Adult Education Students' Perceptions of Artificial Intelligence: Exploring Knowledge, Trust, and Its Role in Learning and Career Preparation

by

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THESIS ABSTRACT

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Title: Adult Education Students' Perceptions of Artificial Intelligence: Exploring Knowledge, Trust, and Its Role in Learning and Career Preparation

Artificial Intelligence (AI) is rapidly reshaping education and the workforce, yet little is known about how adult learners perceive and engage with it. This qualitative study explores the awareness, perceptions, and trust in AI among adult education students, using the Technology Acceptance Model (TAM) to examine perceived usefulness, ease of use, and trust as key factors shaping adoption. Through in-depth interviews with eight diverse adult learners, the research uncovers how students navigate AI in their daily lives, often unknowingly, and highlights the emotional, cultural, and digital barriers they face in using it intentionally for learning and job preparation. The study also reveals that the interview process itself served as a digital literacy intervention, increasing awareness and confidence. Findings offer practical implications for educators, counselors, and technology designers aiming to integrate AI more equitably in adult education. This work contributes new insights into how trust, support, and relevance drive AI acceptance among adult learners.

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Go Ducks!

DEDICATION

I dedicate this to those who have impacted my academic, creative, and personal journey.

To Annessa and all of my support system, thank you for standing by me, encouraging me, and reminding me of what's possible even in moments of doubt, and to my sisters, Elisa and Olivia, and my brother Luis, may this be a reminder that with focus and perseverance, even the boldest goals can be reached. I hope my journey inspires you to chase yours.

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CHAPTER I: INTRODUCTION

Artificial Intelligence (AI) is transforming the way we live, work, and learn. In its broadest sense, AI refers to computer systems or algorithms that perform tasks that typically require human intelligence, such as learning, reasoning, decision-making, language processing, and problem-solving (Russell & Norvig, 2021). In the educational sector, AI-powered tools such as intelligent tutoring systems, automated feedback generators, and adaptive learning platforms are reshaping instruction and assessment practices by offering personalized, data-driven support (Storey & Wagner, 2024). These tools have been widely adopted in K-12 and higher education, helping educators customize instruction and streamline workflows (Owoc et al., 2019).

Yet the field of adult education has been slower in embracing AI. Adult education broadly serves individuals who return to learning later in life to complete a high school equivalency diploma, learn English, pursue career training, or achieve personal development goals (Guilherme, 2019; Milana et al., 2017). Adult learners, as defined in this study, are students enrolled in nontraditional education programs, many of whom are re-engaging with formal education after time away. They juggle multiple life responsibilities, including employment, caregiving, language acquisition, or transitioning to college or the workforce (Milana et al., 2017). This population brings a wide range of life experiences, learning goals, and cultural backgrounds that shape their educational journey.

Despite the growing potential of AI to support flexible and personalized learning, its integration into adult education remains limited. Research suggests that many adult education programs have yet to formally introduce AI tools into instruction, and there is little guidance for educators on how to incorporate these technologies effectively (Sharifuddin & Hashim, 2024). Studies also highlight that adult learners often lack awareness of what constitutes AI, which may

lead them to use AI-powered tools without recognizing them as AI-driven technologies (Ahalya & Sreeya, 2019). In addition, low levels of digital literacy, unfamiliarity with emerging tools, and insufficient culturally responsive instruction can pose significant barriers to meaningful engagement with AI in adult education learning environments (Varshney et al., 2023). These factors may limit the ability of adult learners to fully benefit from AI's promise to enhance individualized learning and improve workforce readiness. The importance of digital literacy in this context is critical. As a foundational skill, digital literacy enables learners to engage with online tools, evaluate digital content, and participate meaningfully in technology-mediated environments (Ahalya & Sreeya, 2019). Without these skills, adult learners are at risk of being excluded from educational and economic opportunities in an AI-driven world.

Barriers such as inconsistent access to technology, language differences, and ethical concerns around privacy and bias deepen the digital divide. Ethical concerns, such as whether AI is transparent, fair, or inclusive, are particularly relevant for adult learners who may already feel marginalized by educational systems (Berendt et al., 2020; Khreisat et al., 2024). For these learners, successful AI integration depends not just on availability but on trust, usability, and culturally responsive support. As adult education programs increasingly intersect with workforce development initiatives, the role of AI in shaping students' future opportunities cannot be ignored.

Despite growing interest in AI across education sectors, few studies have centered the voices of adult learners themselves. How do they perceive AI? What influences their trust or hesitation? What barriers stand in the way of using AI meaningfully? And what support do they need to succeed? This study seeks to address these questions. By exploring the awareness, perceptions, and trust that adult learners bring to their encounters with AI, alongside the barriers

they face, this research aims to inform more equitable approaches to AI integration. To guide this inquiry, the study draws upon the Technology Acceptance Model (TAM), a well-established framework for understanding how individuals adopt and engage with new technologies.

Theoretical Framework

This study is grounded in the Technology Acceptance Model (TAM), originally developed by Davis (1989), which identifies *perceived usefulness* and *perceived ease of use* as the primary factors influencing a user's acceptance of new technologies. More recent extensions of TAM have included *trust* as a third factor, particularly relevant in educational and high-stakes contexts.

TAM provides a valuable framework for examining how adult learners perceive, trust, and integrate AI tools into their educational experiences. It helped shape the development of interview questions and served as a guiding structure for analyzing participants' responses. Because TAM has been widely applied in educational technology research, it offers a relevant lens for understanding how adult learners adopt AI, especially in environments where digital literacy, access, and support vary significantly.

Problem Statement

Despite AI's transformative potential in adult education, a gap remains in understanding how adult learners perceive, trust, and interact with AI technologies. Barriers such as limited awareness and uncertainty about AI's influence on learning outcomes and job preparedness hinder its effective integration. Addressing these challenges is critical to ensuring that AI adoption enhances learning experiences and equips adult learners for success in an AI-driven workforce.

Purpose Statement

This study examines the awareness, perceptions, and trust in AI among adult education students to identify barriers to its effective integration. By examining these factors through the Technology Acceptance Model (TAM) lens, this study aims to provide insights that can inform the implementation of AI in adult education, enhancing student learning outcomes and work readiness.

Research Questions

1. What are the levels of awareness and perception of AI among adult learners in adult education?
2. What factors shape adult learners' trust and acceptance of AI technologies in adult education?
3. What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?

CHAPTER II: LITERATURE REVIEW

The rapid advancement of Artificial Intelligence (AI) technologies is reshaping various sectors, including education. In adult education, understanding the integration and impact of AI is essential for developing effective educational strategies and preparing learners for an evolving workforce. This literature review examines the current state of knowledge regarding AI in adult education, focusing on awareness, perceptions, impacts, workforce readiness, barriers to adoption, strategies for implementation, and the application of the Technology Acceptance Model (TAM). Additionally, the review highlights the importance of digital literacy in equipping adult learners with the skills needed to navigate and leverage AI technologies effectively. Trustworthiness is also explored, as it plays a pivotal role in shaping how adult learners perceive and adopt AI, influencing the integration of AI into educational practices and its effectiveness in enhancing learning outcomes and workforce preparation. While cultural and ethical considerations are acknowledged as part of a broader discourse on AI, this review prioritizes practical factors directly relevant to adult learners' engagement with AI technologies.

AI in Education

Since AI's emergence in the mid-1950s, AI has become increasingly relevant in education and training (Owoc et al., 2019). While early ideas of mechanical automation and intelligent machines can be traced back to historical and medieval times, the practical application of AI in education is much more recent. AI is now introduced through intelligent robots and adaptive learning systems, offering new ways to enhance learning experiences (X. Chen et al., 2020). Over time, AI has evolved beyond supercomputers to include embedded systems that support personalized learning and assist educators with routine tasks (L. Chen et al., 2020). AI-driven web-based systems extend beyond simple content delivery, learning from instructor and

student behaviors to tailor educational experiences. Interest in AI applications across administration, teaching, and learning continues to grow (L. Chen et al., 2020).

AI provides numerous benefits by automating tasks like grading and giving personalized feedback through chatbots that mimic teacher behavior (Owoc et al., 2019). However, the increased reliance on technology has impacted relationships between educators and students, making interactions more transactional and shifting the role of educators to facilitators rather than experts (Guilherme, 2019). This shift raises concerns about potentially losing more profound, mentorship-based connections traditionally at the heart of education. Balancing technology integration with meaningful human connections is crucial (Guilherme, 2019).

Some AI technologies in education operate on systems that learn from historical user data to enhance instruction, predict academic outcomes, and recommend individualized support (Berendt et al., 2020). One of the most common applications of AI is through machine learning, which powers tools like adaptive learning platforms and chatbots. Chatbots offer 24/7 assistance, automate feedback, and support students in real time, but they still face challenges, particularly with understanding natural language nuances and handling complex questions (Mageira et al., 2022). These challenges can lead to user frustration, especially when prior interactions are not remembered or when responses lack depth (Dimitriadou & Lanitis, 2023). Despite these concerns, chatbots show potential, especially in increasing access to support services. However, their effectiveness, particularly in non-English language settings, remains underexplored (Mageira et al., 2022).

In addition to text-based AI tools, immersive technologies such as Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) are emerging as complementary innovations in education. While not always AI-powered, these tools are increasingly integrated with

intelligent systems to create interactive, personalized learning environments (Dimitriadou & Lanitis, 2023). When combined with AI, they can adapt content in real-time based on user behavior, offering new possibilities for experiential and skills-based learning.

Overview of AI, Specifically in Adult Education

AI rapidly reshapes adult education by automating routine tasks and enhancing learning experiences. Edwards-Fapohunda and Adediji (2024) highlighted that AI-driven tools, such as adaptive learning platforms and intelligent tutoring systems, significantly improve engagement and academic performance, providing personalized feedback and tailored learning paths. This is particularly beneficial for adult learners managing various responsibilities, as it supports lifelong learning and promotes educational equity. Storey and Wagner (2024) expanded on these opportunities, showcasing the potential of generative AI technologies, including large language models (LLMs), machine learning algorithms, VR and AR for immersive learning, and chatbots for learner support, to enrich adult education and prepare learners for a changing workforce.

The shift toward an AI-driven educational model is essential as the future job market increasingly demands higher-level skills like problem-solving, critical thinking, and creativity (Ahalya & Sreeya, 2019). Varshney et al. (2023) emphasized that AI-powered adaptive learning platforms are pivotal in identifying skill gaps and creating targeted interventions that enhance learning retention. These platforms dynamically adjust content to align with each learner's progress, fostering a practical and engaging educational experience. This adaptive approach closes skill gaps and equips adult learners with the competencies needed for career advancement in an AI-centric environment.

Despite its potential, integrating AI into adult education presents significant challenges. Edwards-Fabohunda and Adediji (2024) identified technical barriers such as software

compatibility, inconsistent internet access, and the lack of educator training and data privacy safeguards. Storey and Wagner (2024) and Varshney et al. (2023) emphasized ethical concerns, including algorithmic bias, the digital divide, and inadequate protection for user data. These challenges point to the need for careful implementation that prioritizes equity, transparency, and human rights.

In addition to these structural and ethical issues, Laupichler et al. (2022) highlighted the importance of AI literacy, defined as the ability to understand, evaluate, and effectively use AI tools as a prerequisite for meaningful engagement. However, the lack of a clear, consistent definition of AI literacy across programs has made it difficult for educators to design and implement effective instructional strategies. To address these gaps, ongoing research, thoughtful policy development, and stronger collaboration among institutions are essential for creating inclusive and sustainable models for AI integration in adult education.

Digital Literacy and AI

Digital literacy in this study refers to the ability to locate, evaluate, and use digital tools effectively for learning and communication (Jimoyiannis, 2015). It includes basic technical skills, information evaluation, and an understanding of how digital tools influence learning processes. This differs from digital media literacy, which focuses more on interpreting and creating media content across platforms (Hobbs, 2010). In the context of adult education, digital literacy is foundational for learners to navigate AI tools meaningfully, build confidence, and access opportunities for academic and career development.

The development of digital literacy is essential for adult learners to navigate an increasingly technology-driven world. Even dating back to earlier assessments of digital literacy, Gupta and Ndahi (2002) highlighted the critical need to evaluate and meet the digital literacy

requirements of adult learners to support workforce readiness. Their research revealed that while many adult learners had basic computer skills, more advanced digital competencies often needed to be improved. Targeted training programs that included internet literacy and educational software were deemed necessary to empower educators and enhance teaching effectiveness and learner engagement. Similarly, even with earlier technology initiatives, Bronson (2002) demonstrated the importance of systematic training and support for educators in integrating technology. His study on implementing the Technology Literacy Challenge Grant showed that while teachers progressed in adopting technology for instructional purposes, barriers such as limited planning time and lack of familiarity with digital tools were significant. Bronson's (2002) findings emphasized that comprehensive training and opportunities for collaboration were essential to build confidence among educators and enable effective technology use in classrooms. These fundamental insights remain pertinent as educators work to establish environments that promote digital literacy.

Jimoyiannis (2015) expanded on these perspectives by emphasizing that adult learners must cultivate a digital culture and identity, which includes understanding digital citizenship, ethics, e-safety, and privacy. Successful digital literacy programs should promote engagement through active, self-directed learning and use authentic, real-life contexts to help adults build their digital competencies. This approach enables learners to develop operational and information management skills as well as strategic thinking that supports lifelong learning and active participation in a digitally mediated society.

Building on this foundation, Varshney et al. (2023) noted that AI-powered platforms have the potential to support digital literacy by personalizing content and addressing individual skill gaps. These systems can dynamically adjust learning materials based on learners' progress,

offering tailored educational experiences that can enhance engagement and promote digital fluency. However, the effective use of AI still relies on a baseline of digital literacy; learners must first know how to navigate digital tools to fully benefit from them (Tsai et al., 2017).

Tsai et al. (2017) further underscore the importance of social and environmental support in helping older adults gain digital literacy. Family, peer, and professional networks can bridge the gap between minimal use and confident engagement with new technologies. Collectively, these findings suggest that fostering digital literacy requires not only access to technology and structured training but also supportive learning environments that encourage exploration. When these conditions are met, adult learners are more likely to develop the skills necessary to engage with AI tools meaningfully and succeed in a digital society (Jimoyiannis, 2015; Varshney et al., 2023).

Perceptions and Trustworthiness in AI

The adoption and integration of AI in various aspects of life, particularly education, heavily depend on how people perceive and trust this technology. AI has evolved significantly, transforming from traditional systems to advanced tools like smart classrooms and collaborative robots, which enhance learning and teaching experiences (L. Chen et al., 2020). Trust is essential for the widespread acceptance of AI, as Moravec et al. (2024) emphasized, with perceived usefulness playing a more significant role than ease of use in influencing acceptance. Building trust involves managing expectations and ensuring users feel secure in their interactions with AI, which is often influenced by socio-demographic factors and perceived security risks.

A positive perception of AI is often linked to familiarity and hands-on experience. Kahiapo (2024) highlighted the importance of targeted educational programs to bridge the knowledge gap for those unfamiliar with AI, emphasizing that trust can be nurtured through

simplified and practical learning approaches. These ideas align with Poquet and De Laat's (2021) capability approach, which suggests that empowering users with knowledge and autonomy builds confidence and trust, making them more open to adopting AI. However, trust is complex; even those knowledgeable about AI may still harbor concerns about its transparency and ethics (Araujo et al., 2020). Student perspectives on AI reflect a blend of optimism and caution. Chan and Hu (2023) found that while students appreciate AI for personalized learning and research support, they also express concerns about accuracy, privacy, and the risk of over-reliance, which could suppress critical thinking. This indicates that while AI's benefits are recognized, trust in its application requires addressing these challenges. Social support plays an essential role in overcoming barriers, particularly among those less familiar with technology, as Tsai et al. (2017) mention in their research. Supportive environments encourage exploration and help build trust, aligning with Jimoyiannis' (2015) call for digital literacy programs that foster collaboration and community learning.

As AI advances and becomes more embedded in education and daily life, fostering trust and understanding through targeted education and supportive communities remains essential. Bridging the gap between apprehension and acceptance requires continuous efforts to ensure transparency, address ethical concerns, and empower users to engage with AI confidently and responsibly.

Impact of AI on Workforce Readiness

Artificial Intelligence is reshaping the workforce and impacting job opportunities in many ways. While AI can replace repetitive and hazardous tasks, boosting efficiency in manufacturing, agriculture, and logistics industries, it poses challenges, including potential job losses in traditional roles. For example, Nguyen (2019) highlights how warehouse automation

has significantly reduced the need for human labor. Similarly, retail and customer service jobs are being impacted by AI-driven solutions, such as self-checkout systems and automated customer support.

However, the story of AI and jobs is not all about replacement; it is also about transformation and opportunity. Haran and Gangadharan (2022) explain that while some jobs are displaced, AI creates new roles that require specialized skills, such as data analysis, AI engineering, and system management. These emerging opportunities emphasize the need for both employees and employers to prioritize upskilling and reskilling. In developing regions, as noted by Nabi (2019), AI holds the potential to drive economic growth and improve sectors like agriculture and healthcare. For example, AI can help farmers boost productivity by using drone technology for planting and monitoring crops or assist healthcare providers in diagnosing diseases more efficiently. However, these benefits come with challenges, such as limited infrastructure and a shortage of skilled workers.

Sidhu et al. (2024) emphasize the importance of education and training to address skill gaps in AI. They point out barriers like the high cost of training, inadequate educational programs, and a lack of qualified instructors. The role of government is crucial in supporting AI workforce development through funding, curriculum design, and public-private partnerships. Building a workforce prepared for the AI-driven future requires coordinated efforts among governments, educational institutions, and industries. While AI presents risks like job displacement, it also brings job creation and innovation opportunities. Preparing for this involves investing in education, embracing new training models, and fostering collaboration between the public and private sectors to ensure workers have the skills to thrive in an AI-empowered world (Jamal, 2024).

Cultural and Ethical Dimensions of AI

AI in education has introduced remarkable tools that can adapt to individual learning needs, provide tailored feedback, and help students learn independently (Sharifuddin & Hashim, 2024). AI tools, such as virtual assistants and chatbots, support students and teachers by managing tasks and answering questions, fostering a more streamlined learning experience. For ESL students, AI-powered tools offer significant benefits, including pronunciation feedback and language translation, enabling learners from diverse backgrounds to improve their language skills and bridge cultural divides (Sharifuddin & Hashim, 2024). However, integrating AI into education is deeply intertwined with cultural and ethical considerations. AI's adaptability to diverse learning environments reflects the cultural dimensions of education. In collectivist cultures, for example, there may be a stronger emphasis on collaborative tools, while individualist cultures may prioritize personalized learning experiences (Amershi, 2020). Although AI can promote inclusivity and cater to varied educational needs, it is essential to remain aware of algorithmic biases that could inadvertently favor certain cultural norms over others (Akgun & Greenhow, 2022).

The ethical implications of AI in education extend beyond cultural considerations to significant concerns about data privacy and surveillance. Educational platforms often collect vast amounts of student data controlled by third-party entities, raising issues of data autonomy and security (Huang, 2023). The monopolization of data by large tech companies can hinder student' control over their personal information, increasing the risk of misuse or breaches. For example, tools have been known to track user data extensively, sparking concerns about how personal information is processed and protected (Huang, 2023). Furthermore, the potential for bias and discrimination within AI systems is a pressing issue. Algorithms often reflect the values and

biases embedded by their creators, which can result in outcomes that disadvantage certain groups based on gender, race, or socioeconomic background (Akgun & Greenhow, 2022). Biased language translation and flawed facial recognition highlight these challenges (Amershi, 2020). While helpful in identifying at-risk students, predictive AI systems may perpetuate existing biases and limit opportunities for marginalized students if not carefully monitored (Berendt et al., 2020).

Ethical concerns in AI education include student autonomy and consent, as lengthy privacy policies often compromise students' independence (Huang, 2023). Black-box algorithms further complicate this by obscuring decision-making, making outcomes difficult to understand or challenge (Akgun & Greenhow, 2022; Berendt et al., 2020). This obscurity can reinforce educational biases and limit students' future opportunities. Addressing these challenges requires collaboration from educators, policymakers, and tech companies to ensure robust data protection, transparency, and AI literacy (Huang, 2023). Including diverse perspectives in AI development can help mitigate biases and promote fairness (Amershi, 2020), supporting equitable educational outcomes.

Challenges in AI Adoption in Education

Adopting AI in education presents multiple challenges that hinder its widespread implementation. One significant issue is ensuring that AI systems can be flexible, adaptable, and applicable in various educational contexts, which is critical for maximizing their potential benefits (Owoc et al., 2019). Effective integration requires strategic planning and organizational readiness, but many schools need a clear vision or alignment with long-term educational goals. Additionally, outdated infrastructures pose a challenge, as many institutions are not equipped to

support deploying sophisticated AI tools, limiting scalability and efficiency (Owoc et al., 2019; Sharifuddin & Hashim, 2024).

A significant obstacle to global cooperation in AI development and governance is the mistrust between different regions, particularly between the USA and China. This mistrust stems from historical political tensions and differing cultural perspectives, particularly data privacy and ethics (Oheigeartaigh et al., 2020). These differences can frame AI development as a competitive race rather than a collaborative effort, complicating the establishment of universal norms and ethical guidelines. The cultural divide also highlights the challenge of balancing global cooperation with region-specific standards that respect local values and priorities (Oheigeartaigh et al., 2020; Berendt et al., 2020).

Adult education faces practical challenges in adopting AI, including resistance to change and a need for more confidence in using new technology. Many teachers prefer traditional teaching methods and report feeling unprepared to incorporate AI into their classrooms effectively (Sharifuddin & Hashim, 2024). The need for more training and professional development opportunities exacerbates this issue, making it difficult for educators to integrate AI tools that could enhance learning outcomes (Owoc et al., 2019; Sharifuddin & Hashim, 2024). Moreover, data privacy and autonomy are significant concerns in AI-driven education. Students and educators may feel that their control over personal data could be improved, leading to unease about how their information is used (Berendt et al., 2020). This issue is further complicated by insufficient data governance, which raises questions about privacy and security. With comprehensive regulations, there is a risk of misuse or inadequate data handling, adding to the trust in AI systems.

Strategies for Effective AI Adoption in Education

To overcome AI adoption challenges in education, schools and institutions need a clear vision and strategic approach to integrating AI. Setting specific, achievable goals that align with the broader educational mission can provide a solid foundation for AI adoption (Owoc et al., 2019). Engaging key stakeholders, including teachers, students, and administrators, ensures that AI tools are tailored to meet the actual needs of users. Collaborative planning across departments fosters a unified understanding of how AI can enhance teaching and learning (Oheigeartaigh et al., 2020; Sharifuddin & Hashim, 2024). Building trust between cultural and regional groups is essential for promoting global AI ethics and governance cooperation. Strategies should improve mutual understanding and correct misconceptions to mitigate the mistrust between influential nations like the USA and China (Oheigeartaigh et al., 2020). This trust-building effort requires educational institutions to adopt transparent data usage and privacy practices, easing concerns and fostering acceptance among learners (Berendt et al., 2020; Owoc et al., 2019).

Providing educators with ongoing training and professional development is another vital strategy for effective AI adoption. This training should focus on technical skills and address how AI can complement traditional teaching methods, making educators more comfortable with its integration (Sharifuddin & Hashim, 2024). Comprehensive support programs can help reduce resistance to AI and increase self-efficacy among teachers, enabling them to engage students better and utilize AI to its full potential. Furthermore, infrastructure readiness and continuous evaluation of AI tools are also important. Schools must assess their current technological capabilities to support new AI systems effectively (Owoc et al., 2019). Regularly updating these systems based on user feedback and changing educational needs helps maintain their relevance and effectiveness over time. In ESL classrooms, for example, AI can create personalized learning

experiences, allowing students to receive immediate feedback and build confidence in their abilities. This adaptive learning approach and effective teaching practices can create a more dynamic and supportive educational environment (Sharifuddin & Hashim, 2024).

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), introduced by Davis et al. (1989), is a widely used framework for understanding how users come to accept and use technology. Grounded in Fishbein and Ajzen's (1975) Theory of Reasoned Action (TRA), TAM identifies two central constructs that shape technology adoption: perceived usefulness which is the degree to which a person believes that using a particular technology will improve their performance, and perceived ease of use, the extent to which a person believes the technology is free from effort. These two perceptions influence the user's attitude toward the technology, which in turn shapes their intention to use it and ultimately their actual usage (Davis et al., 1989; Mashrom, 2007).

This model is particularly relevant to adult education, where learners are introduced to new tools like AI under varied conditions of digital access, literacy, and prior experience. As highlighted in earlier sections of this review, factors such as digital literacy, trust, cultural relevance, and support systems significantly affect whether adult learners engage with AI tools meaningfully. TAM helps explain how these factors interact by offering a lens to understand the psychological processes behind technology acceptance (Lee et al., 2003). For example, if an AI tool is perceived as helpful (usefulness) and easy to navigate (ease of use), learners are more likely to engage with it regularly in both academic and personal contexts.

The model also supports discussion around strategies for effective AI adoption. As noted earlier in the literature, successful implementation often hinges on structured support, training, and scaffolding, conditions that directly influence learners' perceptions of a tool's ease of use

and usefulness. Furthermore, the trust element, which scholars have more recently added to TAM extensions (Chuttur, 2009), aligns with concerns about data privacy, accuracy, and cultural accessibility mentioned throughout this review. These concerns affect learners' willingness to explore AI tools, especially if they fear judgment or misunderstanding.

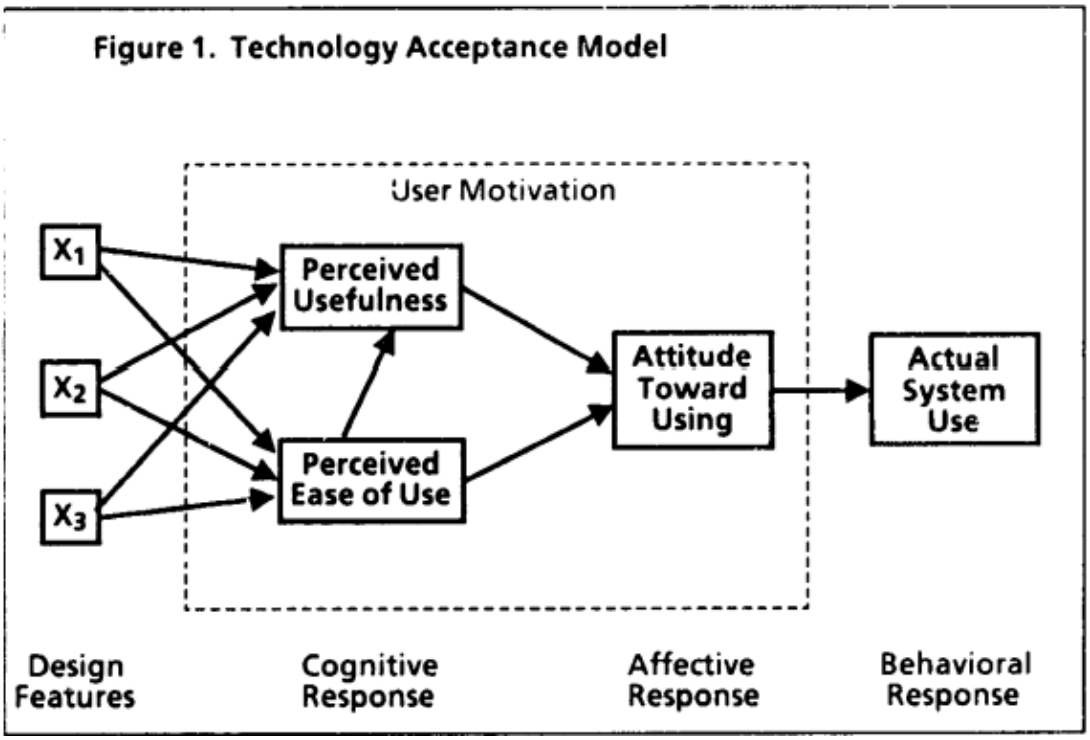
TAM's adaptability has made it one of the most applied models in educational technology research. Studies by Lee et al. (2003) confirm its validity across various technologies and learning environments. Chuttur (2009) further outlines TAM's evolution and critiques, noting limitations such as its reliance on self-reported data. However, the development of TAM2 addresses some of these gaps by incorporating factors like subjective norms, which are particularly relevant in adult education where social influence, peer evaluation, and non-judgmental support often shape behavior.

By adapting TAM in this study, the aim is not only to explore individual student attitudes toward AI, but also to understand how broader environmental and cultural factors shape those attitudes. This framework bridges theory and practice, helping educators, counselors, and policymakers identify where interventions such as increasing digital literacy or building trust can make the greatest difference in AI adoption.

The figure below helps visualize the flow from external variables influencing perceived usefulness and ease of use, which shape user attitudes, intentions, and system use. This visual representation reinforces the theoretical explanation and provides clarity for those unfamiliar with the model.

Figure 1

Technology Acceptance Model: Relationship Between Perceived Usefulness, Perceived Ease of Use, and Behavioral Intention



Note. From *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results* (Doctoral dissertation, Massachusetts Institute of Technology), by F. D. Davis, 1985, p. 24 (http://hdl.handle.net/1721.1/15192).

Summary

The literature on AI in education underscores its transformative potential for enhancing learning experiences, fostering work readiness, and supporting adult education. AI's role is particularly promising in facilitating personalized learning and improving access to educational resources, especially for adult learners who often juggle learning with work and family responsibilities. However, the successful integration of AI into educational settings relies not only on advertising digital literature but also on fostering trustworthiness and addressing ethical

and cultural considerations (Granic & Marangunic, 2019). The challenge of adopting AI in education is multi-faceted, with barriers ranging from infrastructure limitations to concerns over data privacy and fairness. Critical strategies for overcoming these barriers include prioritizing user-centered design, incorporating clear frameworks like TAM to assess user acceptance, and engaging stakeholders in the development process (Davis et al., 1989; Masrom, 2007). Future research and policy efforts should focus on refining AI tools to better meet diverse user needs, ensuring ethical application, and strengthening digital literacy to prepare learners for an increasingly AI-driven workplace. This comprehensive approach will help leverage AI's potential while promoting equitable and inclusive educational practices.

CHAPTER III: METHODOLOGY

This study investigated the perceptions, trust, and barriers related to Artificial Intelligence (AI) adoption among adult learners in educational settings, employing the Technology Acceptance Model (TAM) as a guiding framework. Given the nuanced nature of adult learners' interactions with technology, particularly with AI, which presents unique opportunities and challenges, this study will employ in-depth, semi-structured interviews to capture participants' perspectives. This qualitative design allowed a deeper understanding of the factors shaping trust and acceptance and the barriers hindering AI integration in adult education. Through thematic analysis of interview data, the study aims to uncover patterns and insights that can inform strategies for AI adoption, ultimately enhancing learning outcomes and work readiness in adult education.

Research Questions

1. What are the levels of awareness and perception of AI among adult learners in adult education?
2. What factors shape adult learners' trust and acceptance of AI technologies in adult education?
3. What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?

Research Design

This study adopted a qualitative, phenomenological research design to explore the awareness, perceptions, and trust of AI among adult education students framed by the Technology Acceptance Model (TAM). A phenomenological approach is well-suited for this research as it seeks to understand the lived experiences of adult learners and their interactions

with AI by focusing on the "how" and "why" behind students' perceptions and traits. This design allowed the researcher to capture rich, detailed accounts that reveal the essence of participants' experiences (Merriam & Tisdell, 2015; Creswell & Poth, 2016).

Phenomenological studies are particularly effective in natural settings, where participants can freely express their perspectives, enabling the researcher to develop composite descriptions of their experiences (Moustakas, 1994). This method facilitates the identification of underlying themes that contribute to understanding how adult learners perceive AI and the barriers they face in this integration. The study involved semi-structured content interviews, fostering a trusting environment to gather authentic insights (Moustakas, 1994; Alase, 2017). This approach ensured that emerging themes could be meaningfully interpreted, providing depth and felicity in data analysis.

Site of the Study

This study recruited adult education students from institutions within the Inland Empire and surrounding areas in Southern California. The region's rich and diverse population provides an ideal setting for exploring the awareness, perceptions, and trust of AI among adult learners. By including participants from various adult education programs, the study aimed to capture a broad range of perspectives and experiences, contributing to a comprehensive understanding of the factors influencing AI adoption in adult education. The choice of these locations was strategic, as they serve a wide array of adult learners, including individuals seeking to improve their language skills, attain educational qualifications, and enhance their career readiness. These students often balance their studies with work, family, and other life responsibilities, aligning with the research's focus on understanding the awareness, perceptions, and trust of AI among adult learners (Milana et al., 2017).

These institutions were selected because of their commitment to providing comprehensive and accessible education services to adult learners, supporting the notion that a diverse student population can contribute valuable insight to quality research (Creswell & Poth, 2016). The institution's diverse student body offers a unique opportunity to capture varied perspectives on AI technology and its integration into learning environments. This diversity enriches the data, allowing for a deeper exploration of how different cultural and sociocultural backgrounds may influence perceptions and acceptance of AI. Additionally, these institutions' emphasis on seamless transitions to higher education further enhances their suitability as research sites, as it reflects a commitment to pathways that support students' educational and professional growth. These environments facilitate access to participants with differing exposure to and experience with technology, making it suitable for a phenomenological study that seeks to understand lived experiences (Moustakas, 1994).

Population and Sample for the Study

The population for this study consists of adult learners enrolled in adult schools within the Inland Empire and surrounding areas in Southern California. As Creswell and Poth (2016) recommended, a phenomenological study should have a sample size of 3 to 10 subjects. Morse (1994) recommends at least 6 participants for a phenomenological study. Additionally, Moustakas (1994) advises that qualitative research has a typical sample size with a range of 5 to 25 participants. These recommended ranges were met, and the sample group includes diverse students with varied backgrounds, such as those seeking to earn high school equivalency certificates or develop skills for career advancement. These students often manage multiple responsibilities, which provides valuable context for understanding their perceptions and trust in AI technologies.

The sample for this study was selected using purposive sampling to ensure participants have relevant experiences that align with the research objectives. This method allowed the researcher to focus on adult learners with varying degrees of familiarity with technology and AI, essential for exploring different levels of awareness, trust, and perceived barriers to AI integration.

The inclusion criteria for participants will be:

1. Enrolled in an adult education program in Southern California.
2. Had some level of familiarity with AI tools or programs, directly (e.g., apps, learning technologies) or indirectly (e.g., workshops or discussions).

Participant Demographics

Demographic data such as age range, gender, primary language, and program enrollment were collected to contextualize participants' responses and identify patterns related to digital literacy, AI familiarity, and educational needs. These details helped explore how different backgrounds might influence perceptions of and access to AI tools. The following table provides a summary of the participants' demographic information. This offers a visual snapshot of the diverse backgrounds represented in this study.

Table 1

Sample Group Demographics

Participant	Age Range	Gender	Primary Language	Program Enrolled	Prior AI Use
P1	35–44	Female	Spanish	High School Diploma or Equivalent	Occasionally
P2	35–44	Male	English	Career Technical Education (CTE)	Occasionally
P3	25–34	Female	English	High School Diploma or Equivalent	Frequently
P4	34–44	Male	English	High School Diploma or Equivalent	Occasionally
P5	35–44	Female	Spanish	High School Diploma or Equivalent	Frequently
P6	25–34	Female	English/Spanish	High School Diploma or Equivalent	Occasionally
P7	45–54	Female	Spanish	High School Diploma or Equivalent	Frequently
P8	18–24	Male	Other	English as a Second Language & High School Diploma or Equivalent	Frequently

A total of eight adult education students participated in this study. Participants represented a range of age groups, with most falling between the ages of 35 and 44. The sample included male and female participants, with a mix of primary languages including English and Spanish. Educational backgrounds varied, with most participants working toward or having already completed a high school diploma or equivalent. Students were enrolled in different adult education programs, including High School Diploma/GED and Career Technical Education

(CTE). While most participants reported using AI tools occasionally (e.g., ChatGPT, Grammarly, or translation apps), a few noted more frequent use. This demographic diversity provided a meaningful lens to explore adult learners' awareness, trust, and perceptions of AI in educational contexts.

Data Collection and Procedures

This section outlines the data collection process for a qualitative inquiry into AI awareness, perceptions, and trust among adult education students. The approach adheres to ethical standards and practices highlighted by Creswell and Poth (2016), Merriam and Tisdell (2015), and Moustakas (1994). Institutional Review Board (IRB) approval will be obtained to confirm that the study meets ethical research standards.

Participant Identification and Recruitment

Participants were identified through educators at adult education programs in Southern California, including the Inland Empire and surrounding areas. Educators did not recruit students directly but shared contact information of students who met the study's eligibility criteria, provided the students had given prior consent to be contacted.

The researcher conducted recruitment exclusively through phone calls and emails. Once a participant agreed to take part in the study, they received a follow-up email with further details, including:

- A brief overview of the study, including its purpose and expectations.
- A link to a demographic questionnaire (via Google Forms) to collect non-identifiable background information.
- Assurance that participation is voluntary, confidential, and does not impact their academic standing.

Informed Consent Process

After completing the demographic questionnaire, participants received an informed consent form explaining the purpose of the study, their rights as participants, and confidentiality measures. Participants signed and returned the consent form before participating in the interview.

Interview Process

All interviews were conducted exclusively via Zoom, ensuring accessibility and flexibility for participants. They were semi-structured, lasting between 30 and 50 minutes, following a structured but flexible approach that allows for in-depth exploration of key themes while capturing unanticipated insights and following best practices outlined by Cohen and Crabtree (2006). Participants received a reminder email one day before their scheduled interview, including the Zoom link and instructions on preparing for the session.

Data Handling and Participation Rights

With participant consent, all interviews were audio-recorded for transcription and accuracy. Transcripts are securely stored, and participants can review and modify their responses to ensure clarity and comfort. Participants retained the right to withdraw from the study without penalty. These measures reinforce participant autonomy and data integrity.

Post-Interview Engagement

After the interview, participants received a thank-you message, and those interested may be provided with a follow-up opportunity to stay informed about the study's findings, fostering reciprocity, as Creswell and Poth (2016) recommended.

Interview Protocol

The interview protocol aimed to guide the structured collection of qualitative data on AI awareness, perceptions, and trust among adult education students. The semi-structured, one-on-

one format ensured that participants shared in-depth insights while maintaining flexibility with follow-up questions (Creswell & Poth, 2016). The approach follows the best practices of Castillo-Montoya (2016) and Moustakas (1994) to create a comfortable and open environment conducive to honest responses.

Interview Protocol Steps

1. Confirm participant details and ensure informed consent is signed.
2. Verify that all equipment (e.g., audio recorder, laptop) is functioning.
3. Explain interview procedures and confirm that participants are aware of the recording.
4. Conduct the interview and ensure open-ended responses.
5. Share transcribed responses with participants for review and potential edits.
6. Thank participants for their time and input.

Interview Questions

Target RQ 1: Awareness and Perception

1. Can you describe your current understanding of Artificial Intelligence (AI)?
2. Have you encountered AI technologies in your daily life or studies? If yes, can you share examples?
3. How do you feel about the idea of using AI in educational settings?
4. What do you think are the potential benefits or drawbacks of using AI in learning?

Target RQ 2: Trust and Acceptance

5. What factors would make you more likely to trust an AI tool or technology in education?

6. Have you ever used AI tools like chatbots or learning applications? How did they affect your trust in AI?
7. Do you think AI can improve your learning experience? Why or why not?
8. What concerns, if any, do you have about using AI in education?

Target RQ 3: Barriers

9. What challenges do you think students face when using AI in education?
10. How would you describe your comfort level with using digital tools and technologies, and how do you think this affects your ability to use AI in education?
11. Do you feel you have enough knowledge or support to use AI tools effectively? Why or why not?
12. How do you think AI could help or hinder your preparation for the workforce?
13. Are there any cultural, technical, or other factors you believe make it harder for students like you to adopt AI?

Follow-Up Questions:

1. If you could design an AI tool for your learning, what features would you include?
2. What role do you think teachers or counselors should play in supporting adult school students' use of AI?

Data Analysis Procedures

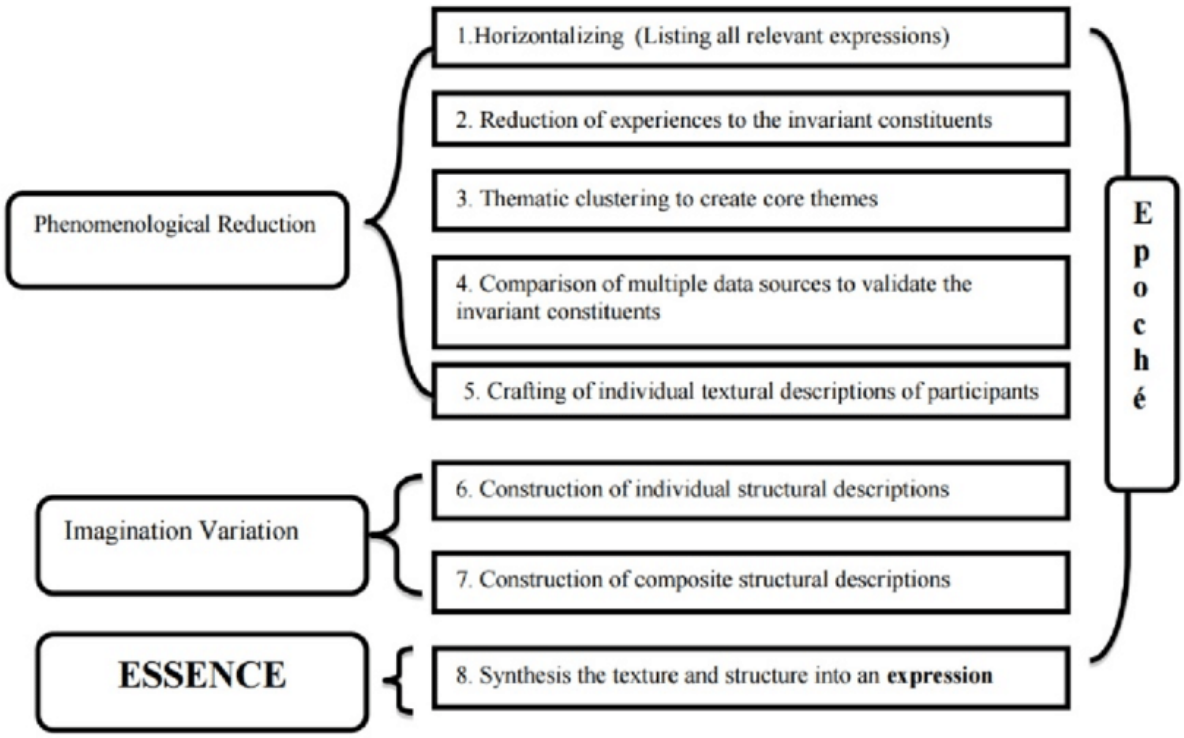
After completing, transcribing, and confirming the accuracy of the interviews, the data analysis process commenced. The procedure followed Moustakas's (1994) phenomenological approach, which involves setting aside research biases, reducing the data, exploring variations, and synthesizing findings. The process began with epoche, where the researcher set aside personal biases to approach the data neutrally. The phenomenological reduction followed, which

involved bracketing data and treating each statement equally through horizontalization to identify significant, non-overlapping themes. These themes were used to create individual textural descriptions for each participant, culminating in a composite textural description that unifies the insights across all participants (Moustakas, 1994).

Next, imaginative variation was applied to explore different meanings and perspectives, developing structural themes and individual structural descriptions combined into a composite structural description representing the group's shared experiences. Finally, synthesizing meanings and essence integrated all the descriptions to reveal the nature of participants' experiences regarding AI awareness, perceptions, and trust. The following illustrates Moustakas' (1994) phenomenological data analysis process, guiding this study's collection, coding, and data synthesis.

Figure 2

Phenomenological Data Analysis Steps (Based on Moustakas, 1994)



Note. Adapted from *Phenomenological Research Methods* by C. Moustakas, 1994, SAGE Publications. This figure is a conceptual representation based on the data analysis steps described in Chapter 4.

Trustworthiness and Procedures

In this study, trustworthiness and transferability ensure the credibility and reliability of the findings. Trustworthiness relates to the validity and reliability of qualitative research, indicating the consistency and appropriateness of the data and process used (Moustakas, 1994). The bracketing process was implemented to set aside research biases, allowing each participant's perspective to hold equal value. A triangulation method was applied to validate findings, comparing data from various participants and resources to verify themes (Creswell & Poth,

2016). Reflexivity was practiced by clarifying the researcher's bias to provide transparency regarding the research position. Participants were allowed to review transcribed interviews to ensure accuracy and credibility, strengthening the study's reliability (Merriam & Tisdell, 2015).

Summary

This chapter details the qualitative methodology used to explore adult learners' awareness, perceptions, and trust in AI, guided by the Technology Acceptance Model (TAM). Drawing on Moustakas's (1994) phenomenological approach and supported by Creswell and Poth's (2016) strategies for trustworthiness, the study employed semi-structured interviews to capture rich, personal insights. Participants were drawn from diverse adult education programs in Southern California and selected based on clear inclusion criteria. The data collection process emphasized ethical rigor and credibility. With the methodology established, the next chapter presents the findings that emerged from participants' experiences.

CHAPTER IV: FINDINGS AND INTERPRETATION

As artificial intelligence (AI) continues transforming education and the workforce, adult learners face new opportunities and growing challenges. In adult education, where learners often juggle work, family, and prior educational barriers, the integration of AI carries unique implications for access, equity, and personal empowerment (Edwards-Fapohunda & Adediji, 2024). While the existing literature highlights the potential of AI tools to enhance instruction and learner outcomes, it also reveals persistent gaps in digital literacy, institutional readiness, and learner confidence, particularly among populations historically underserved by technology-focused initiatives (Tsai et al., 2017; Varshney et al., 2023). These tensions are especially relevant in adult education, where students may interact with AI in their daily lives but lack structured opportunities to apply meaningfully in academic or career-preparation contexts.

This study examined how adult learners perceive, understand, and interact with AI. Guided by the Technology Acceptance Model (TAM), it explored factors related to AI awareness, trust, perceived usefulness, and the barriers that limit meaningful integration. The findings presented in this chapter are drawn from qualitative interviews with eight adult learners enrolled in various academic and career pathways. By centering their voice, the study provides insight into how AI is experienced in real-world educational contexts and what supports learners' need to use it confidently and effectively.

This chapter aims to objectively report the study's results, allowing participants' perspectives to highlight the opportunities and challenges of AI adoption in adult education. Direct quotations are included to support the identified themes and to illustrate the nuanced views of learners navigating this emerging space. The chapter is organized into eight sections:

(1) purpose of the study, (2) research questions, (3) thematic key findings, (4) discussion of the findings, (5) limitations of the study, (6) implications, (7) recommendations, and (8) conclusion.

Purpose Statement

This study examined the awareness, perceptions, and trust in AI among adult education students to identify barriers to its effective integration. By examining these factors through the TAM lens, this study aims to provide insights that can inform the implementation of AI in adult education, enhancing student learning outcomes and work readiness.

Research Questions

1. What are the levels of awareness and perception of AI among adult learners in adult education?
2. What factors shape adult learners' trust and acceptance of AI technologies in adult education?
3. What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?

Thematic Interpretation of Findings

To clarify the developed themes, the following chart illustrates the alignment between the study's research questions, corresponding interview questions, and the key themes that emerged from the data. The themes, *Understanding AI in Everyday Life, Building Confidence and A Growth Mindset Around Technology, Personalized Empowerment Through AI,* and *Willing to Learn, Waiting for Support,* reflect adult learners' perceptions, experiences, and needs during the interviews. This structure reflects a purposeful approach to qualitative analysis, ensuring that the findings remain grounded in the participants' voices while directly addressing the study's aims. The chart serves as a bridge between the research design and the thematic narrative that follows.

Table 2

Organization of Research, Interview, and Follow-Up Questions With Respective Themes

Research Questions	Interview Questions	Theme(s)
RQ1: What are the levels of awareness and perception of AI among adult learners in adult education?	• Can you describe your current understanding of Artificial Intelligence (AI)? • Have you encountered AI technologies in your daily life or studies? If yes, can you share examples? • How do you feel about the idea of using AI in educational settings? • What do you think are the potential benefits or drawbacks of using AI in learning?	• Understanding AI in Everyday Life
RQ2: What factors shape adult learners' trust and acceptance of AI technologies in adult education?	• What factors would make you more likely to trust an AI tool or technology in education? • Have you ever used AI tools like chatbots or learning applications? How did they affect your trust in AI? • Do you think AI can improve your learning experience? Why or why not? • What concerns, if any, do you have about using AI in education?	• Building Confidence and a Growth Mindset Around Technology
RQ3: What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?	• What challenges do you think students face when using AI in education? • How would you describe your comfort level with using digital tools and technologies, and how do you think this affects your ability to use AI in education? • Do you feel you have enough knowledge or support to use AI tools effectively? Why or why not? • How do you think AI could help or hinder your preparation for the workforce? • Are there any cultural, technical, or other factors you believe make it harder for students like you to adopt AI?	• Willing to Learn, Waiting for Support • Personalized Empowerment Through AI
	Follow-Up Question/Reflective	**Theme(s)**
	• If you could design an AI tool for your learning, what features would you include? • What role do you think teachers or counselors should play in supporting adult school students' use of AI?	• Willing to Learn, Waiting for Support • Personalized Empowerment Through AI

Theme 1: Understanding AI in Everyday Life

This theme addresses Research Question 1: *What are the levels of awareness and perception of AI among adult learners in adult education?*

Participants' awareness and perceptions of AI were shaped by their day-to-day experiences, not formal instruction. AI was often described not in technical or educational terms but through its presence in routine tasks such as using phones, searching the web, or asking Alexa to play music. These descriptions align with the first research question, which explores how adult learners perceive and understand AI in the context of adult education. Many participants expressed a limited or general understanding of AI. One participant shared, *"AI is like robot-like technology, and there are different types of robots or technology. AI is in our computers and our phones."* Another reflected, *"When I think about AI, I think of robots. I think of robotic technology; for example, the pictures that come to mind are robots we see in movies and TV."* These views often emphasize AI as futuristic or mechanical rather than a tool embedded in everyday learning or work.

Still, several participants described their current use of AI tools, even if they did not initially identify them as such. One participant stated, *"I have used it through Google. I search for stuff I do on my personal time, and I use websites that I know use technology for school stuff."* Another student noted, *"I use AI on my phone with ChatGPT and in school with Blackboard. I use these applications to play specific music and to create stories for me to tell my son."* AI is woven into daily life for these students, but not always framed as part of their educational journey. Participants frequently mentioned voice assistants like Alexa. For example, one participant explained, *"I have Alexa in my room, so Alexa probably can do everything I want, like schedule an appointment, wake me up, or play me a song."* One participant admitted,

"I use voice assistants every day and do not really think about it. I did not know some of the stuff I used was considered AI until this interview."

These responses reflect a pattern of everyday interaction with AI that is practical yet largely unexamined. While students use AI tools in their personal lives, many do so without understanding these tools' broader significance or educational potential. From the perspective of the Technology Acceptance Model (TAM), this points to a disconnect between perceived usefulness and conceptual awareness. Students may find AI helpful in their routines, but have yet to transfer that perceived usefulness into intentional academic application. This insight represents an important opening for educators and counselors, indicating that students are not resistant to AI since they already use it. The challenge is to shift their awareness from passive interaction to intentional application. By naming and framing their existing digital behaviors, educators can expand students' understanding of AI as something they can use to grow personally and professionally, rather than viewing it as something that occurs in the background.

Theme 2: Building Confidence and a Growth Mindset Around Technology

This theme addresses Research Question 2: *What factors shape adult learners' trust and acceptance of AI technologies in adult education?*

Participants described a range of feelings regarding using AI and other digital tools. While some initially expressed uncertainty or hesitation, many described growing more comfortable, especially when the technology was relevant to their lives or received guidance. This progression revealed a broader mindset shift from fear of the unfamiliar to a willingness to try and learn. Confidence and trust are developed not through formal training alone but through repeated exposure, low-stakes exploration, and practical benefits. Several participants reflected on their initial reactions to AI. One shared, *"I was scared of it at first. But once I used it a few*

times, I realized it is not that bad. You just have to learn what it is for." Another participant echoed this process, saying, *"I did not really trust it at first because I did not know what it could do. But now I use it to help me with my writing, and it actually makes things easier."* This aligns with the TAM construct of perceived ease of use, as the student described how the tool became more approachable and less intimidating through direct use. Furthermore, these statements reflect the internal shift that can occur when learners are allowed to explore new tools at their own pace.

Many participants highlighted how specific tools helped them feel more confident. One student explained, *"I use Grammarly and other apps for spelling and grammar. It helps me feel more confident when I turn in my work."* Another participant said, *"I feel more comfortable now than I did before. I think using it more has helped me get used to it."* These experiences suggest that perceived usefulness, one of the core constructs of the Technology Acceptance Model (TAM), plays an important role in students' growing trust. Moreover, many participants demonstrated a growth mindset, expressing belief in their ability to learn and improve with effort. For example, several students shared that although they initially felt intimidated by AI, repeated exposure and support allowed them to develop confidence. The mindset of believing that ability can be developed over time is essential in adult education, where students often return to learning with past academic insecurities (Dweck, 2006). One student said, *"It saves me time, and I do not have to ask someone for help every time. Completing work on my own makes me feel more confident about what I am able to accomplish."* Others shared that when a tool helped them meet a personal or academic goal, their perception shifted from intimidating to empowering.

At the same time, participants acknowledged that building confidence required support. One student said, *"If someone shows me how to use it, I feel better. If I have to figure it out on my own, I get frustrated and just stop."* Another added, *"I think people like me can learn to use it. We just need time and someone patient to help us."* These comments highlight that acceptance is not just about the technology itself but also the learning environment and the encouragement students receive. The responses in this theme suggest that adult learners are open to engaging with AI when supported, when the tools are accessible, and when they can see the benefit. As their confidence grows, so does their willingness to try new technologies and adapt to unfamiliar systems. This shift reflects not just a change in skill but a developing growth mindset that views learning as an ongoing process.

These experiences underscore the importance of context, patience, and relevance when introducing AI in adult education. As students build confidence, they are more likely to take ownership of their learning and see AI as a supportive tool rather than something to fear. This mindset shift, which is moving from hesitation to exploration, lays the groundwork for deeper engagement. While this theme focused on how confidence and trust develop, the next theme explores what happens once that confidence is in place: how learners begin to use AI independently and personally to meet their academic and career goals. In other words, a growth mindset opens the door, but empowerment happens once students walk through it.

Theme 3: Personalized Empowerment Through AI

This theme addresses both Research Question 1: *What are the levels of awareness and perception of AI among adult learners in adult education?* and Research Question 3: *What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?*

Many participants described AI tools as helpful for completing tasks and building confidence, reducing dependency on others, and offering flexibility in when and how they learn. These tools were often seen as supportive, private, and empowering, especially when students felt unsure about asking for help or working through challenges in public settings. AI became a digital companion that students could turn to on their terms, helping them feel more in control of their learning process. One participant shared, *"I like that I can use Grammarly or Google Translate and not feel embarrassed if I make a mistake. It gives me time to fix things before I turn them in."* Another student described, *"Sometimes I use ChatGPT to help me write something or to explain something in a way I understand because it knows my ability and level of education. It is like having a tutor who does not judge me and can adjust to me."* These reflections illustrate how AI tools allowed learners to work independently while still receiving support, especially in writing or language use. Also, this reflects both perceived usefulness and ease of use, as the student found the tool flexible, supportive, and applicable to their unique learning needs.

Several participants emphasized AI's convenience and flexibility in their day-to-day lives. One participant explained, *"It helps when I'm working at night or early in the morning. I do not have to wait for help."* Another student echoed this sentiment: "*If I miss something in class, I can still try to figure it out with AI on my own time. It helps me keep up."* These responses reflect how AI tools extended learning beyond the classroom and gave students a sense of control over their time and pace. In some cases, these tools helped learners feel more prepared for future goals. One participant said, *"If I learn to use these tools now, it will help me at work later."* Another added, *"Technology is changing everything. It is good to learn now while I can get the help."* These forward-thinking perspectives show that students not only recognize the

immediate benefit of AI but also view it as a tool for long-term growth and readiness for the workforce.

While most students spoke positively about AI's support, some expressed concern about becoming overly dependent. One participant reflected, *"I do not want to rely on it for everything. I still want to learn on my own."* Another said, *"Sometimes I wonder if it is making me lazy. I use it a lot, but I also want to make sure I understand what I am doing."* These concerns highlight an important tension: While AI can foster independence, it can also raise questions about balance and ownership in the learning process. The participants' perspectives suggest that AI can be most empowering when it complements learning rather than replaces it. When students have access to tools that meet their unique needs and allow them to work through challenges at their own pace, they are more likely to take initiative, build skills, and see themselves as capable learners. These outcomes align with the Technology Acceptance Model's (TAM) concept of perceived usefulness, as students clearly expressed that AI helped them achieve their academic and personal goals.

Several participants connected their growing use of AI tools to long-term goals, particularly career readiness. One student shared, *"If I learn to use these tools now, it will help me at work later."* Another noted, *"Technology is changing everything. It is good to learn now while I can get the help."* These reflections show that learners viewed AI not only as academic support, but also as a way to prepare for evolving workforce demands. They described a desire to build digital confidence now, while support is available, so they could be more competitive and independent in future job settings. In addition to academic gains, students also recognized the value of transferable skills they were building through AI use, such as writing assistance, language translation, and independent problem solving. One participant explained, *"I use*

ChatGPT to help me understand things more clearly before asking the teacher. That helps me think more for myself." These skills, while developed in educational contexts, were seen as relevant beyond the classroom, for example, being useful in job training, workplace communication, and lifelong learning. As participants continued exploring these tools, they emphasized the importance of ongoing access and guidance to sustain progress and fully realize AI's potential to support their broader personal and professional goals.

Theme 4: Willing to Learn, Waiting for Support

This theme addressed Research Question 3: *What barriers limit the effective integration of AI to enhance learning outcomes and workforce readiness for adult learners?*

While participants expressed genuine interest in learning how to use AI, they also highlighted a significant gap in training, exposure, and institutional support. Most students described themselves as open and motivated to use AI tools, but shared that those opportunities to explore these technologies in their educational setting were limited or nonexistent. Their responses made it clear that curiosity and willingness are not the issue; instead, access, support, and clear guidance are. One participant stated, *"I want to learn more, but no one is really teaching it."* Another shared, *"If someone showed me how to use AI, I would definitely try it."* These responses reveal a disconnect between students' motivation and the support systems available to help them engage meaningfully with AI tools. In many cases, AI was never mentioned or demonstrated in class, leaving students to explore it independently or not at all.

Several students spoke about the difficulty of navigating technology without guidance. One participant said, *"If I have to figure it out on my own, I get frustrated and just stop."* Another said, *"I think people like me can learn it. We just need time and someone patient to help us."* These reflections highlight the emotional weight of self-teaching, especially for students

who are still building digital confidence. In addition to limited instruction, students pointed to broader challenges, such as language barriers, digital literacy gaps, and generational differences. One participant said, *"My first language is not English, so sometimes I do not understand the information or instructions I am getting."* Another added, "*Some of us are still learning how to use computers, and then AI comes in, and now I have to learn that too. It is a lot."* These highlights reflect a layered reality for many adult learners, where linguistic, cultural, and educational inequities compound technological barriers.

Students frequently emphasized the role of instructors, counselors, and peers in helping them navigate new tools. One student suggested, "I would like it if my teachers explained more about the tools we use." Another student said, *"Even spending just one day to learn how AI works would help me a lot."* Others described the value of peer support by saying, *"Sometimes I learn more from my classmates than from the school. We help each other figure it out."* Together, these responses indicate that students are not resisting AI but are waiting for someone to meet them where they are. They are willing to learn but cannot always move forward without encouragement and resources. From the Technology Acceptance Model (TAM) lens, this theme reflects the importance of facilitating conditions. Trust and adoption remain limited without institutional support, even when students perceive AI as applicable.

Participants consistently emphasized that access alone was not enough to support their learning with AI tools. Many expressed a need for ongoing guidance, opportunities to practice, and learning environments that accounted for their individual pace and comfort levels. Several participants noted that when support was available, whether from a teacher, counselor, or peer, they were more willing to try new tools and integrate them into their studies. Without this support, however, students shared that they often felt lost, frustrated, or unsure how to begin.

These reflections suggest that adult learners view successful AI use not just as a matter of having the technology, but of being supported in using it meaningfully. Their experiences reinforce the importance of learning conditions that align with their goals, life responsibilities, and digital skill levels.

Discussion

The findings from this study reveal that adult learners are already engaging with AI in their everyday lives, often unknowingly. While their willingness to use AI more intentionally is clear, meaningful integration depends on intersecting factors such as digital confidence, perceived usefulness, trust, and relevance to personal goals. These factors align closely with the Technology Acceptance Model (TAM), particularly the constructs of perceived ease of use, usefulness, and facilitating conditions (Davis et al., 1989; Masrom, 2007). Theme 1 showed that while many students used tools like Alexa, Grammarly, and ChatGPT, they didn't always identify them as AI. This highlights a gap between experience and conceptual understanding, which is a form of "functional awareness" without formal recognition. It aligns with prior research suggesting that digital familiarity doesn't always equate to digital literacy or fluency (Gupta & Ndahi, 2002; Jimoyiannis, 2015).

Themes 2 and 3 demonstrated that students' confidence and trust grew when tools felt relevant and easy to use. Participants were more likely to accept and benefit from AI when they saw tangible gains, such as improved writing or flexibility in learning, which maps directly onto TAM constructs. However, this growth often came from informal support or trial-and-error, not from structured instruction. This underscores the importance of building supportive environments where adult learners can explore AI at their own pace (De Fatima Goulo, 2014; Hammond & Feinstein, 2005). Theme 4 pointed to a significant barrier: while students were

willing to learn, they lacked structured opportunities, instruction, and culturally responsive support. Many described language barriers, generational divides, or uncertainty about where to begin. These findings emphasize that equity in AI adoption is not just about access; it's about scaffolding and support. From a TAM perspective, students may perceive AI as useful, but without guidance, perceived ease of use remains low, impeding adoption.

Ethical and cultural considerations emerged implicitly through students' concerns about accuracy, language accessibility, and over-reliance. Although participants didn't use terms like "bias" or "autonomy," their reflections revealed unease about whether AI was designed for learners like them. These concerns speak to the need for ethical implementation, emphasizing transparency, digital fairness, and cultural relevance. Notably, the interviews themselves serve as a form of digital literacy intervention. As students discussed tools they'd used, several expressed surprise at learning these were AI-powered. One said, "*I didn't even know Grammarly was AI until you asked.*" This kind of low-pressure, guided conversation shows that AI education could work well if it starts with real, person-to-person dialogue that meets students where they are. This study also highlights the broader tension between promoting equity through AI for adult learners and the larger challenges currently facing Diversity Equity & Inclusion (DEI) efforts in higher education. As institutions navigate debates about inclusive practices, AI adoption must be guided by equity-focused principles that address the unique barriers faced by this student population.

While most students spoke positively about AI's support, some expressed concern about becoming overly dependent. One participant reflected, "*I don't want to rely on it for everything. I still want to learn on my own.*" Another said, "*Sometimes, I wonder if it's making me lazy*." These concerns reveal a desire for balance, using AI as a supplement rather than a substitute for

learning. Others valued the privacy AI tools provided. One student shared that Grammarly allowed them to fix mistakes without feeling embarrassed. Another appreciated that ChatGPT let them ask questions without fear of judgment. These insights suggest that perceived anonymity and non-judgmental spaces play a role in adult learners' willingness to use AI. In future research, these could be explored further through TAM2's lens, which accounts for subjective norms and social influences (Milly et al., 2021), adding depth to the analysis of why learners adopt or avoid certain technologies.

These reflections on trust, judgment, and social comfort reveal that students' AI adoption is shaped as much by emotion and environment as by technical functionality. This brings us to a practical implication: tools like OpenAI EDU and others could integrate reflection-based prompts to help users recognize their existing engagement with AI. Rather than assuming prior knowledge, AI tools should begin with students' lived experiences, increasing perceived ease of use and usefulness through personalized discovery. This approach aligns with adult learning principles, building confidence while respecting learners' starting points. Ultimately, students in this study did not resist AI; they were navigating it. They want mentors, not just machines. Context, relationships, and relevance matter. Adult education must meet this moment with thoughtful, equity-driven implementation that supports not just access to tools, but trust, confidence, and connection.

Limitations of the Study

This study faced several limitations that could affect the generalizability of the findings. First, the sample size was small due to the qualitative nature of the research, limiting the scope of the conclusions compared to the quantitative methods. Second, the researcher did not account for participants' past experiences with educational settings outside of adult education programs,

which may have influenced their perceptions. Third, individual differences such as interpersonal skills, relationship-building abilities, and academic motivation levels were not factored into participants' selection. Additionally, demographic variables such as age, gender, socioeconomic status, and ethnicity were not a primary consideration. Lastly, the findings may be limited to adult education and not extend to other educational institutions, such as a four-year university.

Implications

The findings of this study carry important implications for educational practices and equity in adult learning environments. Although adult learners are already engaging with AI tools in informal ways, they require intentional support to apply these technologies effectively in academic and career preparation contexts. Educators and counselors must actively guide students, foster trust, and build digital confidence through culturally responsive, accessible instruction. These findings also highlight the importance of embedding AI literacy into digital skills programs, especially for underserved learners navigating multiple layers of access and language barriers. Future policies and curricula should prioritize equitable integration of AI to ensure all adult learners are prepared for an increasingly AI-integrated workplace.

Recommendations

Based on this study's findings, the following recommendations are offered to educators, counselors, program leaders, and policymakers who seek to support the integration of Artificial Intelligence (AI) into adult education settings. These suggestions are grounded in student experience, shaped by the Technology Acceptance Model (TAM), and informed by the need to make AI accessible and empowering for adult learners.

Connect AI to Familiar Tools and Daily Life

Adult learners are already using AI in personal contexts such ass tools like Grammarly, Google Translate, Alexa, and ChatGPT, however they do not always recognize these as learning resources. Instructors and counselors should make AI visible by naming and demonstrating these tools in educational settings. Connecting classroom content to tools students already use can build awareness and normalize AI as a part of their learning experience.

Promote a Growth Mindset Around Technology Use

Many participants described shifting from fear or doubt to confidence with repeated practice. Adult education programs should explicitly encourage a growth mindset by reinforcing the idea that tech literacy is not something students must already have but something they can build. Recognizing effort, celebrating progress, and providing patience can significantly improve student confidence.

Ensure Equitable and Culturally Responsive Access to AI

Barriers to AI use go beyond the technology itself. Language differences, limited digital literacy, and cultural unfamiliarity all contribute to student hesitation or exclusion. Programs should offer multilingual resources, culturally relevant examples, and flexible delivery models to ensure that AI integration is inclusive and responsive to the needs of diverse learners.

Leverage the Role of Counselors and Support Staff

Counselors are uniquely positioned to help students navigate uncertainty, build confidence, and connect digital learning to personal and career goals. Staff should be supported in learning how AI tools work so they can advocate for and guide students, especially those who are hesitant or unsure of where to begin. AI literacy should not be limited to instructors; it should be part of a whole-campus approach.

Integrate AI Into College and Career Readiness Programs

AI is becoming more common in workplace settings and job preparation platforms. Adult education programs should embed AI awareness and usage into workforce readiness curricula. This includes teaching students how to use AI tools for resume writing, job search strategies, industry-specific training, and self-directed learning beyond the classroom. AI tools should be included in communication, task management, training, and job search lessons. Adult learners need the confidence to use these technologies not just in class but also in interviews, on resumes, and in real workplace scenarios. Embedding these tools into instruction can help students become more familiar with the technologies they may encounter in job training programs, customer service platforms, healthcare systems, and office environments. Practical exposure to AI now allows learners to build workplace-relevant skills in a supportive, low-pressure environment.

Recommendations for Future Research

- Explore Educator and Staff Perspectives: While this study focused on adult learners, future research should examine how instructors and support staff view AI and what support they need to implement it effectively.
- Examine Long-Term Impact on Learning and Job Readiness: Longitudinal studies could assess how sustained exposure to AI tools influences adult learners' outcomes over time, including academic performance, self-efficacy, and employment success.
- Investigate AI trust and Cultural Influence: Future studies might explore how cultural backgrounds and prior experiences with technology affect trust in AI and openness to using it in educational settings.

- Consider applying TAM2, an extended version of the Technology Acceptance Model, incorporating social influence and subjective norms (Milly et al., 2021). These additional constructs can help explore how peers, instructors, and societal expectations affect adult learners' willingness to use AI tools. TAM2's inclusion of subjective norms and the concept of non-judgmental, anonymous tool use (such as asking questions without fear of being judged) is especially relevant to adult learners who may hesitate to ask for help in public learning environments. This framework would provide a deeper understanding of the social and emotional dynamics behind AI adoption in adult education.

Conclusion

This chapter presented the findings of a qualitative study that explored how adult learners perceive, engage with, and experience artificial intelligence (AI) within educational and everyday contexts. Guided by the Technology Acceptance Model (TAM), the study aimed to understand the factors influencing students' awareness, trust, and use of AI and the barriers to adopting these tools effectively. Through four emergent themes—(1) *Understanding AI in Everyday Life,* (2) *Building Confidence and a Growth Mindset Around Technology,* (3) *Personalized Empowerment Through AI*, and (4) *Willing to Learn, Waiting for Support*—the voices of adult learners highlighted both their motivation and the challenges they encounter when navigating AI in adult education.

While learners are not resistant to AI, their ability to use it confidently and meaningfully depends on the availability of relevant support, instruction, and opportunities to connect AI tools to their academic success and career readiness. These insights emphasize the importance of meeting adult learners where they are by recognizing their curiosity, honoring their capacity to grow, and providing sustained guidance as they develop digital confidence in increasingly tech-

integrated learning environments. Furthermore, the findings underscore the importance of preparing adult learners to engage with AI in academic settings and transfer these skills into professional environments. As AI continues to shape workplace expectations, adult education programs are responsible for ensuring that learners are equipped with the tools, adaptability, and confidence to navigate this evolving landscape.

Finally, the study highlighted the need to address cultural and ethical considerations in AI implementation. Although participants did not always articulate these issues explicitly, their responses pointed out concerns about transparency, digital fairness, and trust. For many, these factors influenced how AI was perceived and whether it felt like a helpful or alienating tool. As such, equity and ethical design must remain central to any approach seeking to integrate AI into adult education.

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