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Going to present research proposal,
which marks the first step in doctoral
research journey.

Presented to: Prof.Amare Desta
Dated: 4th DEC,2025



Exploring the Role and Extent of AI in Addressing Diversity, Inclusion and Attainment Gap Concerns in Tertiary Level Education: The Case of UWTSD

This research examines the role of AI in undergraduate students at UWTSD, focusing on diversity, attainment gaps, inclusivity, and ethical and operational implications.



Introduction

AI is increasingly integrated into higher education to enhance learning outcomes, inclusivity, and efficiency (Holmes and Tuomi, 2022; Ifenthaler et al, 2024).

However, adoption raises questions about fairness, equity, and ethical use (Berendt, Littlejohn and Blakemore, 2020; Shams, Zowghi and Bano, 2025).

There is a gap in research on how students, faculty, and staff perceive AI. Few studies examine how AI supports diverse students and equitable outcomes such as Cotilla Conceição and Stappen (2023) and Shams, Zowghi and Bano (2023).

Research Problem

Despite AI's potential, students from diverse backgrounds often face uneven academic outcomes (Bayer et al., 2024; Cotilla Conceição and Stappen, 2025).

This research investigates AI's potential without presupposing positive or negative impact.

Based on Thomas Kuhn's concept of paradigm, AI adoption represents a shift in the educational paradigm, moving from traditional pedagogy to AI-enhanced learning (Kuhn, 1962; Holmes and Tuomi, 2022).

Research Aim & Objectives

Evaluate the role and extent of AI on inclusive learning and attainment equity in undergraduate , graduates and post graduate students.

- To explore the perception of AI- based platforms among key stakeholders in tertiary level.
- To examine how AI may be used in facilitating pedagogical experiences in various classrooms.
- To examine AI ability to feel and adapt to the needs and emotions of students.
- To determine the opportunities and challenges of addressing attainment gaps with help of ai mediated learning.
- To make inferences about scalable and inclusive AI application in higher education.

LiteratureReview

AI in higher education personalises learning, supports teaching, and monitors engagement (Hadar Shoval, 2023; Cotilla Conceição and Stappen, 2025).

Adaptive systems provide feedback, guiding learning and improving student performance.

Ethical and equity concerns remain: AI must address bias, fairness, and transparency (Shams, Zowghi and Bano, 2025; Kizilcec and Nixon, 2023).

Many AI tools prioritize institutional efficiency over diverse learner needs, risking inequity (Moralez Tirado, Mulholland and Fernandez; Cotilla Conceição and Stappen, 2023).

Limited research on stakeholder perceptions and AI's role in diversity, inclusion, and equitable outcomes (Arslan, 2025; Whitbread, 2025).

Effective deployment requires inclusive design, diverse datasets, and context-sensitive frameworks to maximize benefits and reduce disparities (Bayer et al., 2024; Ifenthaler et al, 2024; Orogun et al, 2024).

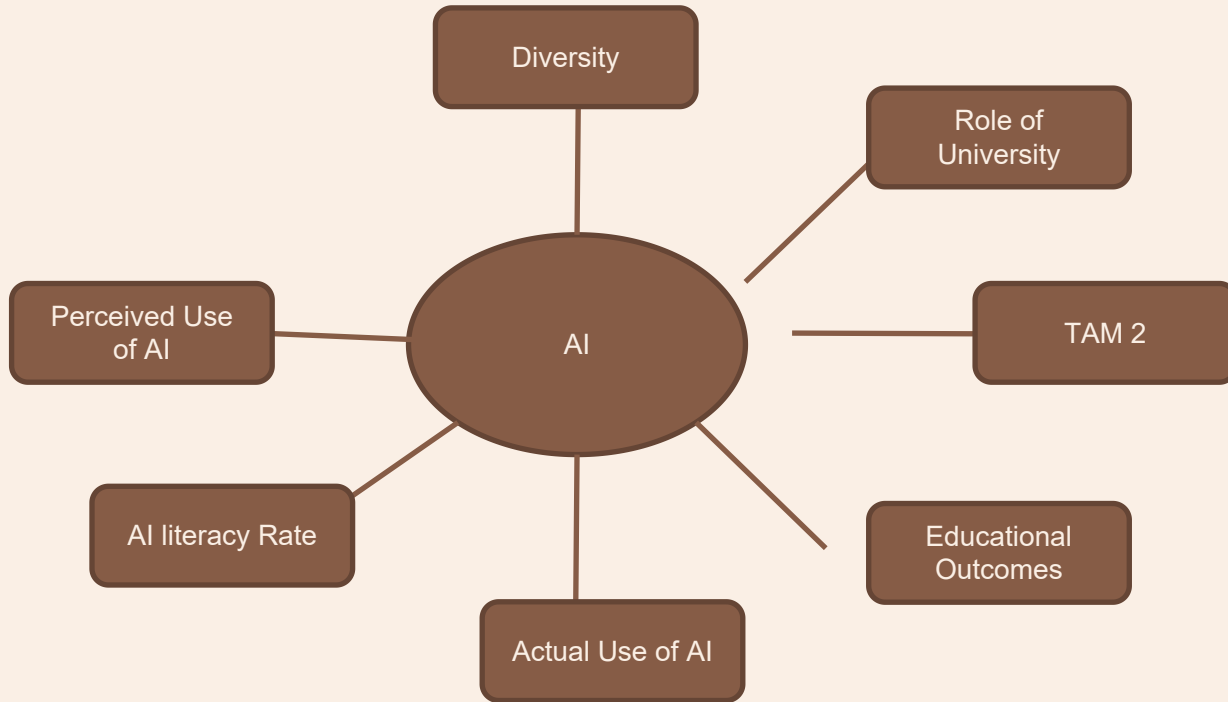
Research Questions

1. How can AI driven educational platforms is perceived by main stakeholders?
2. How AI is used to support the pedagogic experience with the class?
3. How AI is used to sense and adjust diverse learners vneeds and emotions in classroom settings?
4. What are the opportunities afforded by AI assisted learning in attaining learning gap?
5. What are the lessons learned from the use of AI supported learning environment that can lead to scalable practices?

Stakeholders

- Students- Users of AI interventions.
- Academic staff and learning support assistants – implement and monitor AI tools.
- Policy makers, IT Facilitators – ensure ethical, inclusive deployment at UWTSD.

Conceptual Framework



Theoretical framework

- Technology Acceptance Model TAM 2
(Holmes and Tuomi, 2022 ; O'Dea et al, 2024)
- Constructivist Learning Theory
(Tapalova and Zhiyenbayeva 2022)

Kuhn's Paradigm: AI in higher education

Contextual Challenges: AI adaption at UWTSD is influenced by institutional , cultural, and socio-economic factors.

Paradigm Shift: Transition from traditional to AI-mediated learning reflects a scientific revolution in pedagogy (Kuhn, 1962; McLeod, 2020).

Data-driven paradigm: AI supports personalized learning and predictive analytics (Jiali et al, 2024; Kovari, 2025).

Ethical paradigm: AI integrates fairness and inclusivity into assessment and support (Shams, Zowghi and Bano, 2025; Kizilcec and Nixon, 2023).

Kuhn's AI Paradigm :Collaborative Scaffolding and Constructivist Engagement

AI-supported paradigm: AI acts as a potential partner, facilitating adaptive learning rather than directing it.

Alignment with constructivist pedagogy: Enhances perceived usefulness and ease of use, supporting learner agency (Holmes and Tuomi, 2022).

Implementation-dependent success: Outcomes rely on educator skill, learner AI literacy, and task design to avoid unintended effects (Bauer et al, 2025).

Kuhn's AI Paradigm: Behaviourist Efficiency and Limited Perceived Autonomy

AI-directed paradigm: AI acts as the potential agent, curating content and sequencing instruction.

TAM2 perspective: High perceived usefulness for administrators (efficiency, scalability), but ease of use and output quality may vary (Zhang and Zhang, 2024).

Cultural responsiveness: Lack of culturally relevant content reduces result demonstrability for underrepresented learners (Sasikala and Ravichandran, 2024).

Cognitive biases: Directive or opaque AI systems can embed developer/institutional biases, undermining trust, fairness, and usability (Intazari, 2021).

AI tools and Applications

- Generative AI (e.g., ChatGPT): Supports collaborative learning, essay feedback, and multilingual education (Yu et al, 2025; Dara, Vann and Sok, 2024).
- Learning Analytics Dashboards: Identify attainment gaps, monitor inclusivity metrics. (Bayer et al, 2024)
- Adaptive Learning Platforms: Tailor content to individual student needs (Masih et al, 2025; Tapalova and Zhiyenbayeva, 2022).

Methodology

Design: Mixed-methods approach combining quantitative and qualitative data.

Quantitative data: Questionnaires for undergraduates on engagement, inclusivity, and learning outcomes.

Qualitative data: Semi-structured interviews with faculty, staff, IT facilitators, and policymakers on operational, cultural, and ethical aspects.

Data analysis: SPSS for quantitative metrics; thematic coding for qualitative narratives.

Rigour: Triangulation ensures methodological robustness and interpretive depth.

Ethics: Informed consent, data protection, and participant anonymity maintained throughout.

Timeline

Initial months: Refine literature review and engage stakeholders.

Mid-phase: Distribute questionnaires, conduct interviews, and pilot test instruments.

Data analysis: SPSS for quantitative data; thematic coding for qualitative data; iterative reflection and verification.

Final months: Synthesize findings, develop recommendations, and prepare thesis for submission.

Expected Results and Impact

Identify relevance AI practices for narrowing attainment gaps.

Enhance understanding of stakeholder perspectives on AI in education.

Develop policy-informed guidelines for ethical and context-sensitive AI adoption.

Contribute academically by addressing gaps in AI education research.

Inform practical strategies for equitable technology integration in higher education.

Resources and Ethical Considerations

Resources: Access to student cohorts, institutional data, SPSS, and IT support for AI tools.

Ethical compliance: Adherence to GDPR, informed consent, participant privacy, and inclusive participation.

Reflexive monitoring: Mitigates potential biases and ensures findings reflect diverse student and stakeholder experiences.

Limitations

Sample size constraints and reliance on self-reported data.

Potential response biases.

Context-specific to UWTSD, limiting generalisability.

Mitigation strategies: Methodological triangulation and rigorous ethical oversight ensure robust insights.

Conclusion

AI is increasingly present in higher education, influencing learning, engagement, and inclusivity. Its impact depends on implementation, context, and student needs, and it is not without limitations or risks. As Sundar Pichai highlighted, AI tools can make errors, and outcomes are uncertain, making careful oversight and stakeholder guidance essential.

Resources

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Resources

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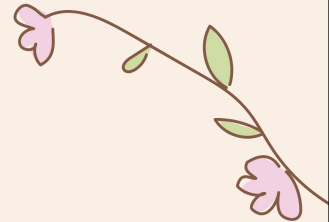


Thanks!

Do you have any questions?



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