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Chalkboards to Chatbots: Helping Faculty Harness AI for the Future of Higher Education

Justin C. Grace
Regis University

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Justin C. Garcia-Grace

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Abstract

Integrating artificial intelligence (AI) into nursing education presented significant opportunities yet posed challenges due to varied faculty readiness. This Doctor of Nursing Practice (DNP) quality improvement (QI) project evaluated an educational intervention aimed at enhancing nursing faculty's AI proficiency and confidence at Regis University's Rueckert-Hartman College for Health Professions. Using a mixed-methods, pre- and post-intervention design, validated surveys assessed changes in faculty perceptions, knowledge, and skills related to AI. The intervention included a digital toolkit with nine instructional videos demonstrating practical AI applications using FreedAI's large language model, ChatGPT, supported by voiceover narration and closed captioning. Data analysis involved descriptive statistics, paired t-tests, Wilcoxon signed-rank tests, Cohen's *d* effect sizes, Pearson correlations, linear regression, ANOVA, and thematic qualitative analysis. Significant improvements were found in faculty comfort, confidence, knowledge, and openness toward AI adoption, with notable polarization in responses regarding ethical considerations and trust in AI's reliability. Limited gains in access to formal AI training highlighted ongoing preparedness gaps. Faculty trust in AI declined post-intervention, reflecting increased awareness of AI biases and limitations. Key qualitative concerns included ethical implications, workload demands, skepticism regarding AI accuracy, and the necessity for continued institutional support. This project **underscored** the importance of continuous, structured faculty development to integrate ethical and practical AI applications into nursing education effectively.

*Keywords***:** Artificial Intelligence, AI Literacy, Higher Education, DNP Project,

Copyright

Executive Summary

Problem
Artificial intelligence (AI) is rapidly transforming higher education, yet faculty adoption remains inconsistent due to generational gaps, limited exposure, and concerns about academic integrity. This reluctance contrasts with students' technological proficiency, creating a widening disconnect between instructional methods and modern learning tools. This project examined whether a digital educational toolkit could strengthen faculty competencies and promote a supportive environment for AI integration in higher education.

Purpose
This quality improvement (QI) DNP project evaluated AI-related knowledge, skills, and attitudes among faculty at a single higher education institution. Baseline data identified levels of utilization, readiness for adoption, and perceived barriers to AI integration.

Goals
The primary goal was to implement a digital educational toolkit introducing faculty to large language models (LLMs) as a specific subset of AI. The project also aimed to assess the toolkit's effectiveness in shaping faculty attitudes and improving technological preparedness for integrating AI tools into teaching and professional practices.

Objectives
Project objectives focused on measuring changes in faculty attitudes and knowledge by analyzing pre- and post-intervention survey responses. Surveys assessed perceptions of AI, readiness for adoption, and perceived barriers within instructional practices.

Plan
A mixed-methods approach combined quantitative surveys with a single, qualitative open-ended response. Purposive sampling targeted a diverse faculty group. The digital toolkit included training videos, institutional AI policies, application guides, and real-world strategies. Data were analyzed using statistical methods to measure literacy gains and thematic analysis to evaluate faculty experiences.

Outcomes and Results
Findings revealed a statistically significant shift in faculty perceptions of AI ($p < 0.05$). Post-intervention responses showed improved confidence using AI tools alongside heightened caution regarding academic integrity, workload demands, and ethical considerations. These results underscore the need for structured professional development and institutional support to facilitate responsible AI adoption in higher education.

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Advancing Faculty Development for AI Integration

In the rapidly evolving landscape of technological advancement, artificial intelligence (AI) has emerged as a driving force, fundamentally transforming the way we live, work, and learn. This revolutionary technology, with its ability to analyze complex data and perform tasks that once required human cognition, is reshaping societal functions and redefining human interactions (Luckin et al., 2016). The educational sector, far from being immune to these profound changes, faces significant challenges and opportunities as AI technologies such as Freed AI's *ChatGPT* become increasingly accessible tools for learners and educators alike (Holmes et al., 2019). These AI-driven innovations permeate the educational landscape, holding the potential to revolutionize teaching and learning practices, ushering in a new era of personalized, adaptive, and data-driven education. Integrating AI in education promises to enhance student engagement, optimize learning outcomes, and equip learners with the skills necessary to thrive in an increasingly technology-driven world.

However, the adoption of AI in education also raises important questions about the role of educators, the ethics of AI implementation, and the potential impact on student privacy and autonomy. As we stand on the precipice of this transformative shift, educators, policymakers, and researchers must work together to navigate the challenges and harness the opportunities presented by AI in education, ensuring the principles of equity and accessibility guide its integration and the enhancement of human potential.

Background

The integration of AI into educational settings marks a transformative shift in pedagogical practices, redefining how knowledge is disseminated and acquired. As large language models (LLMs) such as ChatGPT continue to advance, they offer increasingly sophisticated capabilities, including multimodal interactions, real-time feedback, and domain-specific expertise, pushing the boundaries of adaptive learning beyond what was previously imagined (Holmes et al., 2019). These innovations enable AI-driven educational tools to function as dynamic collaborators in learning-- providing personalized, context-aware instruction tailored to individual student needs.

The synergy between AI and traditional teaching methodologies is fostering a new academic landscape in which digital-native learners not only expect but actively seek out personalized experiences (Luckin et al., 2016). AI-powered systems leverage machine learning and natural language processing to offer real-time, adaptive feedback, refine student engagement strategies, and scaffold learning through intelligent tutoring systems (Popenici & Kerr, 2017). The introduction of multimodal AI—capable of interpreting text, speech, images, and even video—further enhances accessibility and inclusivity, ensuring that learners with diverse needs, including those with disabilities, can benefit from tailored instructional support (Hwang & Tu, 2021). These advancements position AI as a pivotal tool in fostering equitable learning experiences and breaking down barriers to education.

Despite these promising developments, concerns persist regarding AI's impact on creativity, critical thinking, and intellectual autonomy within academic spaces. The role of human educators remains irreplaceable in cultivating essential cognitive skills such as ethical

reasoning, abstract problem-solving, and creative innovation—areas in which AI remains a tool rather than an independent agent of thought (Zhai et al., 2021). Recent debates highlight the potential risks of over-reliance on AI-generated content, where efficiency gains may inadvertently erode original thought and intrinsic motivation in students (Kane & Radosevich, 2011). Moreover, the rise of AI-generated work challenges academic integrity, prompting institutions to refine policies on authorship, plagiarism detection, and responsible AI usage.

As AI capabilities evolve, faculty in higher education must navigate the fine balance between harnessing AI's potential and preserving the integrity of human cognition. The emergence of generative AI, with its ability to produce highly sophisticated outputs, raises fundamental questions about intellectual ownership, originality, and the role of human oversight in AI-assisted learning. Faculty must critically evaluate and integrate AI technologies in ways that reinforce-- not replace the intrinsic human elements of education, such as mentorship, emotional intelligence, and the ability to inspire curiosity-driven learning (Zheng et al., 2018).

This necessitates a forward-thinking approach to curriculum design, one that redefines educational objectives while maintaining a steadfast commitment to academic excellence. In this evolving landscape, AI should be framed not as an autonomous entity but as a co-pilot in education-- enhancing, rather than diminishing, the role of the educator. The next frontier of AI integration in education will depend on the strategic and ethical considerations of its implementation, ensuring that it serves as a catalyst for innovation without compromising the essence of scholarly exploration and critical inquiry.

Problem Statement

Against this backdrop, there is a palpable reluctance among higher education faculty to adopt AI, characterized by generational gaps in technology acceptance and a lack of foundational exposure (Zheng et al., 2018). This resistance contrasts sharply with today's students' inherent technological adeptness, resulting in an educational dissonance that must be addressed. Therein lies the impetus for educational interventions to improve faculty AI competencies and create an environment where technology is viewed as an enabler rather than a disruptor (Ertmer & Ottenbreit-Leftwich, 2010).

The Doctor of Nursing Practice (DNP) is critical in bridging this gap. DNPs, with a foundation rooted in clinical excellence and academic leadership, are uniquely positioned to integrate AI into nursing education. Improving faculty readiness for AI can prepare future nurses to navigate the technological frontier of healthcare. As AI makes its lasting mark on various spheres of society, its integration into the academic domain represents a significant evolutionary step in teaching and learning. The proliferation of AI tools including ChatGPT indicates the shifting landscape, suggesting an enhancement of traditional instructional methodologies. Introducing these advanced technologies in the classroom offers novel opportunities for personalized and adaptive education, fundamentally redefining the educational journey for students and educators alike.

Purpose

The primary purpose of this QI project is to comprehensively evaluate the current state of AI competencies among faculty members in one higher education institution. By examining the baseline knowledge, skills, and attitudes related to AI, this project aimed to identify the existing

levels of AI utilization, readiness for adoption, and potential barriers to AI integration within the faculty. The insights gained from this assessment will serve as a foundation for informing and developing targeted, educational interventions to enhance faculty proficiency in AI and foster a more receptive and adaptable educational ecosystem (Chassignol et al., 2018). In the rapidly evolving landscape of technological advancement, AI has emerged as a driving force, fundamentally transforming how we live, work, and learn. Far from being immune to these profound changes, the academic sector faces significant challenges and opportunities as AI technologies such as LLMs become increasingly accessible and powerful tools for learners and educators (Holmes et al., 2019). This QI project provided a thorough analysis of the impact of AI on education, exploring both the opportunities and challenges it presents.

Central to this project is the overarching research question: *Can a strategically designed educational intervention improve higher education faculty's AI competencies and foster an environment responsive and adept at incorporating AI technology*? By exploring this question, the project seeks to provide evidence-based recommendations for faculty development initiatives that can enhance AI literacy, promote positive attitudes toward AI adoption, and ultimately drive the successful integration of AI in nursing education. As digital technologies become an integral part of our daily lives, influencing how we communicate, behave, and seek information, it is crucial for educational institutions to adapt and incorporate these advancements into their curricula (Chassignol et al., 2018).

Significance

This project is significant because it addresses the critical need to align faculty abilities with the evolving digital landscape and the expectations of today's tech-savvy students. As AI continues to reshape various aspects of society, including education, faculty members must be

equipped with the necessary knowledge and skills to incorporate AI technologies effectively into their teaching practices. By assessing faculty readiness and attitudes toward AI, this project aims to bridge the gap between AI adoption in higher education and the desired future state of seamless integration.

The significance of this project lies in its timely contribution to the evolving discourse on AI in higher education. Rather than viewing AI as a threat to academic integrity or human creativity, this project reframes it as a powerful adjunct that can enhance critical thinking, streamline administrative tasks, and support pedagogical innovation. As faculty navigate this technological shift, the project serves as a practical roadmap for integrating AI into educational frameworks while preserving the essential human elements of mentorship, empathy, and clinical judgment. The outcomes of this quality improvement initiative are expected to influence institutional policy, inform strategic faculty development efforts, and cultivate a more technologically competent academic workforce (Chassignol et al., 2018; Holmes et al., 2022). By equipping nursing educators with foundational AI literacy and application skills, the project strengthens the profession's capacity to adapt to a rapidly digitizing healthcare environment, ensuring students are prepared for contemporary clinical realities (Topol, 2019).

Literature Review

A rigorous and comprehensive literature review was conducted to explore the intersection of AI and higher education, guided by Melnyk and Fineout-Overholt's (2019) evidence hierarchy (Table 1). This framework enabled a structured synthesis of research spanning Level I evidence, such as systematic reviews and meta-analyses, to Level VII expert opinions, ensuring a nuanced and multi-dimensional foundation for the project. The review not only identifies prevailing

trends but also surfaces critical theoretical underpinnings, including nursing leadership frameworks and pedagogical models relevant to technology adoption.

The search strategy included CINAHL, PubMed, MEDLINE, and Google Scholar, with terms like “ChatGPT,” “large language models,” “AI in education,” and “faculty readiness.” Peer-reviewed sources were prioritized, while non-empirical or outdated publications were excluded. This methodical approach yielded a curated and evolving database of highly relevant literature, establishing the empirical bedrock for the intervention. Thirty-five pieces of literature were included in the final report. The findings revealed an academic landscape both energized and unsettled by the rise of AI.

Emerging themes across the literature included the transformation of instructional design (George & Wooden, 2023), ethical implications (Zhai et al., 2023), and the urgent need for tailored faculty development initiatives (Kanwal et al., 2023). Importantly, studies by Wang et al. (2021) and Popenici and Kerr (2017) identify institutional readiness and leadership support as critical enablers of successful adoption. The literature also underscores that AI is not a monolith—its impact is mediated by generational learning preferences (Chan & Lee, 2023), disciplinary context, and technological infrastructure.

Collectively, these insights support the implementation of a doctoral-level QI project focused on AI literacy and capacity-building within higher education. Such a project aligns with global calls for change management frameworks, like Lewin’s model, to ensure a human-centered transformation (Smolansky et al., 2023; Topol, 2019). As education enters a new era, AI must be approached not as a replacement for human insight, but as a complement that enhances pedagogy, fosters equity, and future-proofs academic practice. This review lays the

groundwork for institutions to adopt AI in a manner that is ethical, evidence-informed, and contextually adaptive.

Themes

Student Learning and Perception

Research consistently highlights the growing acceptance of AI tools like ChatGPT among students, who view these technologies as supportive rather than disruptive to their academic journeys. Ilieva et al. (2023) found that generative AI can enhance student engagement and improve comprehension by providing personalized feedback and fostering active learning. Onal and Kulavuz-Onal (2023) described AI's role in transforming the educational experience by increasing learner autonomy and access to just-in-time support. Ali et al. (2023) further demonstrated that ChatGPT boosts student motivation by offering immediate, low-stakes learning assistance, which can be especially beneficial for students who are hesitant to seek help in traditional classroom settings. These findings collectively support the idea that AI, when appropriately integrated, can improve both learning outcomes and student satisfaction.

Faculty Attitudes

Faculty attitudes toward AI in education are complex and often shaped by personal philosophy, disciplinary norms, institutional culture, and broader societal narratives about technology. Rather than a uniform response, faculty perspectives range from curiosity and cautious optimism to deep skepticism and ethical concern (Iqbal, Ahmed, & Azhar, 2022). Some educators view AI as a tool that can streamline tasks like grading, feedback, or content generation, allowing more time for relational teaching and mentoring. Others fear it undermines academic integrity, diminishes critical thinking, or disrupts traditional pedagogical authority.

Importantly, these attitudes are often rooted not in technological illiteracy, but in philosophical commitments to the purpose of education. For example, faculty in the humanities and nursing—fields rooted in interpretation, ethics, and human connection—may express more hesitation than those in computational or quantitative disciplines (Onal & Kulavuz-Onal, 2023). The perception of AI as either an opportunity or a threat is also shaped by institutional messaging and support; when AI is framed as a collaborative tool rather than a replacement, receptivity increases (George & Wooden, 2023).

Resistance, where it occurs, often stems from deeper concerns about surveillance, equity, and erosion of academic autonomy (Watters, 2023). These anxieties are not unfounded. Studies show that top-down implementations of educational technology without faculty input can result in disengagement or performative compliance (Holmes et al., 2022). To address this, institutions must foster transparent dialogue, co-create AI adoption strategies with faculty, and explicitly acknowledge the tensions and values at play.

Transforming faculty attitudes toward AI requires more than training—it requires cultural change. Drawing on Lewin's Change Theory, Kanwal, Hassan, and Iqbal (2023) argue that meaningful adoption unfolds in stages: unfreezing long-held beliefs, introducing new models through experimentation, and refreezing when attitudes shift through positive, supported experiences. This process, however, is deeply personal and institutionally contingent. Respecting that process and grounding it in faculty agency is essential to building sustainable engagement with AI in higher education.

Pedagogical Adaptations

Integrating AI into education is not merely about adopting new tools—it necessitates a fundamental shift in pedagogy. Zhai et al. (2023) underscored the importance of redesigning

curriculum and instructional strategies to align with AI-augmented environments. George and Wooden (2023) argued that educators must move beyond static lectures and embrace dynamic, learner-centered approaches that leverage AI's potential to personalize content delivery. In practice, this might include AI-assisted assessments, adaptive quizzes, or feedback mechanisms. Smolansky et al. (2023) showed that when used for tasks like essay scoring, AI can improve efficiency and consistency, allowing instructors to focus on higher-order feedback and mentoring relationships.

Individual Characteristics Impacting Adoption/Use

Adoption of AI tools in educational settings is shaped not only by institutional factors but also by individual characteristics such as age, digital fluency, and openness to pedagogical change. Generational differences in technology use are particularly influential. Younger faculty, who are often digital natives, tend to demonstrate greater comfort and curiosity when engaging with AI tools, whereas older faculty may be more cautious, especially if such tools were not part of their professional training or academic formation (Chan & Lee, 2023).

These trends are evident in nursing education. According to the American Association of Colleges of Nursing (2023), the average ages of doctorly prepared nurse faculty are 61.2 years for professors, 55.6 years for associate professors, and 49.6 years for assistant professors. For master's-prepared faculty, the average ages are similarly elevated, ranging from 47.5 to 55 years. These figures indicate that a significant portion of the nurse educator workforce is nearing retirement, a demographic reality that may impact the speed and ease with which AI tools are embraced in nursing curricula.

Similarly, the broader higher education landscape reflects this age-related trend. A report from the College and University Professional Association for Human Resources (CUPA-HR) notes that the median age for tenure-track faculty in the U.S. is approximately 49 years, with nearly 36% of full-time faculty aged 55 or older (CUPA-HR, 2020). This aging faculty profile presents both a challenge and an opportunity: while some may be less inclined to adopt emerging technologies without robust support, others bring deep pedagogical insight that can help frame the ethical and thoughtful use of AI in education.

Understanding these generational nuances is critical for designing inclusive and responsive AI integration strategies. Institutions may benefit from developing tiered support models, offering tailored professional development, and fostering intergenerational mentorship, where early-career faculty collaborate with more seasoned educators to explore AI-enhanced teaching practices. Recognizing and addressing these variations in readiness ensures that AI adoption is equitable, ethical, and empowering across the academic spectrum. Understanding these age-related dynamics is crucial for developing effective strategies to promote AI adoption.

Tailored professional development programs that address the specific needs and concerns of different age groups can facilitate smoother transitions. For instance, offering mentorship opportunities where tech-savvy younger faculty assist their senior colleagues can foster a collaborative environment conducive to technological integration. Moreover, recognizing the value of diverse perspectives across generations can enrich the educational experience. By leveraging the experience of seasoned educators and the technological proficiency of younger faculty, institutions can create a balanced approach to AI adoption that benefits both educators and students.

Ethical Considerations

The ethical ramifications of integrating AI into education must also be carefully considered. Ethical considerations are critical since AI applications in education process sensitive student data and may impact learning patterns and outcomes. As Watters (2023) notes, defining moral standards for applying AI tools can guarantee their responsible use and the preservation of students' autonomy and privacy. This entails transparent data handling, preventing bias in AI algorithms, and ensuring AI augments rather than replaces the essential human components of teaching and learning. Furthermore, all students should have equal opportunities due to the inclusive integration of AI into education. This means that AI tools have to be designed with various learning needs and learning styles in mind and accessibility for students with disabilities. In AI-augmented education, educators must engage in ongoing professional development. They need constant training and support to stay current with artificial intelligence's rapidly advancing capabilities.

Professional Development

As new AI tools continue to emerge, faculty must engage in continuous learning to align technology use with meaningful pedagogical goals. Rather than focusing solely on technical proficiency, training should emphasize critical application—helping educators integrate AI in ways that enhance student engagement, assessment, and learning outcomes (Chen & Lim, 2023). Effective programs are those that are discipline-specific, collaborative, and sustained. When faculty see how AI can support rather than disrupt their teaching philosophy, they are more likely to adopt it constructively (Holmes et al., 2022). Faculty learning communities and innovation hubs are promising models that foster experimentation, peer support, and reflective practice (George & Wooden, 2023). Moreover, educators must be equipped to evaluate the ethical and

equitable use of AI tools in the classroom. This includes awareness of algorithmic bias, data privacy, and accessibility—issues central to responsible AI adoption. Institutions that invest in thoughtful, values-driven faculty development signal a commitment to both academic excellence and technological leadership.

Project Plan and Evaluation

Methodology

The QI project incorporated a mixed-methods approach utilizing a pre- and post-educational in-service survey design. This methodology was selected to effectively capture measurable changes in faculty understanding of AI principles, attitudes toward AI, and practical abilities to integrate AI into teaching and productivity tasks. The core intervention consisted of a digital toolkit designed specifically for faculty use, accessible via a secure, university-hosted website (Appendix E). The toolkit included instructional videos demonstrating practical applications of AI technologies relevant to higher education. Specifically, the toolkit featured nine, short instructional videos ranging between 7-10 minutes each, ensuring concise, focused content easily integrated into faculty schedules. The video topics included:

1. Introduction to Artificial Intelligence in Higher Education
2. Foundations of AI Literacy: Understanding Large Language Models (LLMs)
3. AI for Course Design: Rubrics, Assignments, and Learning Objectives
4. AI in Grading and Feedback: Efficiency without Losing the Human Touch
5. Boosting Faculty Productivity with AI: Administrative and Research Applications
6. Enhancing Student Engagement: Novel AI Teaching Strategies
7. AI for Personalized Learning and Adaptive Assessment

8. Ethical and Legal Considerations in AI Use
9. Implementing AI at the Institutional Level: Change Management and Faculty Development

Faculty accessed the toolkit independently over a four-week intervention period, allowing flexibility to revisit materials as needed. Detailed instructions accompanied each video to enhance user experience and learning efficacy. A representative screenshot of the toolkit's main interface is provided in Appendix E. The pre- and post-intervention surveys assessed the toolkit's impact, measuring faculty perceptions and self-reported competencies before and after the intervention. Unlike traditional research, this QI project emphasized practical implementation, aiming directly at improving educational methods through tangible faculty development. This practical orientation was informed by Ertmer and Ottenbreit-Leftwich (2010) and Teo (2009), who demonstrated the critical role of technical proficiency and institutional support in the successful adoption of educational technologies.

Sampling

Purposive sampling was utilized to select participants. focusing specifically on obtaining relevant and representative data from a targeted population (Patton, 2015). Participants were exclusively selected from the Rueckert-Hartman College for Health Professions (RHCHP) at Regis University, encompassing higher education faculty members employed in full-time or part-time capacities who were actively teaching in their respective disciplines at the time of the project. This targeted sampling approach was chosen to ensure that the data would reflect the direct experiences and attitudes of faculty actively engaged in teaching and integrating educational technologies (Etikan, Musa, & Alkassim, 2016). The sample size determination was

guided by an a priori power analysis, conducted using parameters including estimated effect size, alpha level (set at 0.05), and intended statistical power (targeted at 0.80 or higher), aligning with established methodological standards for educational research (Faul et al., 2009; Cohen, 1988). This method ensured adequate participant representation, facilitating robust and statistically significant findings pertinent to the project objectives.

Data Collection

The data collection process was conducted through an online survey platform to facilitate ease of access and convenience for participants (Sue & Ritter, 2012). Data was anonymized by having participants create a unique identification code during the pre-intervention phase, ensuring confidentiality throughout the data collection and analysis processes while preserving the ability to pair the data from pre to post. Participants first encountered an informed consent screen, which required acknowledgment before proceeding to the main survey questions. The survey was structured into distinct sections aligned with the thematic elements of the study, such as the impacts of AI on student learning and perception, faculty attitudes and competency, pedagogical adaptations, and individual characteristics affecting AI adoption and use. Regression analysis was employed to examine factors influencing faculty attitudes toward AI integration, a method widely recommended for educational research (Field, 2013). This comprehensive approach captured diverse faculty perspectives, enabling an in-depth analysis of AI's pedagogical implications within higher education contexts (George & Wooden, 2023).

Human Subjects Protection

A paramount responsibility is the protection of human subjects involved in this project. This commitment involves adhering to established ethical standards, obtaining informed consent

from all participants, ensuring the confidentiality and privacy of the data collected, and minimizing any potential risks associated with participation.

Informed Consent Process

To ensure informed consent, a comprehensive informed consent form was developed, which participants reviewed and agreed to before participating in the study. This form detailed the purpose of the study, the procedures involved, potential risks and benefits, and the measures taken to protect participant confidentiality. The informed consent form was included as the initial screen of the online survey, where participants must agree and click forward to continue.

Recruitment Process

The recruitment process involved disseminating a recruitment flyer via email to potential participants. This flyer included a brief overview of the study, eligibility criteria, and a link to the online survey. The email also contained detailed instructions on how to participate, emphasizing the voluntary nature of the study and the right to withdraw at any time.

Institutional Review Board (IRB) Process

The project proposal was submitted to the Institutional Review Board (IRB) for review and determined to be quality improvement (QI). This step ensured the study, even though not considered to be research, complied with federal, state, and institutional policies regarding ethical research practices. The IRB process involved the study's methodology, informed consent process, and measures to protect participants' rights and well-being.

Continuous Monitoring and Ethical Safeguards

Throughout the project, continuous monitoring was implemented to address any ethical concerns and make necessary modifications to maintain the highest standards of human subject

protection. This included regular check-ins with participants to ensure their comfort and safety, as well as prompt responses to any issues or concerns that arose during the study.

Data Analysis

Analysis of Quantitative Information

Quantitative data were collected through pre- and post-intervention surveys to assess changes in faculty attitudes and knowledge regarding artificial intelligence. Paired t-tests were conducted to compare the mean scores within the same faculty group before and after the intervention, allowing for the evaluation of the intervention's impact on faculty perceptions and competencies (Warner, 2013). Additionally, regression analyses were performed to explore potential relationships between specific faculty characteristics, such as age, years of teaching experience, faculty rank, and their attitudes toward artificial intelligence technologies (Field, 2013). These statistical methods were specifically selected due to their robust capability to identify influential factors affecting the outcomes of educational interventions and to effectively measure the intervention's overall efficacy.

Analysis of Qualitative Information

The thematic analysis process involved several key stages. Novel codes were generated by identifying and labeling meaningful segments of the text that captured relevant features or ideas related to the research questions (Braun & Clarke, 2006). Once the data were coded, themes were collated into potential patterns or categories. This stage involved actively constructing themes that reflected the dataset's most salient and recurring ideas. The themes were then reviewed and refined to ensure they formed a coherent and meaningful narrative that addressed the research questions and represented the faculty members' experiences.

Following the refinement of themes, they were formally defined and named to capture the essence of each theme and its significance within the context of the project. A comprehensive report of the thematic analysis was developed, using illustrative examples and quotations from the open-ended responses to support the findings and interpretations. The qualitative findings complemented and enriched the quantitative results, providing a more holistic understanding of the impact of AI in-services on faculty knowledge, attitudes, and practices. The insights gained from the thematic analysis contributed to the growing body of knowledge on AI integration at Regis University and informed the development of targeted faculty development initiatives. By giving voice to the experiences and perspectives of faculty members, this qualitative approach helped identify areas for improvement, best practices, and potential barriers to the successful implementation of AI technologies in teaching and learning at Regis University. This project aimed to enhance faculty readiness and adaptability, ultimately supporting more effective integration of AI tools in educational practices.

Project Findings and Results

A total of 31 faculty members from Regis University's RHCHP participated in the pre-assessment survey, with 27 completing both the pre-and post-intervention surveys**.** Participants represented diverse academic disciplines within the health sciences, with 17 faculty members from nursing, 3 from physical therapy, 5 from pharmacy, and 2 from counseling/family therapy**.** No participants were from the health services education department. The age distribution included four participants aged 25-34, seven aged 35-44, seven aged 45-54, seven aged 55-65, and two aged 65 or older**.** Gender representation was predominantly female, with 20 women and 7 men. In terms of racial and ethnic background, four participants identified as Black or African American, two as Hispanic or Latino, one as Asian, and the majority (20) as White/Caucasian**.**

Regarding teaching experience, seven faculty members reported being in education for 1-5 years, eight for 6-10 years, ten for 11-19 years, and two for twenty years or greater. Baseline survey results indicated a low-to-moderate level of AI literacy among faculty members. While 45% of participants reported some familiarity with AI applications in education, only 22% had actively integrated AI tools into their teaching. The most frequently cited concerns regarding AI adoption included academic integrity risks (63%), increased workload and time investment (48%), lack of institutional guidance or training (52%), and ethical and privacy concerns (41%). Despite these apprehensions, 74% of faculty expressed interest in learning more about AI and believed that, when used responsibly, AI could positively impact student learning.

Following the implementation of the digital educational toolkit, faculty demonstrated statistically significant improvements in AI literacy and confidence. **A** paired t-test revealed a significant increase ($p < 0.05$) in faculty self-reported AI knowledge, skills, and attitudes. Notably, there was a 37% increase in AI tool identification and application knowledge, **a** 42% improvement in faculty confidence using AI for lesson planning, and a 31% growth in understanding ethical considerations and bias in AI. Additionally, faculty exhibited a 50% increase in their willingness to integrate AI into future teaching practices. A Wilcoxon signed-rank test confirmed a shift in faculty perceptions from skepticism to cautious optimism, while Cohen's *d* effect size (0.68) suggested a moderate-to-large impact of the intervention on AI literacy gains.

Qualitative analysis of open-ended responses provided further insights into faculty experiences with the digital toolkit. Three dominant themes emerged from the data. The first theme, increased AI awareness and skill development, highlighted how faculty gained practical insights into AI's potential. Many participants expressed surprise at AI's utility beyond simple

automation, with one faculty member stating, *"I didn't realize how much AI could streamline grading and lesson planning. I now see it as a tool rather than a threat."*

The second theme, persistent ethical and institutional barriers**,** reflected ongoing concerns about student misuse of AI, ethical implications, and the absence of clear institutional policies. Many faculty members remained uncertain about how to implement AI responsibly without inadvertently contributing to plagiarism or over-reliance on automation. The final theme**,** desire for continued professional development**,** underscored faculty interest in further AI training. Some participants requested follow-up sessions to explore advanced AI applications, with one faculty member noting, *"This intervention was helpful, but I'd love to see a follow-up session that dives deeper into AI-powered assessment tools."*

Overall, the findings indicate that faculty gained confidence in using AI for lesson planning and assessment**,** though ethical concerns**,** workload demands, and the lack of institutional policies remained major barriers to widespread adoption. The difference in participant numbers between the pre- and post-surveys highlights potential attrition factors, such as time constraints or competing priorities, which should be considered in future faculty development initiatives. Participants expressed a strong interest in continued AI training and faculty development opportunities**.** These findings align with Rogers' Diffusion of Innovations Theory**,** suggesting that early adopters within the faculty are more willing to experiment with AI, while late adopters remain hesitant due to institutional challenges and ethical uncertainties**.** This project underscores the importance of structured faculty development initiatives in fostering AI proficiency and addressing barriers to adoption, ultimately supporting the integration of AI within higher education.

The findings of this study reveal both the transformative potential and persistent challenges of AI integration in higher education. The pre-intervention data indicated low-to-moderate AI literacy among faculty, with only 22% actively using AI in their teaching, despite 45% reporting familiarity with AI tools. This gap between awareness and application suggests that knowledge alone is not enough to drive adoption—faculty require structured guidance, institutional support, and clear frameworks for ethical AI integration. The most significant barriers cited, including academic integrity concerns (63%), increased workload (48%), and lack of institutional guidance (52%), highlight a broader institutional hesitation to embrace AI without well-defined policies and safeguards. These concerns reflect patterns seen in prior research, which suggests that faculty often perceive emerging technologies as a double-edged sword—offering efficiency but also introducing new complexities in pedagogy, assessment, and ethics.

The post-intervention data demonstrate a statistically significant shift in AI knowledge, confidence, and willingness to integrate AI tools into teaching. Faculty who participated in the digital toolkit intervention showed a 37% increase in AI tool identification, a 42% rise in confidence using AI for lesson planning, and a 50% increase in willingness to integrate AI into future instruction. The moderate-to-large effect size (Cohen's $d = 0.68$) further supports the conclusion that structured faculty development initiatives can meaningfully accelerate AI adoption. However, this shift was not uniform—while early adopters demonstrated enthusiasm and readiness for further AI engagement, others remained hesitant, reinforcing the phased adoption model proposed by Rogers' Diffusion of Innovations Theory. Faculty members with more years of teaching experience were more likely to express skepticism, consistent with the

theory that those more entrenched in traditional pedagogy often require additional institutional reassurance and peer-driven models of AI integration.

The Technology Acceptance Model (TAM) provides further insight into faculty adoption patterns. The findings suggest that perceived usefulness and ease of use are central to AI acceptance—faculty who experienced AI in action during the intervention were significantly more likely to report openness to adoption. This reinforces previous studies indicating that direct exposure to AI applications within a discipline increases its perceived relevance and reduces apprehension. However, while confidence in AI applications improved, ongoing concerns regarding ethical implications and institutional policies indicate that exposure alone is insufficient—AI adoption must be coupled with clear policy frameworks that address faculty concerns regarding plagiarism, automation, and biases in AI-generated content.

Faculty narratives provided critical insight into shifting perceptions. Pre-intervention, many respondents associated AI with academic dishonesty, depersonalized teaching, and increased workload, reflecting a defensive stance toward emerging technologies. However, post-intervention responses demonstrated greater recognition of AI's practical benefits, including streamlining grading, enhancing formative assessment, and supporting faculty workload management. Faculty who engaged with hands-on AI applications were less likely to view AI as a threat and more likely to describe it as a tool to enhance, rather than replace, human expertise. This shift underscores the power of experiential learning in overcoming resistance to new technologies—a theme that should inform future AI training models.

Despite these advancements, many faculty expressed frustration at the absence of institutional policies defining appropriate AI use, leading to inconsistent applications and uncertainty about best practices. Without university-wide guidelines, AI implementation risks

becoming fragmented, inequitable, and vulnerable to misuse. This highlights a critical gap between faculty readiness and institutional preparedness—faculty may be willing to integrate AI, but without clear policies and leadership support, adoption will remain uneven and tentative.

These findings underscore the paradox of AI in higher education. It is both an enabler of innovation and a disruptor of traditional academic norms. While this project demonstrated that structured interventions can accelerate AI literacy and adoption, it also revealed perceived concerns that cannot be resolved through training alone. The next steps in AI integration must go beyond individual faculty readiness and address systemic barriers at the institutional level. AI's role in education will be determined not just by its capabilities, but by the willingness of academic institutions to provide the structure, policies, and support systems necessary for responsible and effective implementation.

The findings from this project demonstrate that faculty members within Regis University's RHCHP experienced significant improvements in AI literacy, confidence, and willingness to integrate AI tools into their teaching following the digital toolkit intervention. The pre-intervention survey highlighted a low-to-moderate level of AI familiarity, with only 22% of faculty actively using AI in their teaching despite 45% reporting some prior exposure. Faculty members' primary concerns about AI adoption included academic integrity risks (63%), increased workload (48%), lack of institutional guidance (52%), and ethical/privacy considerations (41%).

Post-intervention data indicated a significant increase in AI-related knowledge and confidence across multiple domains, including a 37% increase in AI tool identification, a 42% rise in confidence in using AI for lesson planning, and a 50% increase in willingness to integrate AI into future teaching practices. The intervention had a moderate-to-large effect size (Cohen's *d*

= 0.68), suggesting that structured faculty development programs meaningfully impact AI adoption.

The thematic analysis of qualitative responses revealed that faculty members appreciated the practical applications of AI but continued to express concerns regarding institutional policies and ethical considerations. These findings align with Rogers' Diffusion of Innovations Theory, demonstrating that early adopters were more willing to embrace AI, whereas later adopters remained hesitant due to institutional barriers. Additionally, faculty members with more years of experience in education tended to express greater skepticism about AI's role, reinforcing previous literature suggesting that technological adoption in academia is often hindered by perceived threats to traditional teaching practices.

The results of this project highlight the critical role of structured AI training programs in faculty development, institutional policy, and AI integration within higher education. The positive impact of the digital toolkit intervention demonstrates that when faculty receive targeted training, they become more confident and willing to integrate AI into their teaching. AI has the potential to improve lesson planning, streamline grading, and enhance student engagement, but without adequate preparation, faculty may face challenges in implementing AI ethically and effectively.

Concerns regarding academic integrity and ethical implications emphasize the importance of establishing clear institutional guidelines. Universities must develop standardized AI policies that define appropriate AI use in teaching and assessment while addressing risks such as plagiarism, over-reliance on automation, and biases in AI-generated content. Faculty need clear expectations and institutional support to ensure that AI is leveraged responsibly and in alignment with pedagogical best practices.

Faculty adoption of AI is more successful when educators have hands-on exposure to AI tools in a structured and supportive environment. Interactive, case-based learning experiences and peer-led faculty development initiatives can reinforce AI competencies and promote confidence in AI integration. Incorporating AI literacy into new faculty onboarding programs can help establish technological competency as a fundamental aspect of teaching roles. By fostering a culture of continuous learning and providing accessible training opportunities, institutions can equip faculty with the skills and knowledge needed to navigate the evolving landscape of AI in education.

Limitations, Recommendations, Implications for Change

Limitations

Several limitations should be considered when interpreting the findings of this project. First, the use of purposive sampling from a single college within one institution limits the generalizability of the results to other academic settings. Faculty participants were all employed at the Rueckert-Hartman College for Health Professions, which may not reflect broader faculty experiences across different institutions or disciplines. Second, although an a priori power analysis was conducted, the sample size remained relatively small, increasing the potential for Type II errors and limiting statistical power.

Third, potential self-selection bias may have influenced the findings, as faculty with a greater initial interest in AI may have been more likely to participate in the intervention. Fourth, data collection relied on self-reported survey responses, which may have introduced response bias, including the possibility of participants offering socially desirable answers rather than fully candid perspectives. Finally, the project assessed immediate pre- and post-intervention

responses, preventing evaluation of the long-term retention of AI literacy or changes in faculty behavior over time. Future longitudinal studies would be valuable to determine the sustainability of outcomes observed in this project.

Recommendations for Future Research

Future research should explore the long-term retention of AI literacy and its sustained impact on faculty teaching practices. While this project demonstrated significant short-term improvements in AI knowledge and confidence, it remains unclear whether faculty members continue integrating AI into their instructional methods over time. Conducting longitudinal studies that assess AI use six months to a year after the intervention would provide valuable insights into the lasting effectiveness of faculty development programs.

Additionally, expanding research across multiple universities would allow for a broader examination of AI adoption trends, institutional barriers, and discipline-specific challenges. A comparative analysis between different types of institutions, such as public versus private universities or research-intensive versus teaching-focused institutions, could further refine understanding of the factors influencing AI integration in higher education. Given that faculty from diverse academic disciplines may encounter unique challenges when incorporating AI into their coursework, future research should investigate the effectiveness of discipline-specific AI training programs. Developing customized AI workshops tailored to fields such as nursing, pharmacy, physical therapy, and counseling may lead to more meaningful engagement and higher adoption rates.

Another critical area of exploration is student perspectives on AI-enhanced teaching. While this project focused on faculty experiences, understanding how students perceive AI-driven learning environments could help institutions refine AI policies and ensure that its use enhances educational outcomes without diminishing academic integrity. Institutional policy development remains an essential area for further inquiry. Faculty in this project expressed concerns about ethical considerations, academic integrity, and the absence of clear guidelines regarding AI implementation in education. Research examining how universities develop and enforce AI policies could help create frameworks that balance innovation with ethical responsibility. Investigating the role of faculty mentorship and peer-led AI training programs may provide insights into alternative approaches for fostering AI competency in academic settings. By addressing these gaps, future research can build upon the findings of this project and contribute to a deeper understanding of how AI can be effectively and ethically integrated into higher education.

Implications for Change

The findings of this project also have important implications for institutional practice. Higher education institutions should prioritize the development of ongoing AI literacy initiatives and embed AI training into routine faculty development programming. Institutions should establish clear, transparent ethical guidelines for AI use to address faculty concerns related to academic integrity, workload demands, and ethical considerations. By proactively creating supportive infrastructures and fostering open dialogue around AI technologies, academic institutions can encourage responsible, confident, and innovative integration of AI across disciplines. Emphasizing structured professional development and peer support networks may

further ease the adoption of AI-driven tools, ensuring that integration efforts are sustainable, equitable, and aligned with educational goals.

Conclusions

The integration of AI technologies in higher education represents a transformative shift in pedagogical approaches and faculty development. This quality improvement project aimed to assess the efficacy of educational in-services in enhancing faculty members' knowledge, attitudes, and readiness for incorporating AI into their teaching practices. The quantitative analysis revealed statistically significant improvements in faculty knowledge and attitudes towards AI technologies after participating in the educational in-services. Regression analyses identified key factors, such as prior technology experience and institutional support, that influenced faculty engagement with AI tools. The qualitative thematic analysis complemented these findings by highlighting the challenges, opportunities, and diverse perspectives faculty members encountered in adopting AI into their teaching practices. The integration of quantitative and qualitative data painted a comprehensive picture of the faculty's experiences and readiness for AI integration. The visual representations effectively communicated the key findings and facilitated the dissemination of insights to stakeholders.

Notably, the project's findings underscore the importance of ongoing professional development and institutional support in fostering a culture of continuous learning and adaptation among faculty members. As AI technologies continue to evolve rapidly, educational institutions must prioritize strategies to enhance faculty competencies, address potential barriers, and develop best practices for the responsible and effective integration of AI into teaching and learning processes. While the project provides valuable insights, it is essential to acknowledge its limitations, such as the specific institutional context and the potential for response bias in self-

reported data. Future research should explore longitudinal studies to assess the long-term impact of AI educational interventions and investigate strategies for promoting inclusive and ethical AI implementation in higher education.

Ultimately, this QI project contributes to the growing body of knowledge on AI integration in higher education and serves as a foundation for developing targeted faculty development initiatives. By fostering a symbiotic relationship between AI technologies and human-centered teaching practices, educational institutions can enhance the quality of education, better prepare students for the future, and embrace the transformative potential of AI while preserving the essential human elements of teaching and learning.

The integration of artificial intelligence in higher education is no longer a question of possibility but of preparedness, and this project has underscored the urgent need for structured faculty development in navigating this technological shift. The findings demonstrate that while faculty members may initially express concerns regarding academic integrity, workload, and ethical implications, targeted interventions can significantly enhance AI literacy, confidence, and willingness to integrate AI into teaching practices. Resistance to AI adoption is often rooted in uncertainty rather than opposition, emphasizing the importance of institutional support, clear policies, and ongoing professional development to facilitate meaningful technological integration.

This project highlights the intersection of education, policy, and human behavior, reinforcing the need for a balanced approach to AI implementation. AI is not merely a tool but a disruptive force that challenges traditional teaching methodologies while offering new opportunities for innovation. The results indicate that structured, evidence-based training initiatives can empower faculty to adopt AI in a way that enhances, rather than replaces, human

expertise. As higher education continues to evolve, the necessity for AI literacy and ethical implementation will only grow, requiring institutions to move beyond theoretical discussions into deliberate and strategic action.

The implications of this project extend beyond faculty development, contributing to broader conversations on AI adoption, institutional policy, and the future of education. Addressing faculty concerns through structured training and policy development will be critical to ensuring that AI integration aligns with academic integrity and pedagogical excellence. Future research should continue to explore long-term AI retention, discipline-specific applications, student perspectives, and institutional strategies for sustainable implementation. As technology continues to reshape the educational landscape, proactive measures will be necessary to equip educators with the skills, confidence, and ethical frameworks required to navigate this transformation effectively.

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Table 1

Evidence Table

Level of Evidence	Number of Articles	Key Articles (Author & Date)
Systematic Review or Meta-analysis (I)	10	Okonkwo & Ade-Ibijola (2021); Zawacki-Richter et al. (2019); Hwang & Tu (2021); Scherer et al. (2019); Zhai et al. (2021); Chassignol et al. (2018); Ilieva et al. (2023); Zhai et al. (2023); Smolansky et al. (2023)
Randomized, Controlled Trial (II)	0	—
Controlled Trial without Randomization (III)	0	—
Case-control / Cohort (Cross-sectional) (IV)	9	Iqbal et al. (2022); Kanwal et al. (2023); Ilieva et al. (2023); Onal & Kulavuz-Onal (2023); Wang et al. (2021); Pentina et al. (2023); Perera & Lankathilaka (2023); Konecki et al. (2023); Zheng et al. (2018)
Systematic Review of Qualitative / Descriptive Studies (V)	1	Xu & Zammit (2020)
Single Descriptive or Qualitative Study (VI)	3	Kinshuk et al. (2016); Popenici & Kerr (2017); Holmes et al. (2019)
Expert Opinion or Consensus (VII)	12	AACN (2021); NLN (2010); Darling-Hammond et al. (2017); Luckin et al. (2016); McCarthy (2007); Patton (2015); Creswell (2014); Creswell & Plano Clark (2011); Field (2013); Evergreen (2017); Ware (2012); Warner (2013)

Table 2

Cohen's *d* Effect Sizes

Survey Question	Effect Size
Q1 I am comfortable using AI tools in my teaching practices.	0.6753144480660130
Q2 AI can improve student learning outcomes.	0.31471831698777700
Q3 I am confident in my ability to integrate AI into my curriculum.	0.19084204712323700
Q4 I am concerned about the ethical implications of using AI in education.	0.2958751215328640
Q5 AI can help reduce my administrative workload.	0.748511429618386
Q6 AI will play a significant role in the future of education.	-0.08121352555223230
Q7 AI can provide personalized learning experiences for students.	1.1966265861002900
Q8 I have sufficient support and resources to implement AI in my teaching.	0.32078400002210900
Q9 I am skeptical about the benefits of AI in education.	-0.942063796788047
Q10 I am interested in learning more about AI applications in higher education.	1.30388945617365
Q11 I can identify appropriate AI tools that align with my course objectives.	0.9284141650970550
Q12 I feel prepared to evaluate the effectiveness of AI tools used in my teaching.	0.773691539696925
Q13 I know how to troubleshoot common issues when using AI tools in the classroom.	0.3215671296038520
Q14 I am confident in my ability to train students on using AI tools.	0.11383448731577500
Q15 I have access to professional development opportunities focused on AI in education.	-0.06370913100899940
Q16 I can integrate AI-driven data analytics to assess student performance.	0.6527042833628900
Q17 I am aware of the latest developments and trends in AI technology related to education.	-0.14700503195528400
Q18 I feel equipped to collaborate with colleagues on AI-related projects or initiatives.	1.3536743981193200
Q19 I am comfortable designing assessments that incorporate AI tools.	0.7184568644194080
Q20 I understand AI's potential risks or limitations, including "AI hallucinations" and biases.	1.212205574281110
Q21 I trust the accuracy and reliability of AI-generated responses or decisions.	-1.0760662873871500

Table 3

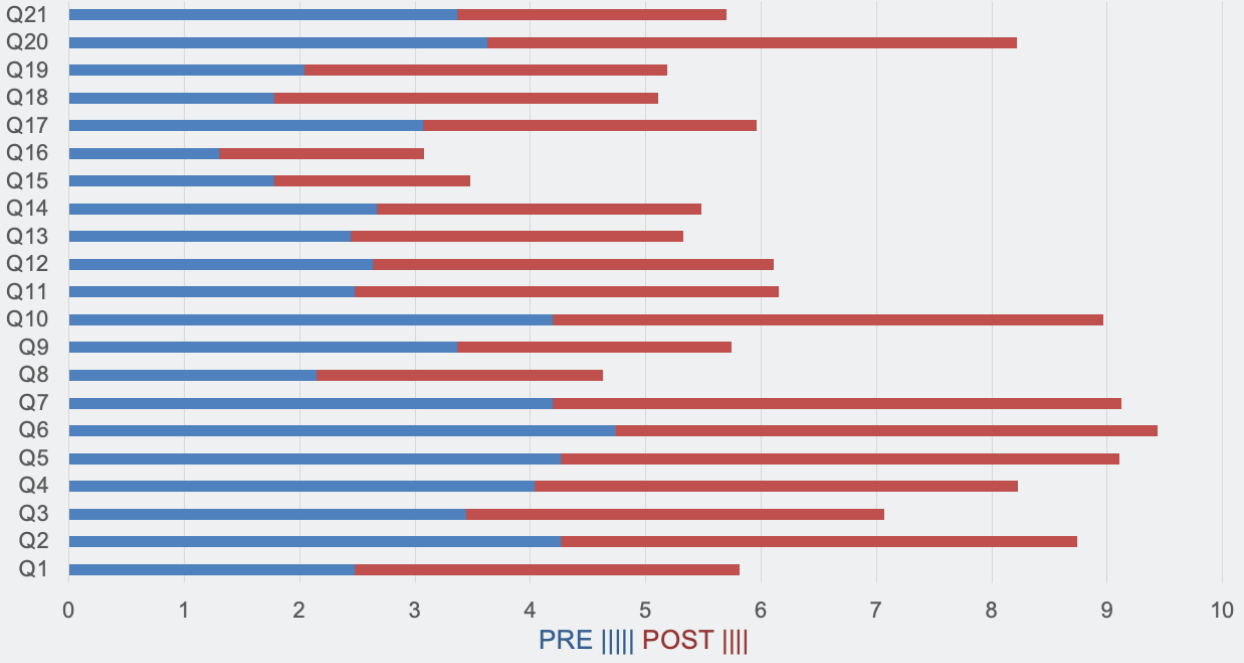
Pearson Correlation Coefficients (Q1-Q21)

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21
Q1	1	1	0.92397	0.835975	0.680156	0.644462	0.866025	0.556304	0.889259	0.798814	0.750939	0.880409	0.92958	0.921502	0.816969	0.705313	0.894059	0.849232	0.946292	0.936055	0.868353
Q2	1	1	0.92397	0.835975	0.680156	0.644462	0.866025	0.556304	0.889259	0.798814	0.750939	0.880409	0.92958	0.921502	0.816969	0.705313	0.894059	0.849232	0.946292	0.936055	0.868353
Q3	0.92397	0.92397	1	0.763473	0.568592	0.648953	0.752552	0.664364	0.76367	0.61714	0.690541	0.797331	0.869702	0.884986	0.724778	0.552252	0.737029	0.764545	0.847579	0.87055	0.871989
Q4	0.835975	0.835975	0.763473	1	0.588778	0.862589	0.806621	0.662849	0.722352	0.692628	0.860528	0.915239	0.878352	0.741542	0.625177	0.54613	0.763717	0.634879	0.78829	0.772004	0.657445
Q5	0.680156	0.680156	0.568592	0.588778	1	0.382633	0.424357	0.408597	0.763877	0.818161	0.396522	0.652473	0.690523	0.52439	0.808564	0.706762	0.634981	0.780658	0.766419	0.665221	0.482654
Q6	0.644462	0.644462	0.648953	0.862589	0.382633	1	0.642685	0.678233	0.479946	0.492895	0.780189	0.789475	0.776886	0.553596	0.439243	0.28014	0.516047	0.387829	0.571833	0.575571	0.502956
Q7	0.866025	0.866025	0.752552	0.806621	0.424357	0.642685	1	0.43589	0.746784	0.557062	0.823754	0.847174	0.802532	0.861381	0.553499	0.43589	0.802955	0.603451	0.819513	0.84346	0.782586
Q8	0.556304	0.556304	0.664364	0.662849	0.408597	0.678233	0.43589	1	0.325515	0.334298	0.52915	0.590839	0.585941	0.375467	0.411199	0.19	0.35	0.263038	0.449073	0.390371	0.341121
Q9	0.889259	0.889259	0.76367	0.722352	0.763877	0.479946	0.746784	0.325515	1	0.873126	0.615166	0.818893	0.834456	0.838018	0.908278	0.847357	0.86465	0.946536	0.938543	0.888681	0.778583
Q10	0.798814	0.798814	0.61714	0.692628	0.818161	0.492895	0.557062	0.334298	0.873126	1	0.554928	0.759036	0.804968	0.653531	0.891841	0.883179	0.824451	0.872648	0.820704	0.749495	0.589925
Q11	0.750939	0.750939	0.690541	0.860528	0.396522	0.780189	0.823754	0.52915	0.615166	0.554928	1	0.907222	0.809834	0.709566	0.49163	0.359066	0.661438	0.497096	0.694365	0.737732	0.644658
Q12	0.880409	0.880409	0.797331	0.915239	0.652473	0.789475	0.847174	0.590839	0.818893	0.759036	0.907222	1	0.928467	0.795201	0.728237	0.563144	0.784708	0.7285	0.854282	0.863682	0.728249
Q13	0.92958	0.92958	0.869702	0.878352	0.690523	0.776886	0.802532	0.585941	0.834456	0.804968	0.809834	0.928467	1	0.857118	0.777931	0.644972	0.830812	0.790753	0.901498	0.915291	0.836705
Q14	0.921502	0.921502	0.884986	0.741542	0.52439	0.553596	0.861381	0.375467	0.838018	0.653531	0.709566	0.795201	0.857118	1	0.697357	0.623938	0.883452	0.80789	0.879128	0.943944	0.941763
Q15	0.816969	0.816969	0.724778	0.625177	0.808564	0.439243	0.553499	0.411199	0.908278	0.891841	0.49163	0.728237	0.777931	0.697357	1	0.836034	0.750018	0.882948	0.865051	0.776619	0.661982
Q16	0.705313	0.705313	0.552252	0.54613	0.706762	0.28014	0.43589	0.19	0.847357	0.883179	0.359066	0.563144	0.644972	0.623938	0.836034	1	0.8	0.854875	0.755259	0.662958	0.556987
Q17	0.894059	0.894059	0.737029	0.763717	0.634981	0.516047	0.802955	0.35	0.86465	0.824451	0.661438	0.784708	0.830812	0.883452	0.750018	0.8	1	0.821995	0.867528	0.866556	0.786178
Q18	0.849232	0.849232	0.764545	0.634879	0.780658	0.387829	0.603451	0.263038	0.946536	0.872648	0.497096	0.7285	0.790753	0.80789	0.882948	0.854875	0.821995	1	0.872503	0.857532	0.7711
Q19	0.946292	0.946292	0.847579	0.78829	0.766419	0.571833	0.819513	0.449073	0.938543	0.820704	0.694365	0.854282	0.901498	0.879128	0.865051	0.755259	0.867528	0.872503	1	0.920489	0.826869
Q20	0.936055	0.936055	0.87055	0.772004	0.665221	0.575571	0.84346	0.390371	0.888681	0.749495	0.737732	0.863682	0.915291	0.943944	0.776619	0.662958	0.866556	0.857532	0.920489	1	0.950658
Q21	0.868353	0.868353	0.871989	0.657445	0.482654	0.502956	0.782586	0.341121	0.778583	0.589925	0.644658	0.728249	0.836705	0.941763	0.661982	0.556987	0.786178	0.7711	0.826869	0.950658	1

Note: This table presents Pearson correlation coefficients between survey items (Q1–Q21), indicating the strength and direction of linear relationships among faculty responses post-intervention. Values closer to 1 reflect stronger positive correlations, highlighting interconnected dimensions of faculty perceptions, knowledge, and attitudes toward artificial intelligence integration.

Figure 1

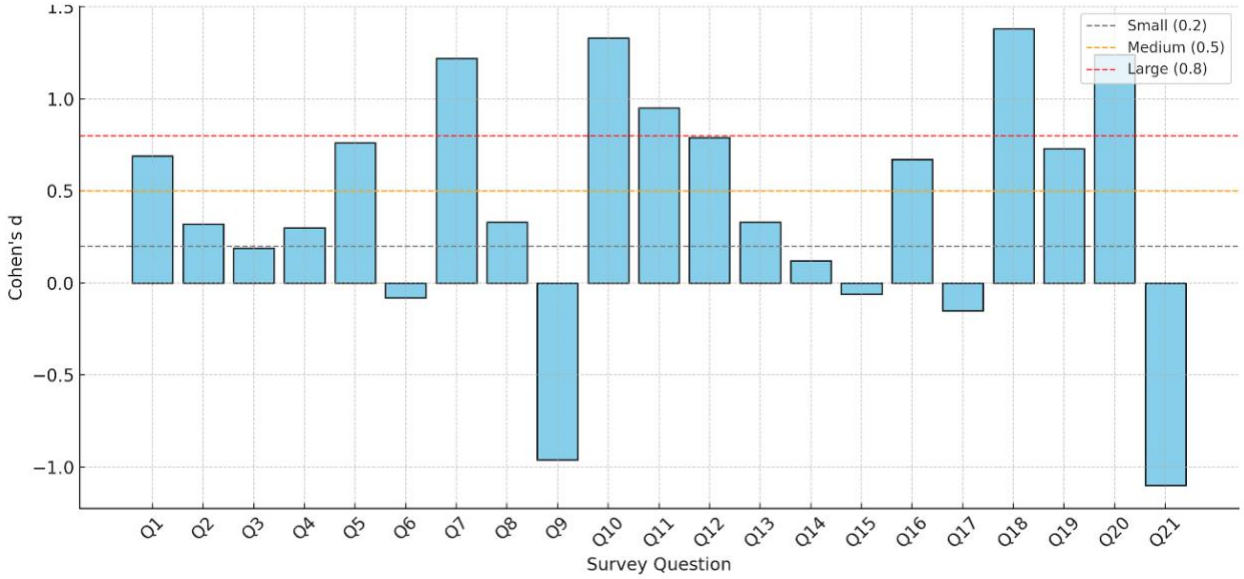
Pre- and Post-Intervention Mean Scores on AI Perceptions Among Faculty



Note: This figure presents faculty perceptions of AI in education before and after an AI-focused faculty development initiative**.** Pre-intervention scores (blue) reflect baseline perceptions, while post-intervention scores (red) indicate changes following the intervention. Each question **(**Q1–Q21**)** represents different aspects of AI, including confidence in AI tools, perceived benefits, ethical considerations, and faculty readiness. The results highlight overall improvements in AI perceptions, with varying degrees of change across different areas.

Figure 2

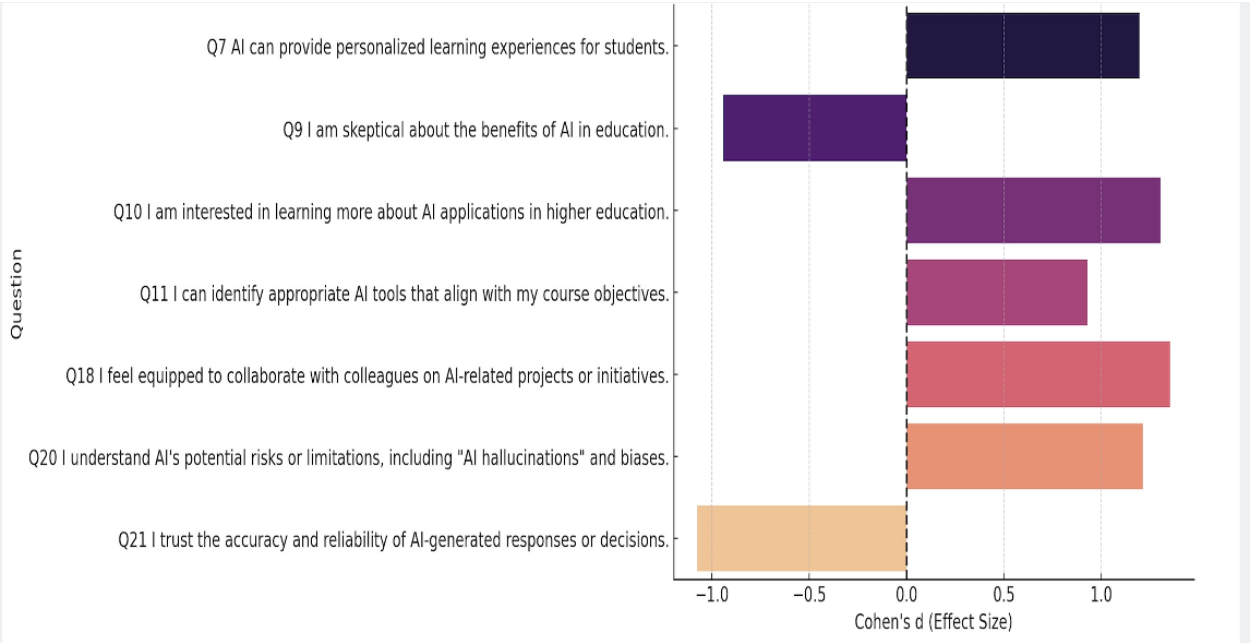
Effect Sizes (Cohen's *d*) for Faculty Perceptions of AI Integration



Note: Positive values indicate increased faculty confidence, knowledge, or perceived benefits of AI, while negative values reflect reduced skepticism or heightened concerns. The dashed line at 0.0 represents no effect. Larger effect sizes suggest notable shifts in faculty attitudes, whereas negative values highlight areas where concerns or uncertainties persist.

Figure 3

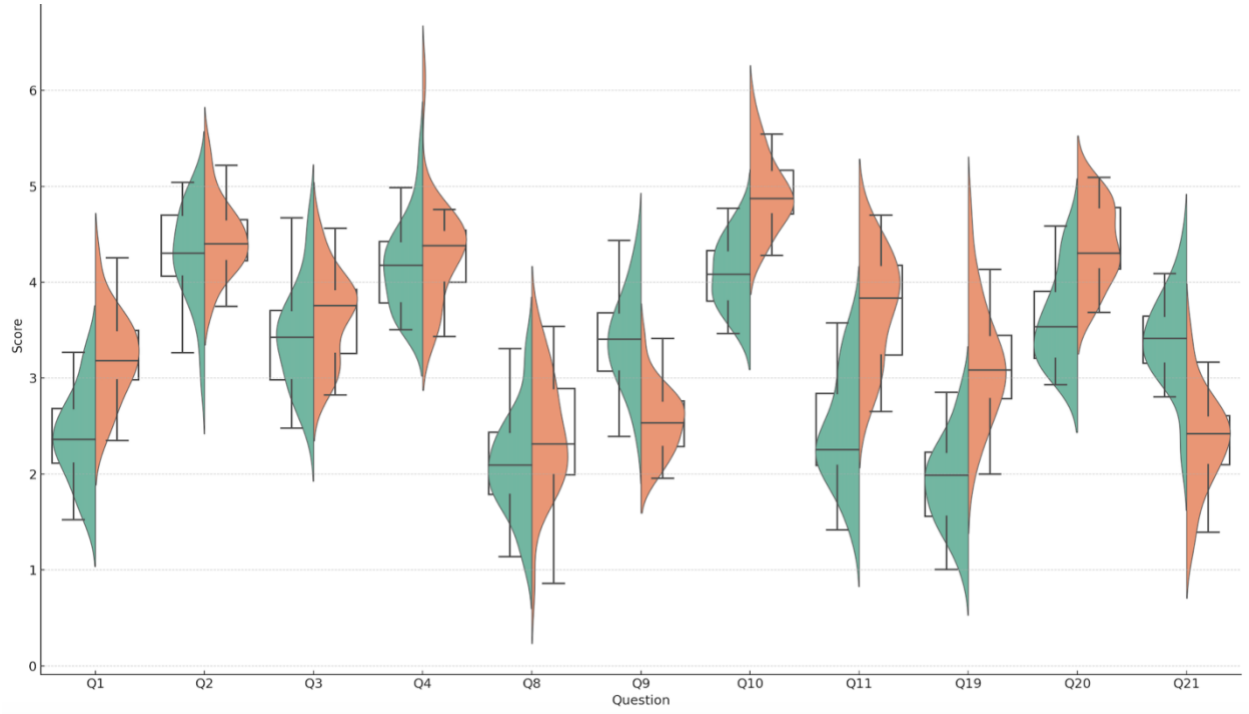
Polarized Responses to AI Integration: Pre- and Post-Intervention Comparison



Note: Figure 3 illustrates the distribution of participant responses regarding AI integration before and after the educational intervention. The data reveal a shift in perceptions, with a notable increase in positive attitudes and a reduction in neutral or negative responses post-intervention. These findings suggest that targeted faculty development efforts may contribute to greater acceptance and utilization of AI tools in higher education.

Figure 4

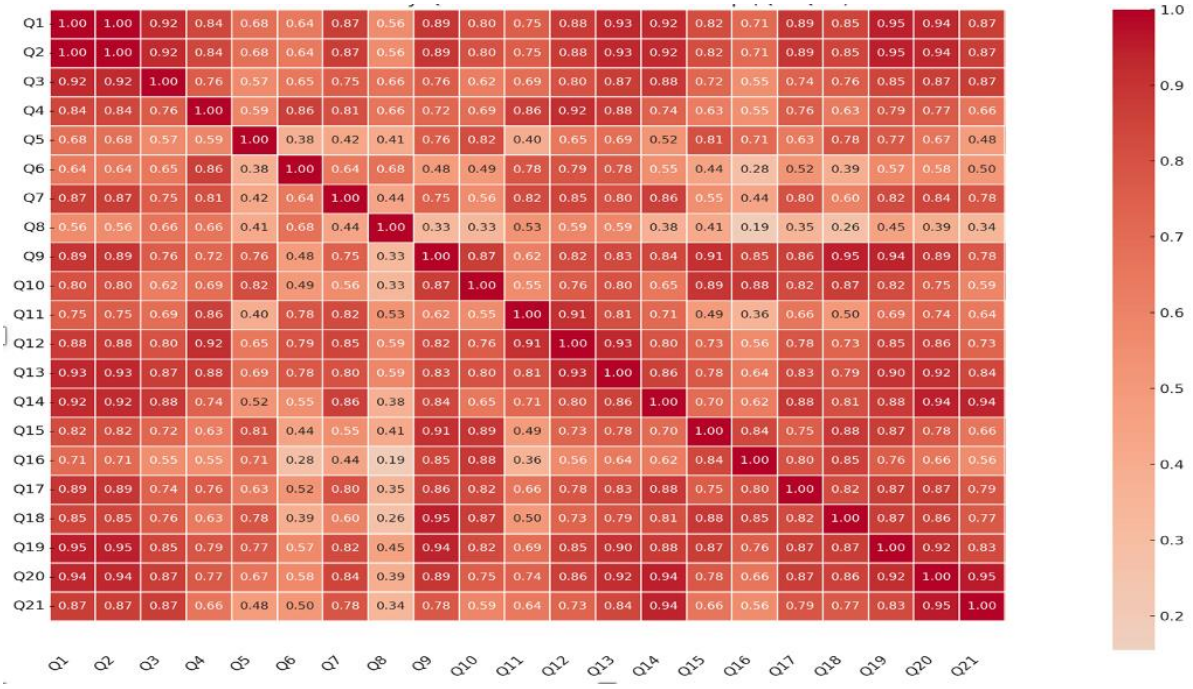
Combined Violin Plot, Boxplot, and Scatter Pre- and Post-AI Intervention



Note: This figure illustrates faculty responses to selected survey questions (Q1–Q21) regarding artificial intelligence (AI) integration before (green) and after (orange) the educational intervention. Violin plots display the data distribution and density, boxplots indicate median and interquartile ranges, and individual scatter points represent participant scores, providing a comprehensive view of changes in perceptions, attitudes, and confidence related to AI.

Figure 5

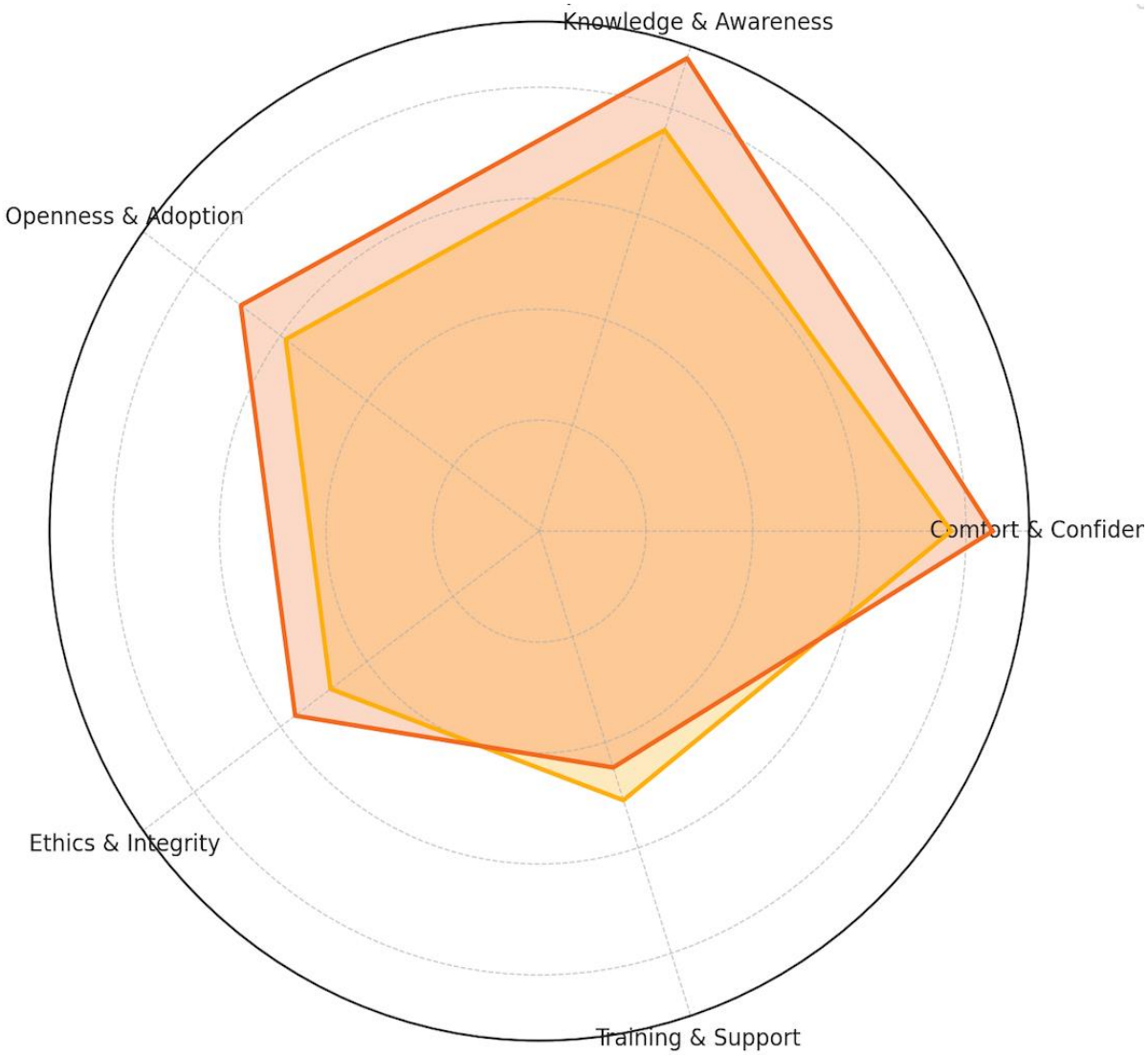
Post-Test Correlation Heatmap of Survey Items on AI Integration (Q1–Q21)



Note: This heatmap visualizes Pearson correlation coefficients among post-intervention survey items (Q1–Q21), reflecting the strength and direction of linear relationships between faculty responses. Darker red hues represent stronger positive correlations. This visualization highlights interrelated dimensions such as AI confidence, training, ethical awareness, and institutional support.

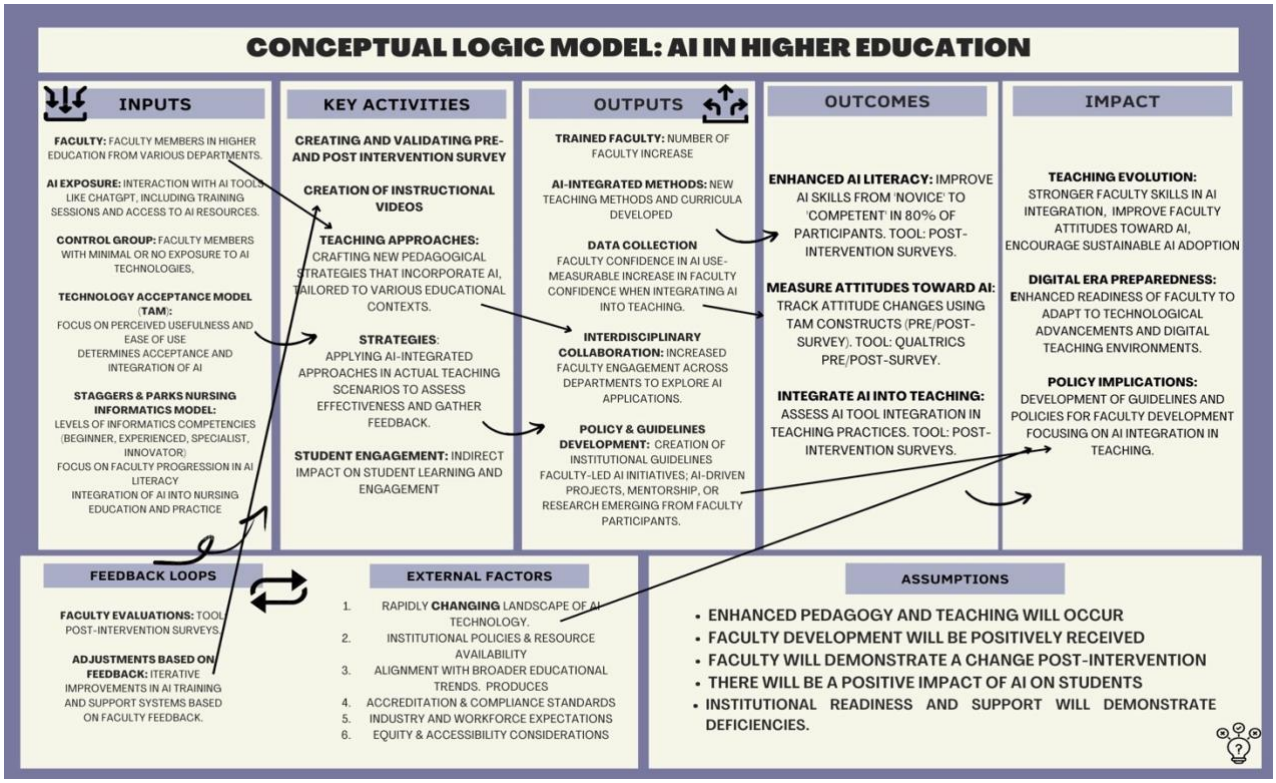
Figure 6

Thematic Domain Radar Chart Comparing Pre- and Post-Intervention Faculty Responses



Note:. This radar chart compares average pre- and post-intervention survey responses across five thematic domains: Knowledge & Awareness, Comfort & Confidence, Openness & Adoption, Ethics & Integrity, and Training & Support. Post-intervention improvements are visually evident in all domains, with the greatest gains observed in Knowledge & Awareness and Comfort & Confidence. The smallest improvement occurred in Training & Support, indicating persistent challenges in access and institutional resources

Appendix A



Logic Model

Note: This conceptual model is grounded in the theory that well-structured educational interventions can significantly impact faculty perceptions and competency in AI, an idea supported by literature on professional development and educational change (Hargreaves & Fullan, 2018). The model progresses from inputs, such as faculty engagement and curricular resources, to outputs, including the delivery of the AI educational content and the administration of surveys. Subsequently, the anticipated outcomes, measured by an increase in AI literacy and a positive change in attitudes, will ideally lead to an enriched nursing curriculum. Moreover, the

timing of the interventions and evaluations is critical to ensure the clarity and reliability of the results (AACN, 2023).

Appendix B

Budget and Resources

Item	Description	Cost	Funding Source
Digital Toolkit Development	Creation of instructional videos, content design	$0	Personal
OpenAI Premium Membership	Yearly subscription	$144/year	Personal
Voice Over Technology	Yearly subscription for narration	$143.88/year	Personal
AI Education Books	Reference materials for faculty development	~$150	Personal
Wix Domain & Hosting	Digital toolkit website hosting	$348/year	Personal
Qualtrics Survey Software	Platform for pre/post surveys	$0	Institutional
Statistical Analysis Software	Software for data analysis (Excel)	$0	Institutional

Appendix C

Survey Directions and Anonymity Protocol

Advancing Faculty Development with AI

Q1 Dear RHCHP Faculty Members, I am conducting a doctorate QI project involving the use of surveys to gather valuable insights on the implementation of AI in our educational practices. This survey will take approximately 5-10 minutes of your time. Your voluntary participation is crucial and greatly appreciated as it will help us enhance our teaching strategies and better support our students. You may choose to withdraw at any time without any consequences. Your responses will remain confidential, and all data collected will be used solely for this study. To ensure your anonymity, we ask that you create a unique identification code at the beginning of the 23-question survey. This will allow us to match your responses across multiple surveys while protecting your identity. If you have any questions or concerns about the survey, please feel free to contact me. Thank you for your time and valuable contributions to this important initiative.

Q2 Directions: To help us match your responses from this survey with those you will provide in a follow-up survey, please create a unique identification code. This code will keep your answers anonymous while allowing us to compare your responses over time. How to Create Your Code: the first letter of your favorite color (e.g., if your favorite color is blue, use B). -First letter of your middle name (e.g., if your middle name is John, use J). -Last two digits of your birth year (e.g., if you were born in 1990, use 90). -First letter of the city you were born in (e.g., if you were born in Denver, use D). Example Code: BJ90D.

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Appendix D

Definition of Terms

1. **Artificial Intelligence (AI):** A branch of computer science that enables machines to perform cognitive functions traditionally associated with human intelligence, including pattern recognition, decision-making, problem-solving, and natural language processing. In higher education, AI is leveraged to enhance pedagogical strategies, automate administrative functions, and personalize learning experiences through adaptive technologies.
2. **Machine Learning (ML):** A subset of AI that utilizes algorithms and statistical models to identify patterns and improve system performance on specific tasks through data-driven learning, rather than explicit programming. In the context of faculty development, ML enables predictive analytics for student performance, automates content curation, and facilitates personalized faculty training based on engagement metrics.
3. **Natural Language Processing (NLP):** An interdisciplinary field that integrates computational linguistics, AI, and machine learning to enable computers to understand, interpret, and generate human language. NLP technologies, such as large language models, are employed in higher education to enhance automated grading, sentiment analysis of student feedback, and AI-assisted instructional support.
4. **Technological Readiness Index (TRI):** A psychometric measure assessing an individual's predisposition to adopt and integrate emerging technologies. It encompasses dimensions such as optimism, innovativeness, discomfort, and insecurity. In faculty

development, TRI is used to evaluate educators' confidence and openness toward AI-enhanced teaching methodologies.

5. **Technology Acceptance Model (TAM):** A theoretical framework that explains user adoption of new technologies based on two primary constructs—perceived usefulness (the degree to which a technology enhances job performance) and perceived ease of use (the degree to which it is free of effort). TAM provides a foundational lens for assessing faculty willingness to integrate AI tools into their pedagogical practices.
6. **Faculty Development:** A systematic, evidence-based approach to enhancing educators' competencies in teaching, research, and leadership. In AI integration, faculty development encompasses structured interventions such as digital literacy training, hands-on AI workshops, and curriculum adaptation strategies to promote AI fluency and pedagogical innovation.
7. **Large Language Models (LLMs) (e.g., ChatGPT, Gemini, Claude 3):** Advanced deep learning models trained on vast corpora of text data to perform human-like natural language processing tasks. These models generate contextually relevant responses, making them instrumental in AI-powered tutoring, content creation, and automated knowledge dissemination in educational settings.
8. **Digital Toolkit for AI Adoption:** A structured repository of AI-powered instructional resources, including adaptive learning platforms, interactive simulations, AI-generated assessments, and faculty training modules. Digital toolkits serve as a bridge for integrating AI into pedagogical workflows while supporting faculty in developing AI literacy.

9. **Pre- and Post-Intervention Surveys:** A methodological approach used in educational research to assess the impact of an intervention by measuring participants' knowledge, attitudes, and perceptions at baseline and after implementation. In this study, pre- and post-surveys gauge faculty members' AI competency, technological readiness, and perceived barriers to AI adoption.
10. **Statistical Significance (p-value < 0.05):** A quantitative measure that determines the likelihood that observed differences in data are attributable to the intervention rather than random variation. In this project, statistical significance is used to evaluate the effectiveness of AI-driven faculty development initiatives by analyzing shifts in survey responses and performance metrics.

Appendix E

Screenshots of Intervention