Agricultural Students' Perceptions of Artificial Intelligence: Preparedness, Ethics, and Workforce Implications

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Introduction

- AI is transforming agriculture by improving efficiency, reducing inputs, and supporting sustainable food production (Oosthuizen, 2022).
- The rise of AI has increased demand for professionals who can critically engage with its technical, social, and ethical dimensions (Beheshti & Kerridge, 2025).
- Higher education must prepare students to use AI effectively, as access to these tools alone does not ensure proficiency and career readiness (Dogaru et al., 2025; Palmer et al., 2026).

Purpose

The purpose of this study was to explore university students' perceptions of artificial intelligence (AI) in agriculture and assess their self-perceived preparedness to enter an AI-driven workforce.

Research Questions

1. How do interview participants perceive their preparedness to engage with artificial intelligence and data-driven tools in future agricultural careers?
2. How do participants describe the perceived impacts of artificial intelligence on agricultural production, management decisions, and resource use?
3. What ethical, labor, and professional responsibility considerations do participants associate with the increasing use of artificial intelligence in agriculture?

Theoretical Framework

Students' acceptance of AI may be associated with perceived advantages related to time management, performance, and social factors.

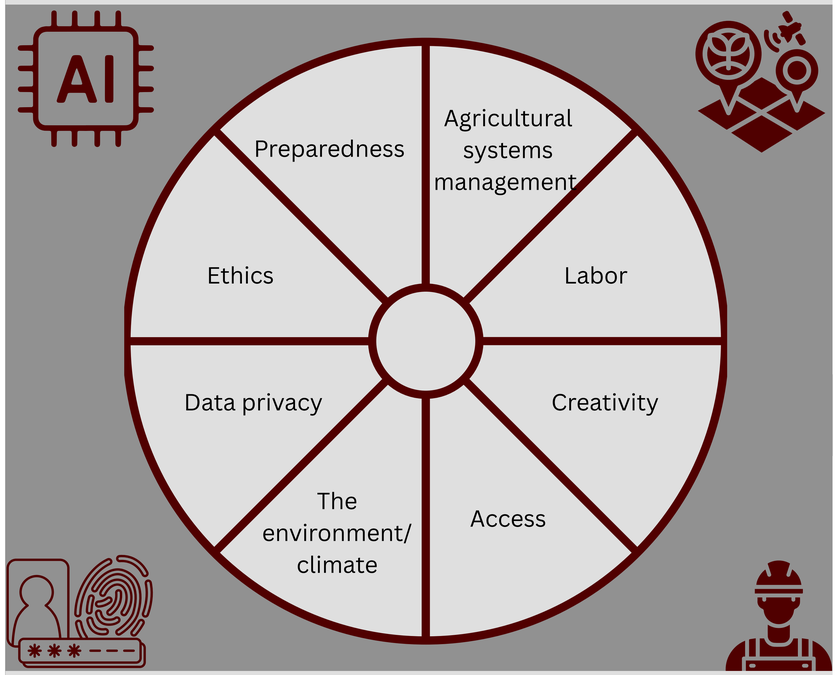
Technology Acceptance Model (TAM)

Unified Theory of Acceptance and Use of Technology (UTAUT)

Methodology

A phenomenological qualitative design was used to explore students' perceptions of AI in agriculture. Data were collected through open-ended, self-recorded interviews with 15 students and analyzed using inductive thematic analysis to identify emerging themes.

Findings-8 Emerging Themes



Conclusions & Recommendations

- Students appeared to understand the theoretical and ethical benefits and implications of emerging AI technologies but lacked hands-on experience using these tools in real-world settings.
- The idea that while people may have access to AI, this does not mean that they are proficient in AI literacy and understanding (Dogaru et al., 2025) is evident from these interviews.
- To improve confidence of students it is underscored to expand education to embrace AI and educate our future professionals on how to properly use tools they will be expected to work with in their careers.
- It is recommended that universities offer additional workshops and courses focused on AI or integrate AI-related activities into existing curricula to improve AI literacy. Overall, preparing students to engage effectively with AI should be a priority for higher education institutions.