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Artificial intelligence or augmented intelligence? Experiences of lecturers and students in an ODeL university

Ntshimane Elphas Mohale [1], Zuleika Suliman [2], Kgabo Maphoto [3], Kershnee Sevnarayan [4], Douglas Mokoena [5], Tumelo Jaquiline Ntsopi [6]

[1,2,3,4,5,6] University of South Africa

Preller St, Muckleneuk, Pretoria, 0002.

Corresponding email: mohalne@unisa.ac.za

ABSTRACT

This study investigates the integration of artificial intelligence (AI) and augmented intelligence (AuI) in an open distance e-learning university, focusing on lecturers' and students' experiences. Using qualitative methods: focus group discussions and e-mail interviews, it examines the adoption and exploration of these technologies, particularly in academic writing skills development. The research applies diffusion of innovations theory and technology acceptance model to understand the dissemination and acceptance of AI and AuI, emphasising perceived ease of use and usefulness. It contrasts perspectives between lecturers and students, revealing varied views on AI utilisation in academic writing. Despite differences, both groups express positive experiences and benefits from AI. The findings contribute to a deeper understanding of the transformative impact of AI and AuI on teaching and learning in a distance learning university. AI has far-reaching effects on lecturers, students, and policymakers as they navigate the integration of intelligent systems in distance learning contexts.

Keywords: academic writing skills; artificial intelligence; augmented intelligence; diffusion of innovation theory; technology acceptance model.

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1. INTRODUCTION

1.1. Introduction

In recent years, artificial intelligence (AI) has undeniably left a permanent mark on various industries, education being a notable recipient of its transformative influence (Arogundade, 2023; Chakraborty, 2020). Within the higher education (HE) context, there is a growing recognition of

AI as a formidable source of competitive advantage, providing huge potential for educational enhancement, higher learning, and academic progression (Escotet, 2023; Hannan & Liu, 2023). However, amid the promises of progress, it is imperative to acknowledge the ethical challenges and potential negative impacts that AI can introduce to societal engagement with these ground-breaking, yet still unexplored tools. While the technological breakthroughs facilitated by AI and augmented intelligence (AuI) bring forth unprecedented opportunities, they concurrently raise concerns about ethical practices and responsible implementation (Yeung, 2018). Dhawan and Batra (2020, p10) explain AI by stating that "the term artificial intelligence was first coined in 1956 by John McCarthy who defined it as 'The science and engineering of making intelligent machines." Sadiku (2021, p. 773) puts the difference between AI and AuI by stating that "while AI is meant to help us humans with things like computation, memory, perseverance, precision, recognition, and speed, AuI allows us to see how it can help augment more human things like abstraction, breaking rules, judgment, listening, and storytelling." It is crucial to emphasise that the inherent issues surrounding any new technological advancement lie not in the technology itself, but rather in the hands of its practitioners (Escotet, 2023). As researchers explore this era of AI integration into education, a critical examination of both its merits and ethical implications is paramount, ensuring that the potential dangers are addressed, and responsible practices are upheld for the benefit of education and society (Borenstein & Howard, 2021; Kamalov et al., 2023).

The integration of AI into educational practices presents both opportunities and challenges, making it imperative to understand the lived experiences of academics and students within this changing open distance e-learning (ODeL) context (Leahy et al., 2019; Luan et al., 2020; Ngubani-Mokiwa, 2017; Ngubani-Mokiwa & Letseka, 2015; Pedro et al., 2019). The swift progress in AI technologies provides the potential to improve the quality and accessibility of education. However, the nature of this impact, whether it is truly AI or a form of AuI, remains questionable (Hurwitz et al., 2019; Raisch & Krakowski, 2021; Zheng et al., 2017). AI focuses on creating machines that can independently perform tasks, while AuI aims to enhance human abilities by leveraging AI to complement and collaborate with human intelligence (Hasan et al., 2020). The motivation for this investigation stems from the need to discern the various ways in which AI is being adopted, adapted, or resisted in ODeL universities (AlGerafi et al., 2023; Zawacki-Richter & Marín, 2019).

The motivation is grounded in the recognition that the successful integration of AI in ODeL is contingent on the acceptance and collaboration of lecturers and students (Gan & Balakrishnan, 2018). Unpacking the experiences, concerns, and perceptions of lecturers and students contribute

not only to academic discourse but also offers guidelines for institutions seeking to responsibly and effectively leverage AI's potential (Dwivedi et al., 2019). Exploring the daily encounters with AI in ODeL, this research seeks to contribute to a better understanding that can guide future developments and implementations, where AI aligns seamlessly with the educational goals and aspirations of the ODeL university under study, which are achieving good pass rates and produce quality results.

AI, as an autonomous system capable of independent decision-making, and AuI, designed to enhance human capabilities, represent distinct paradigms (Montasari, 2023). Understanding how lecturers and students view these technologies is crucial as it directly impacts how these technologies are integrated into teaching methods (Harris et al., 2009; Hassani et al., 2020). AI, if mistaken for AuI, might lead to an overreliance on automated systems, potentially diminishing the importance of human guidance and interaction (Russel et al., 2017; Yau et al., 2021). On the other hand, a clear distinction can empower lecturers to use AI tools effectively, enhancing their teaching methodologies by combining technological capabilities with human expertise.

Exploring the distinction between AI and AuI is vital for comprehending the transformation of roles within ODeL contexts (Anderson, 2019; Wessel & Baiyere, 2021). Lecturers and students alike play central roles in the learning process, and the introduction of AI has the potential to redefine these roles. If lecturers and students perceive AI as autonomous and independent, there may be concerns about job displacement or a shift away from personalised learning (Anderson, 2019; Aoun, 2017). Conversely, recognising AI as augmentative can empower lecturers and students to embrace these technologies as tools that enhance and complement their capabilities. An understanding of this distinction is crucial for anticipating and addressing concerns, facilitating a smoother integration of AI into the educational fraternity (Dhawan & Batra, 2020).

The outcomes of this exploration can guide institutions in crafting informed policies, lecturers in adapting their teaching methods, and students in understanding the pedagogical context. Through encouraging clarity on these distinctions, ODeL institutions can enable the transformative potential of AI in a way that aligns with the values and goals of education. Research questions that guide this study are as follows:

1.2. Research Questions

- *How do students and lecturers describe their experiences with AI?*
- *What influence does AI have on lecturers' teaching methods and approaches?*
- *How do academics envision the role of AI in transforming their roles as lecturers?*

1.3. Rationale of the study

This study, which was conducted inside the pseudonymous ODeL university in South Africa known as UNID, registers approximately 500,000 students annually (Letseka, 2021; Letseka et al., 2018). The varied student body, which includes individuals from 18 to 70 years old, comes from a variety of socio-economic, linguistic, and cultural backgrounds. Students who register at UNID are mostly from South Africa and other parts of Africa, such as Zimbabwe, Ethiopia, Mozambique, Ghana, and many more. Many of them juggle full-time jobs with part-time or full-time academic responsibilities (Fynn, 2021; Maphoto, 2021; Radebe, 2023). Many, particularly those who live in rural areas, struggle with internet connectivity, and rely on their cell phones or local internet cafés to access online resources and assessments (Ngubane-Mokiwa & Letseka, 2015; Radebe, 2023). For South African students learning English as a second language (ESL), which is essential for their professional development in a diversified workforce, language impediments make things even more difficult (Maphoto, 2021; Mawonde & Togo, 2021). This study focuses on the academic writing module (ACA123) at UNID which aims to enhance students' proficiency in scholarly writing, emphasising critical analysis and effective communication. It covers essential skills such as thesis development, citation and referencing, and structuring coherent arguments, preparing students for rigorous academic discourse across disciplines. The module aims to cultivate the foundational academic writing skills necessary for success in HE and professional contexts. Per year, ACA123 enrols approximately 20, 000 first-year students ranging from 18-50 years. ACA123 consists of a diverse group of eight lecturers, some of whom are native English speakers, while others are English additional language speakers.

2. LITERATURE REVIEW

2.1. Understanding artificial intelligence and augmented intelligence

The literature on defining AI and AuI showcases a consensus on the conceptualisation of AI as computer systems capable of mimicking human cognitive functions, involving learning, problem-

solving, and decision-making (Crompton & Burke, 2023; Siemens et al., 2022). However, a noticeable gap emerges in the ethical considerations associated with AI development, where the literature often falls short in addressing issues such as bias, transparency, and accountability (Naidu & Sevnarayan, 2023; Polyportis & Pahos, 2024). AuI, also known as 'intelligence amplification' or 'cognitive augmentation' "is a type of AI that is designed to enhance human intelligence rather than replace it" (Dave & Mandvikar, 2023, p.1; Rane, 2023). While AI operates autonomously by executing tasks independently (Hassani et al., 2020), AuI accentuates collaborative efforts to enhance human intelligence (Dave & Mandvikar, 2023). There is a dearth in research on the specific parameters dictating the degree of augmentation required for an intelligent system to be categorised as AuI. Furthermore, empirical studies evaluating the practical implications of AuI systems, including their impact on decision-making processes and user experiences, are notably deficient. According to Rane et al. (2023, p.12):

> The concept of 'augmented intelligence' takes center stage in Education 5.0, wherein AI serves as a supportive partner, enhancing human capacities rather than replacing them. The human touch in education becomes more pronounced, emphasizing mentorship, collaboration, and the cultivation of social skills. While AI handles routine tasks and provides personalized learning experiences, [lecturers] can dedicate more time to nurturing the holistic development of students.

The blurring boundary between AI and AuI poses another challenge, which demands a deeper qualitative exploration to distinguish their unique characteristics and determine the extent of their symbiotic relationship (Rane, 2023). Closing these gaps is imperative for advancing our comprehension of AI and AuI, creating responsible development practices, and ensuring the effective integration of these technologies across diverse contexts.

2.2. Teaching methods and approaches of AI in education

The integration of AI into distance education purports a transformative shift in teaching approaches, advocating for personalised (Dogan et al., 2023) and adaptive learning experiences (Sayed et al., 2023). Intelligent tutoring systems and data-driven decision-making claim to customise education for individual students (Lin et al., 2023), freeing up lecturers for more important tasks, particularly in the context of distance education. The collaboration between AI and lecturers, known as AuI, has the potential to enhance remote teaching by providing additional sources of information. However, it is important to note that AI cannot completely replace

lecturers, as it may sometimes offer non-existent or inaccurate sources (Naidu & Sevnarayan, 2023). While AuI is lauded for enhancing capabilities and providing real-time insights (Dave & Mandvikar, 2023; Hassani et al., 2020; Rane et al., 2023), concerns are raised about the potential dilution of the human touch in the distance learning experience. Adaptive learning models, integral to Education 4.0, might promise personalisation, but the gamified elements and data-centric approaches highlight challenges in creating a holistic and lifelong learning experience in remote teaching settings (Hassan et al., 2019; Rane et al., 2023). This is confirmed by Dwivedi et al.'s (2024) study which scrutinises the pervasive influence of AI across sectors, emphasising both its potential to boost productivity and its challenges. The analysis of generative AI technologies like ChatGPT in education, business, and society highlight the double-edged impact. While acknowledging productivity enhancements, the study raises alarm about issues like privacy threats and misinformation, necessitating a critical evaluation of AI's unbridled proliferation and its impact on societal and organisational structures. The envisioned human-centric learning of Education 5.0 (Rane et al., 2023), with a focus on socio-emotional well-being, faces hurdles in reconciling with the data-driven nature of contemporary adaptive models in the context of distance education. The imperative for a critical examination of the impact, responsible integration, and ethical considerations in AI-generated content in diverse distance education contexts is highlighted, acknowledging the potential of AI in personalising educational experiences, and increasing student independence (Pratama et al, 2023). In the unfolding era of future education, the impact of technology, particularly AI, is a topic that elicits both optimism and concern (Shrivastava, 2023). The growing interest from the public, government, and academia in the transformative potential of AI has been undeniable, with higher education (HE) expected to undergo profound changes (Bates et al., 2020; DeMartini and Benussi, 2017). These changes may include offering substantial potential to enhance teaching, learning, and assessment. Its contribution lies in the ability to deliver personalised learning experiences and prompt feedback to students, thereby positively impacting the educational process (Xia et al., 2022). While AI holds promise in changing the educational perspectives, the uncertainties surrounding its influence demand a critical examination of its potential benefits and implications (Holmes, 2021).

2.2. Future insights of AI in education

The potential benefits of AI in education are extensive, spanning improvements in learning, teaching, pedagogical innovations, assessment, and educational administration (Chen et al., 2020). The appeal lies in the prospect of transforming traditional educational practices and creating more

efficient and effective learning contexts. However, the realisation of positive educational outcomes through AI goes beyond the mere implementation of sophisticated computing technologies (Castaneda & Selwyn, 2018). AI necessitates a strategic and thoughtful integration of technology, ensuring alignment with established educational and learning theories.

For technology, specifically AI, to genuinely enhance education, it must be seamlessly interwoven with educational and learning theories that guide instructional design and technological advancement (Bower, 2019). Simply adopting cutting-edge AI tools without a coherent educational framework risk diminishing the potential benefits and may even lead to unintended consequences. The integration of technology should be purposeful, with a clear understanding of how it aligns with the principles of effective teaching and learning. Uncertainties surrounding the influence of AI on education should prompt a cautious approach (Holmes, 2021; Hosseini et al, 2023). There are concerns about the potential for increased dependency on technology, eroding the essential human elements of education. It is imperative to approach this transformation with a critical and discerning eye. The integration of AI should not be seen as a solution for educational challenges, but rather as a tool that, when used wisely in conjunction with established educational principles, has the potential to enhance the learning experiences.

3. THEORETICAL FRAMEWORK

3.1. *Technology acceptance model in the context of AI and AuI*

This study utilises the technology acceptance model (TAM) to investigate the acceptance and perceptions of AI and AuI among lecturers and students. TAM, based on the principles of perceived ease of use (PEOU) and perceived usefulness (PU), serves as a structured framework to systematically explore academics' experiences with AI and AuI in ODeL (Al-Adwan et al., 2023; Davis, 1987; Nnaji et al., 2023). The first construct, PEOU, examines academics' subjective assessments of how easily they can integrate these technologies into their teaching and learning practices, considering the unique ODeL context (Balaman & Bas, 2023; Davis, 1987). The second construct, PU, explores academics' beliefs regarding the contribution of AI and AuI in enhancing teaching methodologies, enriching learning experiences, and transforming their roles in ODeL (Davis, 1987, Lala, 2014; Nnaji et al. 2023). Through the implementation of TAM, this study employs qualitative data collection methods to assess academics' perceptions of the PEOU and PU of AI and AuI in the context of academic writing skills (Balaman & Bas, 2023; Lala, 2014). The research aims to provide insights into the subjective dimensions of acceptance and adoption

of technological implications (Balaman & Bas, 2023). This is done through an examination of experiences and attitudes towards AI and AuI.

3.2. Diffusion of innovations theory in the context of AI and AuI adoption in ODeL institutions

The Diffusion of Innovations Theory (DIT) provides a robust framework for examining the adoption dynamics of AI and AuI among lecturers and students in ODeL contexts (Rogers et al., 2014). At its core, the theory posits that the adoption of innovations is a social process influenced by communication and interaction within a social system (Acikgoz et al., 2023; Rogers, 1995). In the context of this study, the theory is utilised to comprehensively explore factors influencing the adoption of AI and AuI by academics in ODeL contexts, with a focus on two critical dimensions: innovation characteristics and communication channels (Rogers, 1995, Rogers et al., 2014). The dimension of innovation characteristics explores lecturers' and students' perceptions of key attributes of the innovations, such as relative advantage, compatibility, complexity, trialability, and observability (Rogers, 1995). For AI and AuI in ODeL, understanding these characteristics is crucial for gaining understanding into the adoption process (Rogers et al., 2014; Dewi et al., 2023). The theory also highlights the significance of communication channels, including both formal channels like institutional communication and conferences, and informal channels like peer discussions, in facilitating the dissemination of information about innovations (Acikgoz et al., 2023; Rogers et al., 2014). The research aims to explore the mechanics of AI and AuI adoption among lecturers and students in ODeL universities, identifying patterns, challenges, and lecturers that shape the diffusion process and contributing to a relevant understanding of how these technologies become integrated into distance learning contexts through the adaptation of the DIT theory for this study.

4. METHOD

4.1. Research approach, paradigm and design

The study employs a qualitative approach, utilising methods such as e-mail interviews and focus group discussions (FGDs). For DiCicco-Bloom and Crabtree (2006, p. 315) "the individual in-depth interview allows the interviewer to delve deeply into social and personal matters, whereas the group interview allows interviewers to get a wider range of experience but, because of the public nature of the process, prevents delving as deeply into the individual." This brings to point that qualitative research is about everyday life and it covers almost all domains of life. With that said, this study adopted qualitative research methods which involve exploring and understanding complex phenomena through in-depth examination, interpretation, and analysis of non-numerical data (England, 2021). These methods, such as interviews, focus groups, and content analysis, provide rich insights into the context, meaning, and subjective experiences of participants (Lindgren et al., 2020). Qualitative research is often employed to generate theories and gain a deeper understanding of social and human aspects in various fields (Mohajan, 2018). The chosen research design is a qualitative case study, allowing for an in-depth exploration of the relationships between lecturers and students with AI and AuI (Gerring, 2004). We are using qualitative study to explore and get an in-depth view of participants on the application of AI and AuI at university. A case study is particularly suitable for capturing the contextual richness and diversity of experiences within an ODeL context. Case study research is used to conduct an in-depth exploration and analysis of a specific phenomenon within its real-life context, providing a rich and detailed understanding of the subject (Simons, 2014). It serves as a dynamic and practical approach to improving professional practice, creating a culture of continuous improvement, and contributing to the advancement of knowledge within specific contexts (Creswell & Poth, 2016; McNiff, 2013). The focus on a single institution enables a detailed examination of the academic environment, demonstrating how AI is perceived, adopted, or resisted. The interpretivist paradigm is foundational to this study, stressing the socially constructed nature of reality and the significance of understanding human experiences in their context (Altheide & Johnson, 2011). Within this paradigm, the research aims to unpack the meanings and interpretations that lecturers and students attribute to AI and AuI in their teaching and learning practices (McChesney & Aldridge, 2019; Tanweer et al., 2021). Interpretivism aligns with the notion that reality is subjective and socially constructed, acknowledging the influence of individual perspectives on the adoption and integration of emerging technologies.

4.2. Data collection methods

In the context of qualitative research, exploring the experiences of lecturers and students in an ODeL university, the study implemented an array of data collection tools such as e-mail interviews with lecturers (Hershberger, & Kavanaugh, 2017) and FGD with students (Scheelbeek et al., 2020). Drawing inspiration from Hershberger, & Kavanaugh (2017), e-mail interviews can facilitate the inclusion of participants who might be hesitant or unable to participate in traditional interviews. The combination of e-mail interviews with lecturers, and FGD with students in qualitative research on ODeL experiences not only promotes inclusivity, depth, and richness but also enhances the triangulation of data. Triangulation, which "concerns the possibility to mix data, researchers, methods, theory, or all factors simultaneously, turning them into a multiple triangulation" (Sirvent et al., 2022, p. 6), achieved through the convergence of findings from diverse methods, strengthens the credibility and validity of the study by cross-verifying information from multiple perspectives.

4.3. Population and sampling

The significance of population relevance in this qualitative study is indicated in the sampling approach chosen (Bhushan et al., 2023). The population of around 14,000 students enrolled in the module 'Academic writing for different purposes' (ACA123) was found to be suitable for this investigation. In a bid to uphold anonymity, lecturers who teach the group under study were labelled 'Lecturer 1', 'Lecturer 2', and so on during e-mail interviews (Hershberger & Kavanaugh, 2017), while students were labelled 'Student 1', 'Student 2' and so on. Moving beyond conventional channels, researchers utilised a random sampling approach, which "ensures unbiased, representative, and equal probability of the population" (Noor et al., 2022, p. 78; Ohsaki & Katsura, 2012), to select twenty student participants through the module Telegram group for an FGD, while fifteen lecturers were sought to contribute insights via e-mail interviews. A small number of 20 students and seven lecturers was chosen to balance the practical constraints of resources, time, and feasibility, while still aiming for a representative sample that allows for in-depth exploration of diverse perspectives within the study's scope (Vasileiou et al., 2018), while decision to sample all seven lecturers from the available population was influenced by the study's focus on obtaining perceptions from the entire lecturer group (Lakens, 2022). This approach of selecting the entire population, known as a census or complete enumeration, is appropriate when the population size is small, and researchers aim to include every eligible participant to ensure a comprehensive and exhaustive understanding of the perspectives within the group (Hennink &

Kaiser, 2022). The significance of population relevance in this qualitative study is indicated in the sampling approach chosen (Bhushan et al., 2023). The population of around 14,000 students enrolled in the module 'Academic writing for different purposes' (ACA123) was found to be suitable for this investigation. In a bid to uphold anonymity, lecturers who teach the group under study were labelled 'L1', 'L2', and so on during e-mail interviews (Hershberger & Kavanaugh, 2017), while students were labelled 'S1', 'S2', and so on. Moving beyond conventional channels, researchers utilised a random sampling approach, which "ensures an unbiased, representative, and equal probability of the population" (Noor et al., 2022, p. 78; Ohsaki & Katsura, 2012), to select 20 student participants through the module Telegram group for a FGD, while seven lecturers were sought to contribute findings via e-mail interviews and open-ended evaluation questions. A small number of 20 students and seven lecturers was chosen to balance the practical constraints of resources, time, and feasibility while still aiming for a representative sample that allows for in-depth exploration of diverse perspectives within the study's scope (Vasileiou et al., 2018). The decision to sample all seven lecturers from the available population was influenced by the study's focus on obtaining perceptions from the entire lecturer group (Lakens, 2022). This approach of selecting the entire population, known as a census or complete enumeration, is appropriate when the population size is small, and researchers aim to include every eligible participant to ensure a comprehensive and exhaustive understanding of the perspectives within the group (Hennink & Kaiser, 2022).

2.4. Data collection and analysis

The researchers collected data over three weeks from November to December 2023 using different methods. In addition, the researchers conducted a 1.5-hour FGD with students on Microsoft Teams after sending an invite on the module's Moodle learning management system (LMS), and students provided their consent to participate. E-mail interview questions were sent through e-mails to lecturers; this was done to include those who might not be comfortable with regular interviews. At the end of the three weeks, researchers organised all the data gathered from these methods into themes and categories, helping researchers understand the experiences of lecturers and students related to AI better. The following themes enabled researchers to gain a comprehensive picture, enhancing the depth and richness of the research:

- Students' experiences with AI in an ODeL context
- Lecturers' experiences with AI in an ODeL context

- AI's influence on lecturers' teaching methods and approaches
- The role of AI in transforming lecturers' roles

Ethical considerations

Permission to collect data was granted by the Research Ethics Committee at the university, with clearance number Ref: 90268091_CREC_CHS_2022. To protect participants and institutional identities, pseudonyms were used for the university, module, lecturers, and students. The researchers adhered to ethical guidelines, obtaining informed consent, ensuring transparency, and securing data access by creating password-protected file on the computer on which they stored data.

5. FINDINGS

5.1. Students' experiences with AI in an ODeL context

Theme 1: AI is Helpful and Enhances Academic Writing

The findings below highlight students' experiences with AI, emphasising its role in identifying and enhancing grammatical mistakes, its round-the-clock availability, and its capacity to provide academic relief by alleviating the stress and anxiety associated with the writing process.

> If AI can help me catch mistakes and suggest improvements, I'm all for it. It could save me a lot of time and stress, especially when deadlines are looming. I am a busy wife, mum, and employee...any help would be accepted (Student 1, 2023 FGD).

> I really struggled a lot with grammar and structure in my essays. If AI can help me fix those issues, I'm open to it. Maybe it can be like a writing coach that's available whenever I need it.

> Sometimes we post questions on Moodle and lecturers don't respond in time. This AI can be helpful if lecturers teach us how to use it and their expectations (Student 2, 2023 FGD).

> I worry that relying too much on AI might make me lazy. What if I stop trying to improve on my own because it does the work for me? Exercising our brains is healthy too (Student 3, 2023 FGD).

> I think if it's like friend that is available 24/7, guiding me and giving me tips, that could be helpful. I need all the support I can get to make my writing better. Yes, please to lecturers teaching us how to use it to improve our writing skills (Student 4, 2023 FGD).

The positive experiences shared by Student 1, Student 2, and Student 4 highlight the advantages of AI, particularly its continuous availability, proficiency in identifying and rectifying grammatical errors, and its role in alleviating stress and anxiety associated with academic writing challenges. It seems as if students encounter writing challenges stemming from inadequate preparation in their high school background, as alluded by Student 2 and Student 4. Consequently, AI proficiency emerges as a prompt and effective solution for overcoming these challenges. Nevertheless, Student 3 expresses reservations about excessive reliance on AI, perceiving it as a potential source of 'laziness'. Despite recognising AI's helpfulness, Student 3 values the engagement of his/her own cognitive abilities, viewing it as a beneficial aspect.

Theme 2: Learning Concerns Coupled with Authenticity Challenges

The findings highlighted learning concerns and raised questions regarding the authenticity of the information supplied by AI.

> I'm worried that if I use AI too much, it might feel like I'm not really learning. I do find this module difficult but at the end of the day, I want to know I passed on my own strength. I want to get better at writing on my own, not just rely on ChatGPT for instance. Maybe the lecturers can show us how to use it as a tool to improve what we have? (Student 5, 2023 FGD).

> How do I know if the suggestions from AI make my writing better or just more 'correct' in a technical sense? I want my writing to be both good and true to who I am (Student 6, 2023 FGD).

> AI might help with surface-level stuff, but what about the deeper aspects of writing? Will it understand cultural experiences and perspectives that are important in my work? (Student 7, 2023 FGD).

> I see AI as a tool for efficiency. It won't replace my creativity, but it could save time on editing, allowing me to focus on the more critical aspects of my essay writing (Student 8, 2023 FGD).

The excessive dependence on AI, as highlighted by Student 5 and Students 6, might become burdensome, leading to concerns about the authenticity of the provided information and the learning process. University students are expected to engage actively in their studies; however, AI often supplies answers, potentially diminishing the cognitive process of grappling with challenges and arriving at solutions independently. In addition, students express a desire to enhance their own work, ensuring it mirrors their efforts. Student 7 brings up fundamental concerns regarding cultural experiences and perspectives. On the other hand, Student 8 offers valid views on the efficiency of AI, emphasising its time-saving benefits in editing, allowing students to concentrate on more crucial aspects of their writing. This suggests that Student 8 views AI not as a threat to creativity but as a tool for enhancing efficiency.

Theme 3: Scepticism and Reluctance to Embrace AI

The findings highlight scepticism and a heightened reluctance to embrace AI for improving academic writing. Students expressed concerns about potential alterations in their writing style and the presentation of information, fearing it may deviate from their authentic voice.

> Honestly, I'm not sure about relying on AI for writing. English isn't my first language, and it's already tough because my home language is isiXhosa. Can a computer really understand what I'm trying to say better than a person? (Student 9, 2023 FGD).

> I feel like it might be a shortcut, you know? What if it ends up changing my style, or worse, makes me sound less like me? What if my lecturer picks up on that and I fail my assessment? I want my own voice in my writing (Student 10, 2023 FGD).

> I'm worried about how much I can trust AI and ChatGPT with something as personal as my writing. It's like, what if I follow its suggestions and my marks suffer? (Student 11, 2023 FGD).

> I think AI could be a game-changer. It might understand and give me more clarity and ideas on things that I could have missed, and if it improves my marks, I will give [it] a chance (Student 12, 2023 FGD).

Students 9, Student 10, and Student 11 exhibited significant scepticism and reluctance when it comes to integrating AI into their written work, primarily due to a lack of trust in the potential alteration of their individual writing styles (voice). Some students may lack proficiency in using AI and exhibit technophobia, evident in their reluctance to trust AI for academic purposes and enhancement. Additional concerns stem from the fear of detection when using AI tools like ChatGPT for writing improvement. However, Student 12 views AI as a game-changer, acknowledging its ability to comprehend and clarify ideas, and expresses an interest in utilising AI.

LECTURERS' EXPERIENCES WITH AI IN AN ODEL CONTEXT

Theme 1: Resourceful and Impactful Learning Experiences

The findings highlight the resourcefulness of AI and its positive impact on structuring lesson plans. Furthermore, AI serves to facilitate and enhance the learning process, yielding optimal results.

> AI is a very resourceful tool. When used purposefully one can easily get their work edited. When preparing lessons AI can really be very beneficial as an academic could structure the lesson through the assistance of AI; the lesson could flow cohesively (Lecturer 1, 2023 e-mail interview).

> My experience with AI is in the context of research, and it highlights how AI technologies have been integrated into many aspects of scholarly investigation. It facilitates and enhances learning, thus allowing myself as an academic to provide optimal results (Lecturer 2, 2023 e-mail interview).

Lecturer 1 highlights the resourcefulness of AI in editing, preparing, and structuring lesson plans, noting its valuable assistance. Furthermore, AI possesses the capability to seamlessly create cohesive lesson plans, ensuring a smooth and organised flow. This proves beneficial as the lesson plans flow seamlessly without encountering challenges. In addition, Lecturer 2 asserts that AI plays a pivotal role in facilitating and enhancing learning, yielding realistic and optimal results when employed. This suggests that crafting and organising lesson plans can be somewhat challenging; however, when subjected to AI tools, they often offer improved solutions. Moreover, as lecturers read and utilise these lesson plans, they also tend to derive insights and learning from the contributions of AI.

Theme 2: Advantageous, Fascinating, and yet Challenging

The findings indicate that incorporating AI yields academic advantages, particularly in editing and enhancing vocabulary. AI has the potential to transform pedagogical practices and elevate educational experiences. Nevertheless, the propensity of AI to generate prolific responses to instructions raises concerns about plagiarism tendencies, creating passive students who may lack cognitive engagement (muscle).

> Effectively employing AI can prove advantageous, and my observations reveal that numerous students may not fully exploit its potential. While it holds promise in aiding editing and enriching vocabulary, there is a tendency among some students to unintentionally generate similar content by extracting information from a singular source, thereby giving rise to concerns about originality. Although I wouldn't label it as outright plagiarism, there is a potential risk of diminishing individuality in academic work... (Lecturer 3, 2023 e-mail interview).

> I am genuinely fascinated by the vast possibilities that AI presents! The exploration and experimentation I've undertaken with it have only deepened my appreciation for its potential impact. In my view, if used correctly, AI can transform our pedagogical practices and elevate the educational experiences of students to new heights. However, not all our colleagues share this enthusiasm. There exists a cohort among us who harbour fears and perceive AI as a potential threat. I attribute this sentiment to a lack of openness and a reluctance to engage with this transformative technology. I firmly believe that an open-minded approach and a willingness to learn about AI are crucial prerequisites to fully comprehend its positive implications for education (Lecturer 4, 2023 e-mail interview).

> I would describe my experience with AI as challenging and interesting. AI challenges the good old way of learning, yet it provides interesting ideas for language learning, editing and sentence structuring. When I was a student, I relied on my dictionary and reading other publication like newspapers, magazines, and academic articles to improve the way I structure and argue my ideas. Today, students can just copy and paste AI generated pieces and factor them into their responses as though is their own. I am also worried about students' cognitive muscle especially in the prevalence of AI (Lecturer 5, 2023 email interview).

The advantageous impact of employing AI in academia lies in its effectiveness in editing, vocabulary enhancement, and the transformation of pedagogical practices, (Lecturer 3 and Lecturer 4). However, the challenging side of using AI as pointed by Lecturer 3 and Lecturer 4,

pertains to concerns about unintentional content similarity among students who extract information from a singular source, posing issues related to originality. Moreover, Lecturer 5 introduces the notion that the use of AI in academia may induce deterioration of cognitive muscle in students. Within the academic staff, other challenges arise from a lack of openness and reluctance to engage with this transformative technology (Lecturer 5). However, embracing an open-minded approach and a willingness to learn about AI are deemed crucial prerequisites, as emphasised by Lecturer 4, to fully comprehend its positive implications for education.

AI'S INFLUENCE ON LECTURERS' TEACHING METHODS AND APPROACHES

Theme 1: Personalised and Interactive Learning

The findings highlight that lecturer developed personalised teaching methods and approaches rather than adopting generic ones. Furthermore, an interactive type of teaching approach was endorsed by lecturers.

> I began refining my teaching methods and approaches upon realizing that students consistently produced flawless work, seemingly crafted by individuals with extensive writing experience. Instead of assigning generic research topics, I opted to present personalised subjects that discourage easy plagiarism. Even so, students use AI tools to craft ideas for them and then present as their own (Lecturer 6, 2023 e-mail interview).

> AI contributes to the creation of interactive and engaging learning materials. Lecturers can utilise AI tools to develop multimedia content, virtual simulations, and interactive modules, enhancing the overall quality and effectiveness of instructional materials (Lecturer 7, 2023 e-mail interview).

> AI can positively influence the lecturers' teaching methods and approaches. AI can provide methods and advise on approaches that would benefit the students. One advantage of AI is that it can arrange things in order so this will really come handy when applying teaching methods (Lecturer 8, 2023 e-mail interview).

Lecturer 7, Lecturer 8, and Lecturer 9 collectively demonstrate a significant evolution in their instructional methodologies, moving away from generic approaches towards personalised and interactive strategies. This shift is driven by a proactive stance against academic misconduct, including the discouragement of providing students with easily replicable topics that can be copied and pasted from the internet. This change is aimed at dissuading plagiarism and elevating the quality and effectiveness of instructional materials. They emphasise the role of AI in providing methods and guidance to enhance the learning experience for students. Notably, AI's capability to

organise information systematically proves advantageous in the implementation of these innovative teaching methods.

Theme 2: Refined Pedagogical Approaches that Encompass a Spectrum of Skills

The findings highlight that lecturers have refined their teaching methods and approaches to strengthen their question-setting processes by endorsing teaching methods that encompass a spectrum of skills.

> The impact of AI on education is dual-faceted and includes positive and negative aspects. On the positive side, it has prompted a shift in our approach to questioning, compelling lecturers to refine and fortify their question-setting processes to thwart AI-generated responses. This adjustment contributes to a more thoughtful and challenging learning environment. However, the negative dimension surfaces in the increased pressure on lecturers to surpass the capabilities of AI in their teaching methods. The necessity to provide education beyond the scope of AI functionalities becomes paramount to avoid rendering traditional teaching obsolete... (Lecturer 9, 2023 e-mail interview).

> Our students are young digital natives, I really think that they need exposure to AI from us. This task, however, poses a significant challenge as a sizeable percentage of our colleagues do not share the same perspective. Despite this, I am committed to using AI to enhance my teaching approach, particularly in academic writing. In aligning my teaching methods with the demands of the fourth industrial revolution (4IR), I believe that incorporating AI into academic writing instruction is a progressive step. By doing so, not only do we equip our students with relevant skills for the transformative global context... (Lecturer 10, 2023 e-mail interview).

Lecturer 9 revealed that the impact of AI encompasses both positive and negative dimensions for lecturers. On the positive side, it has spurred a re-evaluation of their questioning techniques, prompting an enhancement of teaching methods and a reinforcement of processes to counter AI-generated responses. Conversely, it has also introduced challenges, exerting increased pressure on lecturers to surpass the capabilities of AI in their teaching methodologies. Echoing these claims, Lecturer 10 concurs and highlights the importance of adapting instruction to meet the needs of contemporary students, who are inherently digital natives. Considering the 4IR, there is a heightened emphasis on providing education that equips students with relevant skills necessary for universities. This indicates the necessity for lecturers to continuously refine their teaching approaches to create a more thoughtful engagement with challenging learning experiences.

Theme 1: The Ongoing Integration of AI Poses a Threat to the Traditional Role of Lecturers in Education

The findings indicate prevailing concern among lecturers regarding the potential threat to their roles posed by the integration of AI. There is a collective anticipation that AI will soon play a prominent role in the teaching and learning spheres, eventually leading to a scenario where students receive instruction exclusively from automated systems.

> Academics foresee a situation where they will have in one way or another use AI in their teaching. They will have to give students work that will require them to use AI to work around their responses to questions. There is fear that, like other fourth industrial revolution tools, AI could take lecturers' jobs but on the other hand it could be argued that AI needs humans to give it direction which in this instance lecturers will have to be available (Lecturer 11, 2023 e-mail interview).

> I believe relying excessively on artificial intelligence can overtake cognitive functions and resilience, potentially creating dependency among students who may become accustomed to utilizing AI for every assessment, given its ready availability. AI will take over and eventually students will be taught by machines and lecturers' roles will be to program the machine as well as assess students using AI software. (Lecturer 12, 2023 e-mail interview).

> I think AI can transform my role as lecturer by acting as a guideline to teach our students effectively and accurately. Also, it enables me to keep track of student engagement, learning progress and provide constructive feedback. However, I think AI doesn't have the ability to replace a lecturer because in some instances, AI provides non-existence sources (Lecturer 13, 2023 e-mail interview).

Lecturer 11 and Lecturer 12 revealed that they envision a transformation in their roles, anticipating that AI will eventually take over the task of instructing students through automated systems. This prospect elicits considerable apprehension among lecturers, as the prevalence of AI systems raises fears of potential unemployment. Furthermore, there is a concern that AI might seamlessly integrate into the teaching and learning context, displacing the need for human lecturers. Contrastingly, Lecturer 13 remains unperturbed by the evolving role of AI in the lecturing. Expressing a lack of threat, Lecturer 13 contends that AI cannot entirely replace a lecturer. This is grounded in the recognition that AI, despite its advancements, may lack the ability to provide certain invaluable insights or sources that human lecturers bring to the educational experience.

Theme 2: AI Preference and Possible Coexistence

The findings highlight an emerging trend where students increasingly gravitate towards AI for both teaching and learning, surpassing traditional reliance on lecturers. The prospect of coexistence appears less significant considering the shift in preference.

> We anticipate that AI will significantly transform our teaching methodologies, potentially leading to a scenario where students prefer learning from AI rather than from lecturers. The profound impact of AI on the teaching sphere raises concerns about potential job displacement, highlighting the far-reaching consequences of this technological shift. This trend is particularly noticeable in distance learning settings, where students conduct assessments independently of direct lecturer oversight (Lecturer 14, 2023 e-mail interview).

> I remain optimistic about the coexistence of AI and human intervention in education. While acknowledging the essential role of human guidance, I believe that lecturers should actively guide students in using AI as a pedagogical tool. It is disheartening to observe that some lecturers may not be well-versed in basic technologies to support students, let alone envision the integration of AI into their teaching methods (Lecturer 15, 2023 e-mail interview).

Lecturer 14 expressed concerns about the potential displacement of lecturers due to AI integration, foreseeing a situation where students may favour learning from AI over traditional lecturers. Conversely, Lecturer 15 maintains an optimistic outlook, expressing confidence in the possibility of coexistence between AI and human intervention in education. Furthermore, Lecturer 15 emphasises the significance of actively guiding students in utilising AI, asserting that such guidance not only increase the importance of coexistence but also enhances the pedagogical practices of HE.

5.2. Discussion

The first research question is based on the experiences described by lecturers and students in their interactions with AI. The findings unfolded by first divulging the experiences of students, revealing a positive attitude towards AI. Students reported benefits such as assistance in overcoming academic writing challenges through error identification, continuous support, time

savings, and stress reduction, echoing views by Castaneda and Selwyn (2018), and Chen et al. (2020). These positive findings align with contemporary teaching methods emphasising personalised and adaptive learning, (Dogan et al., 2023; Sayed et al., 2023). The findings further resonate with the principles of the DIT, highlighting perceived advantages such as relative superiority and compatibility (Dewi et al., 2023; Rogers et al., 2014), which is in alignment with AuI. However, criticisms from Naidu and Sevnarayan (2023) and Polyportis and Pahos (2024) caution against overreliance on AI, emphasising the need for a balance between AI as a support tool and active student engagement in developing cognitive skills. The recognition by students of the pivotal role played by lecturers aligns with the TAM principles (Balaman & Bas, 2023; Davis, 1987). There is thus a deliberate exercise of caution to prevent the dominance of AI in the e-learning process. Particularly, TAM's focus on ease of use and usefulness supports the argument that AI is not merely a tool but an asset for enhancing writing skills and reducing academic stress (Balaman & Bas, 2023; Castaneda & Selwyn, 2018; Holmes, 2021). Concerns regarding writing style alterations and student reluctance toward AI integration echo TAM and DIT, highlighting the subjective nature of user assessments (Davis, 1987; Rogers, 1995; Balaman & Bas, 2023; Castaneda & Selwyn, 2018; Holmes, 2021).

Similarly, lecturers described a positive outlook on AI's impact within the academic context. The consensus among these lecturers is that AI is not merely a technological adjunct but a resourceful and advantageous tool. This aligns seamlessly with the perspectives by Bates et al. (2020), Castaneda and Selwyn (2018), DeMartini and Benussi (2017), Pratama, Sampelolo, and Lura (2023), and Shrivastava (2023), who have previously championed the positive contributions of AI. AI assisted lecturers with content editing, lesson preparations, and structural organisation, these views coincide with Shrivastava's (2023) assertion that technology, particularly AI, enhances the educational experience and thus align with AuI principles. However, amidst this positivity, Lecturer 3 introduces a critical perspective, expressing concern about the potential risk of diminishing individuality in academic work, echoing Holmes's (2021) contention about the threat of increased AI dependency eroding essential human elements of education. This raises a crucial question: how can lecturers balance AI's advantages while preserving individuality and human-centric educational values? Lecturer 3's apprehension calls for a balanced approach, aligning with Holmes' (2021) advocacy for mindfulness regarding the potential consequences of over-reliance on AI. This recognition demonstrates the importance of imparting students with a skilful understanding of how to use AI rather than creating dependence on it. Integrating such awareness

into the pedagogy of ODeL institutions, as suggested by Lecturer 3, could yield positive outcomes. The discourse surrounding AI in academia, as articulated by these lecturers, reflects the delicate interplay between technological advancement and the preservation of core educational values. It prompts lecturers to reflect on how to harness AuI's benefits while safeguarding the essence of human-centred education.

The second research question aimed at determining influences AI has on lecturers' teaching and approaches. Lecturers have signalled a shift in their instructional methodologies, turning towards a more refined, personalised, and interactive approach that encompasses various skills, diverging from AI approach. These findings echo and align with the claims expressed by Dogan et al. (2023) and Sayed et al. (2023), asserting that ODeL have embraced a transformative teaching approach to adapt their pedagogy. This is advantageous since AI enhances capabilities for systematic information organisation and human-like perceptions (Dave & Mandvikar, 2023; Hassani et al., 2020; Rane et al., 2023). Lecturers consistently highlighted that AI contributes to more thoughtful and challenging learning experiences, acknowledging that students, being technologically native, necessitate teaching methods aligned with the demands of the 4IR to ensure the acquisition of pertinent skills of AuI. Nevertheless, the artificial gamified element and the data-centric nature of AI may potentially diminish lifelong learning experiences (Hassan et al., 2019). Additionally, AI poses challenges for distance institutions, particularly concerning academic misconduct (Rane et al., 2023). Researchers like Dwivedi et al. (2024) and Renz and Vladova (2021) contend that while AI enhances productivity, it simultaneously poses threats to privacy, misinformation, and ethical concerns that align with human values. While AI holds promise to reshape ODeL universities, the uncertainties surrounding its artificial influence necessitate a critical examination of both its potential benefits and implications (Holmes, 2021). However, it is worth noting that the utilisation of AI simplifies the creation of teaching materials, offering a plethora of accessible options for lecturers, even those with limited technological expertise (Pratama, Sampelolo & Lura, 2023). This statement echoes views expressed by Lecturer 6, Lecturer 7, Lecturer 8, Lecturer 9 and Lecturer 10, in that AI provides numerous benefits, urging lecturers to recognise its AuI capabilities and integrate them into teaching and learning. AI is the optimum alternative for ODeL universities considering the benefits for enhancing educational experiences.

The third research question explored how academics envision the role of AI in transforming their roles as lecturers. Lecturers expressed varying perspectives, spanning concerns about job

displacement, cognitive human functions being overtaken by AI, and exclusive reliance on automated instructions to coexisting with AI. These claims align with findings by Bates et al. (2020), DeMartini and Benussi (2017), Holmes (2021), and Shrivastava (2023). This apprehension is consistent with TAM, emphasising how lecturers' perceptions of AI's usefulness and ease of use influence its acceptance and adoption (Balaman & Bas, 2023; Castaneda & Selwyn, 2018; Holmes, 2021). Nevertheless, Lecturer 13 maintains an optimistic stance, viewing AuI as a guiding force to enhance teaching effectiveness (Pratama, Sampelolo & Lura, 2023). The divergence in viewpoints among lecturers reflect the varied perceptions in the diffusion process, emphasising the necessity for a detailed understanding and strategic approaches to address potential barriers (Rogers, 1995). In the context of the DIT, challenges emerge (Rogers et al., 2014). While Lecturer 13 aligns with the notions of relative advantage and compatibility, expressing a positive outlook on AI's potential to enhance teaching (Rogers, 1995), Lecturer 11 and Lecturer 12 voice concerns regarding compatibility and potential role disruption (Rogers et al., 2014). The fear of job displacement and the notion that AI might replace human lecturers highlight complexities and potential barriers in the diffusion process (Naidu & Sevnarayan, 2023; Polyportis & Pahos, 2024). Addressing concerns, providing comprehensive training, and emphasising the complementary role of AI alongside human lecturers in teaching evolution are vital. Nevertheless, achieving positive educational outcomes through AI requires strategic integration, aligning with established educational and learning theories (Bower, 2019).

Through a rich discussion drawn from lecturers and students' experiences, Table 1 below distinguishes between principles of AI and Aul.

Table 1: Principles of AI and Aul in Education

Aspect	Principles of AI	Principles of AuI
User Interaction	Positive attitude: benefits include error identification, support, time savings, and stress reduction.	Emphasises personalised and adaptive learning; views AI as an asset for skill enhancement.
Perceived Advantages	Highlights relative superiority and compatibility.	Caution against overreliance; emphasises a balance between AI support and student engagement.

Lecturer Perspective	Assists in content editing and lesson plan preparations.	Concerns about potential loss of individuality and human elements in education.
Teaching Approaches	Shift towards refined, personalised, and interactive teaching aligned with the demands of the 4IR.	Acknowledges AI's contribution to learning experiences, with concerns about potential voice, creativity, style and social interaction diminishment.
Impact on Education	Acknowledges the need for teaching methods aligned with the 4IR.	Recognises AI's productivity benefits but raises concerns about privacy, misinformation, and ethics.
Lecturers' Transformation	Varying perspectives, including concerns about job displacement and cognitive functions being overtaken.	Optimistic views see AuI as a guiding force for teaching effectiveness; concerns about compatibility and role disruption.

4. CONCLUSIONS AND RECOMMENDATIONS

The prevalence of AI among lecturers and students is undeniably advantageous and beneficial, with most lecturers and students expressing their embrace of this technological integration. However, the research has revealed concerns associated with AI use, including issues such as over-reliance, dependency, academic misconduct, and the potential erosion of human cognitive capabilities. Notwithstanding these apprehensions, the literature reviewed in this study aligns with the findings, indicating that AI is predominantly inclined towards Aul because of its perceived user-friendliness, perceived utility, highlighting positive outlook towards AI in academia. The acceptance and utilisation of AI by lecturers and students indicates its proven utility and fascination within the academic context. Nevertheless, it is imperative for lecturers and students to approach AI with a sense of responsibility. Skilful teaching should focus on guiding students in the judicious use of AI rather than its misuse. While AI possesses remarkable features, it is essential to acknowledge that it cannot replace the richness of human cultural interactions and

connectedness, regardless of its brilliance. This recognition emphasises the need for a balanced integration of AI within ODeL context, ensuring that it complements rather than replaces the unique qualities inherent in human learning and engagement. This study advocates for the responsible integration of AI and AuI, recognising the significant potential benefits for both lecturers and students. To facilitate the responsible use of AI and AuI, it is essential to establish clear guidelines that help orient lecturers on distinguishing between AI and AuI, ensuring a thoughtful and informed approach to their incorporation.

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