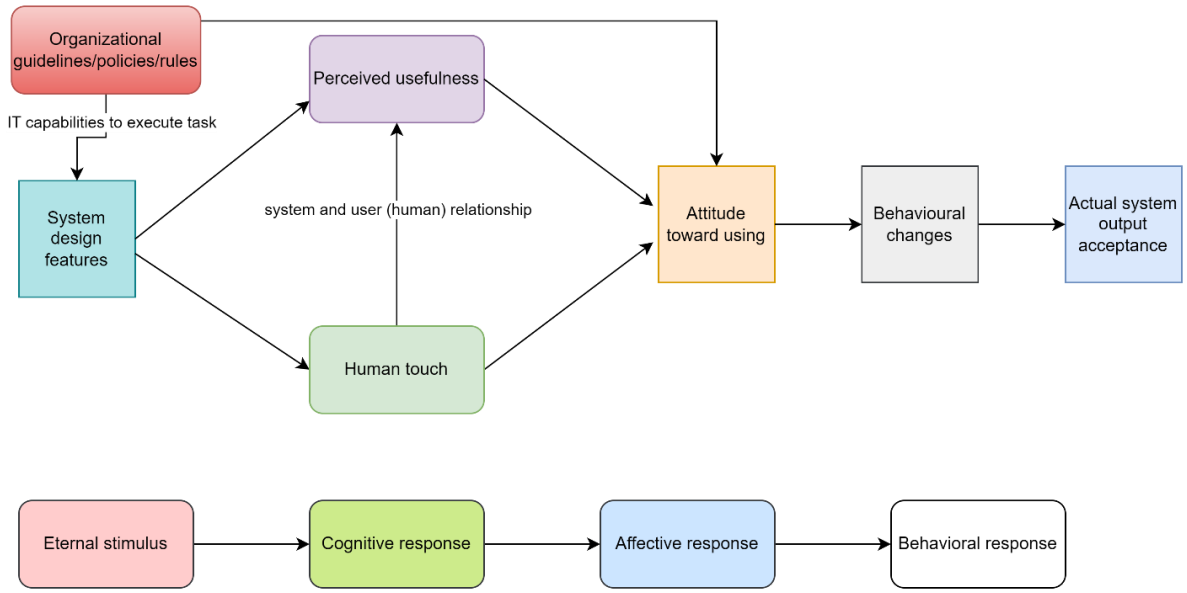


Figure 21: Modified Artificial Intelligence Technology Acceptance Model (AITAM), adapted from Davis (1993) and Ajibade (2018)

Since the introduction of AI has gained momentum in various industries, the education landscape has been at the forefront of discussion around the use and impact of AI tools. South Africa on the other side while being mostly on the receiving end of these technologies, stands no chance but to explore and question its deployment. South African higher education saw this shift with the move from face-to-face delivery to online delivery. However, this has not been without challenges for higher education institutions. These challenges were readiness, acceptance, infrastructure and policies. Research suggests that the challenges brought about by the COVID-19 pandemic and its new normal have shown that changes need to happen to higher education curriculums to be able to overcome these challenges (Molefe, Mokumo & Masenya, 2024). To these debates was the change of assessments and curriculum delivery in higher education to be specific the dimension of AI grading in higher education. However, there is limited research on investigating the use of AI grading in higher education in South Africa. This study contributes to the existing literature on the AI grading by investigating the perceptions of students on AI grading in higher education. To provide answers to the questions of whether AI grading will compromise traditional grading methods and what students think of AI grading their assessments. One of the most prominent findings in the study is the recognition of AI's capacity to improve grading efficiency. This aligns with existing literature that highlights AI's ability to manage large volumes of data and offer faster grading solutions compared to human graders (Ragolane & Patel, 2024). Students in the study frequently cited the speed and scalability of AI grading systems, particularly for large classes, as one of AI's primary advantages. This reflects findings from prior research that emphasizes the potential of AI to reduce the time spent on grading, allowing educators to focus more on

teaching and student support (Ragolane & Patel, 2024). The study found that students appreciated the consistency AI could bring to grading, potentially reducing the subjectivity and biases that human graders might introduce. This aligns with earlier studies, which noted that AI tools could provide a more consistent application of grading criteria. In a study conducted by Gobrecht et al. (2024) which explored human subjectivity and error in comparison to the AI model grading system, it was revealed that for the courses examined, the model deviated less from the official historic grades than the human re-graders - the model's median absolute error was 44 % smaller than the human re-graders', implying that the model is more consistent than humans in grading. These results suggest that leveraging AI enhanced grading can reduce human subjectivity, improve consistency and thus ultimately increase fairness. These findings are supported by Stoica (2022) and Ragolane and Patel (2024) who found that respondent's express belief in the use of AI grading systems which will enhance the time spent on feedback and marking, student communication, improve consistency and address challenges before they are huge. However, despite recognizing these strengths, students still expressed uncertainty regarding the extent to which AI could truly replace human judgment in more nuanced assessments. In similar vein the present findings align with the results of Flodén (2024) which revealed that AI, particularly ChatGPT, can generate exam scores similar to those of human graders. While discrepancies exist, they are not uncommon among different human evaluators. In the study teachers were surprised by how closely AI grading matched their own assessments. However, this increased reliance on AI for grading raises ethical issues, especially concerning the lack of transparency in its decision-making processes and potential biases from training data. The study found that a critical concern raised in the study relates to the limitations of AI in providing nuanced feedback and understanding emotional contexts. While AI may excel in objective and straightforward assessments, such as multiple-choice tests, students expressed doubts about its ability to assess more creative, argumentative, or context-driven assignments. This skepticism is consistent with existing research that suggests AI systems, while capable of applying consistent rules, may struggle with interpreting complex human expressions or creativity (Ragolane & Patel, 2024).

The theoretical underpinnings of the TAM model highlight that for a technology to be widely adopted, users must perceive it as both useful (PU) and easy to use (PEOU) (Davis, 1989). In the case of AI grading, students may see it as useful in terms of speed and objectivity but may not perceive it as equally beneficial for tasks requiring emotional intelligence and personalized feedback. The findings suggest that students value human graders for their ability to understand context, offer empathy, and provide detailed, individualized feedback qualities that they view as lacking in AI. Another major concern identified in the study is fairness and the potential biases in AI algorithms. Literature has consistently warned about the possibility of AI systems reproducing biases present in

the data they are trained on, which can perpetuate inequalities in grading (Patel & Ragolane, 2024). Students in this study expressed significant concerns about whether AI-driven grading systems could treat all students equitably, particularly in complex or subjective assessments. This aligns with broader concerns in the field of AI regarding the transparency and accountability of AI systems (Opesemowo et al. 2024). To mitigate these concerns, students in the study overwhelmingly favored human oversight and regular audits of AI algorithms. This is consistent with literature suggesting that hybrid approaches combining AI with human intervention are essential to ensuring fairness and addressing potential algorithmic biases (Stoica, 2022; Colonna, 2024). Colonna (2024) stresses the importance of human authority to intervene in the process and the necessity for explicit guidance on using the tools to ensure consequential interventions. The desire for transparency in AI processes further highlights the need for educational institutions to be clear about how AI systems operate and how grading decisions are made, reinforcing calls for explainable AI models (Ragolane & Patel, 2024). For Colonna (2024) whether universities will require substantive or empirical evidence to demonstrate, for example, that the safeguards effectively allow teachers to combine their professional judgment with the tools' insights or to minimize automation bias, remains an open question.

The findings additionally unveiled how students perceive the impact of AI on educators' roles. While some students acknowledged the potential for AI to reduce the administrative burden of grading, thereby allowing educators to focus more on teaching and student interaction, others were concerned that AI could diminish the need for human graders, potentially leading to job losses. This aligns with existing literature, which has debated the extent to which AI might automate educational processes and how this could reshape the role of educators (Ragolane & Patel, 2024).

In terms of academic integrity, the findings suggest that students view AI as a potentially valuable tool for enhancing plagiarism detection. However, concerns persist regarding AI's ability to accurately assess the originality of work, especially in cases requiring nuanced interpretation, such as in creative writing or complex argumentation. In similar contexts, a study conducted by Sysoyev (2024) revealed that plagiarism is a widespread social phenomenon in the Russian student community, with many types being perceived by young people as the norm of academic behaviour. Despite students' relatively high awareness of AI technologies, the infrequent use of AI tools by teachers of specialized disciplines in the educational process contributes to the currently low prevalence of AI plagiarism in the academic environment. It's important to note that students lack a systematic understanding of what constitutes AI plagiarism and how they can ethically use generative AI materials. According to students, the actions of teachers to explain the rules for using generative AI materials and the

presence of a regulatory framework in universities governing the scope and extent of students' use of AI in the educational process will be crucial in addressing issues of adherence to author ethics and AI plagiarism. These findings can be applied to South African higher education, as the lack of awareness and understanding of AI tools such as ChatGPT often leads to two potential use cases: students secretly using AI tools and teachers being unaware of whether the students used AI.

The study found that while some students appreciated the objectivity and consistency that AI could bring, others feared that the impersonal nature of AI assessments could exacerbate stress. This is particularly relevant in the context of assessments that require precise answers or where students feel AI might not be able to recognize their unique approach to a problem. This aligns with broader discussions in the literature, which suggest that while AI can enhance efficiency, it may also lead to increased pressure on students to conform to rigid, algorithmic standards (Ragolane & Patel, 2024). The findings also suggest that students are concerned about the potential psychological impact of shifting from human to AI grading, especially in terms of losing the empathetic support that human graders can provide. The absence of human interaction in AI grading systems may lead to feelings of isolation, as students may feel that their circumstances or creative inputs are not being fully recognized or valued.

The study's findings also touch on the financial implications of implementing AI-driven grading systems. While many students believed that AI could lead to reduced tuition fees due to cost savings in grading, others were concerned about the initial investment required to implement these systems. This reflects ongoing debates in the literature about the long-term cost-effectiveness of AI in education. In a study by Dimari et al. (2024) it was revealed that the implementation of AI-driven grading systems can reduce grading time and costs, potentially reallocating resources towards enhancing educational quality and supporting faculty development in higher education. On the other hand, Ragolane and Patel (2024) argued that despite the plethora of benefits, the implementation of AI grading systems requires substantial upfront investment in technology and training, which may pose a barrier for some institutions.

Furthermore, students who were optimistic about the cost-saving potential of AI viewed it as a solution that could reduce administrative costs and make education more affordable. However, the initial expenses and maintenance costs were noted as potential drawbacks that institutions need to consider carefully. The findings suggest that students' acceptance of AI-driven grading is contingent on several factors, including transparency, training, and the ability of AI to provide detailed feedback. The TAM model (Davis, 1989) posits that perceived usefulness (PU) and ease of use (PEOU) are critical to the acceptance of new technology. In this study, students were open to the idea of AI grading but remained cautious. Their acceptance of AI grading systems would increase if these

systems were transparent, easily integrated into existing educational frameworks, and offered detailed personalized feedback. In a study conducted by Ma, Akram, and Chen (2024), the acceptance of AI technology among Chinese and international students was explored. The study revealed that cultural backgrounds and prior technological exposure significantly influence perceptions of AI technology. It emphasized the necessity of tailored educational strategies to accommodate diverse cultural perspectives, provide language-specific support, and ensure user-friendly interfaces. Borrowing from Ma et al. (2024), this study suggests that integrating cross-cultural workshops and technology training programs customized for individuals with different levels of technological familiarity can improve positive perceptions and usability. This can lead to a more inclusive and globally conscious educational setting.

The findings of this study align with existing literature on the potential and limitations of AI-driven grading systems in higher education. While students recognize the benefits of AI in terms of efficiency, objectivity, and scalability, they remain concerned about fairness, emotional understanding, and the broader implications for educators and student well-being. The application of the Technology Acceptance Model suggests that while students may see the usefulness of AI grading, their acceptance will depend on how institutions address concerns about fairness, transparency, and human oversight. Therefore, according to the findings of this study, the acceptance of AI grading systems is based on the acceptance of AI systems from within the institutions.

Conclusions and Recommendations

This study has examined student perceptions regarding the use of AI grading systems in higher education. The findings highlight the necessity of increasing awareness of AI technologies within institutions to enhance understanding and engagement. Human oversight remains essential in education, and institutions should equip educators with the skills needed to effectively interact with students, adapting their pedagogical approaches to align with evolving assessment practices.

The introduction of AI technologies should not compromise academic standards; instead, it should enhance teaching and learning experiences. Participants emphasized that institutions need to ensure that AI technologies are safe and aligned with students' interests to foster more positive behavioural changes regarding AI grading. The study indicates that student acceptance of AI-driven grading hinges on several critical factors, including transparency, adequate training, and the AI's ability to provide detailed feedback. While students are generally open to the concept of AI grading, they remain cautious. Their acceptance would likely increase if the systems were transparent, seamlessly integrated into existing educational frameworks, and capable of delivering personalized feedback.

To improve the acceptance of AI grading systems, South African institutions should prioritize the following seven areas: (a) implement programs to raise awareness about AI technologies and their benefits among students and faculty; (b) ensure that AI grading processes are transparent, allowing students to understand how their assessments are evaluated; (c) provide comprehensive training for educators to enhance their understanding of AI technologies and their pedagogical applications; (d) develop strategies for the seamless integration of AI grading systems into current educational practices and curricula; (e) ensure that AI grading systems are designed to offer detailed, personalized feedback that addresses individual student needs; (f) establish robust policies to ensure the safety of student data and compliance with relevant legislation, such as the Protection of Personal Information Act (POPI Act) and (g) create mechanisms for the continuous evaluation of AI grading systems, incorporating student feedback to drive improvements and ensure alignment with educational goals.

Declarations

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