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Advancing Generative AI Literacy Through a Faculty-Focused Micro-Credential

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ABSTRACT

This paper presents the design, implementation, and outcomes of a faculty-focused micro-credential aimed at improving generative artificial intelligence (GenAI) literacy and ethical readiness among educators in higher education. Motivated by a disconnect between widespread student use of generative AI tools and limited faculty preparedness, the micro-credential offers a self-paced, modular course grounded in experiential learning and focused on responsible technology use. The curriculum covers core GenAI concepts, ethical considerations, instructional applications, tool selection strategies, and prompt engineering practice. Participants produce artifacts such as syllabus statements and GenAI interaction transcripts. Module-level evaluations show that faculty found the content informative, appropriately paced, and supportive of meaningful learning. In addition, pretest-posttest survey results indicate statistically significant gains in GenAI use and self-efficacy. This case study contributes to the scholarship of information systems education by offering a replicable model of faculty development that promotes critical engagement with GenAI and supports pedagogical innovation across disciplines.

Keywords: Artificial intelligence, Generative AI, Faculty development, Asynchronous learning, Higher education, Pedagogy

1. INTRODUCTION

The proliferation of generative artificial intelligence (GenAI) tools, such as ChatGPT, Claude, and Gemini, is transforming the landscape of higher education. These technologies are not only reshaping how information is produced and consumed but also challenging traditional pedagogical approaches. While students across disciplines are rapidly adopting GenAI for writing assistance, study support, and creative tasks (Dabirian & Swarat, 2024; Goldberg et al., 2024b), many faculty members remain unsure of how to address GenAI in their classrooms, let alone use it effectively themselves (Mathew & Stefaniak, 2024). The disconnect between students' GenAI adoption and faculty's GenAI literacy poses a significant risk: if educators are not equipped to engage with GenAI critically and constructively, they may either ignore its presence (to the detriment of student learning) or focus narrowly on issues of academic dishonesty without addressing the broader implications of these technologies.

Compounding this challenge is the growing expectation, both from students and the labor market, that graduates enterthe workforce with GenAI literacy. The notion of GenAI literacy includes not only technical understanding but also the capacity to make informed, ethical, and pedagogically sound decisions about when and how to use GenAI tools. Students increasingly recognize that GenAI will shape their future careers and expect their instructors to help them develop relevant skills, ethical awareness, and critical perspectives (Li et al., 2025). At the same time, employers are actively seeking graduates who can use GenAI tools to increase productivity, automate routine tasks, and support strategic decision-making (Bone et al., 2025; World Economic Forum, 2025). This dual pressure underscores the need for faculty not only to understand GenAI themselves, but to serve as guides and mentors in preparing students for AI-infused professional environments.

Recognizing these challenges, a large public R1 university in the Western United States launched a faculty-focused "micro-credential" on academic applications of GenAI in 2024. This self-paced, modular course was designed to empower faculty with the basic technical knowledge, ample ethical frameworks, and practice-based self-efficacy needed to navigate and leverage GenAI in their teaching and scholarship. Developed collaboratively by faculty and instructional support staff, the course aimed to demystify GenAI, promote responsible use, and foster a culture of experimentation grounded in academic values.

This article presents a detailed case study of the micro-credential, focusing on its origins, structure, and outcomes for faculty participants. We argue that faculty-centered GenAI literacy is a critical foundation for broader institutional readiness and for the meaningful integration of GenAI into curricula. Drawing on pre- and post-survey data, we evaluate the effectiveness of the course and reflect on lessons learned. While the credential has since been expanded to include staff and students, this paper remains focused on faculty as the initial and most strategically important audience.

2. CONTEXT AND MOTIVATION

Faculty across disciplines increasingly face pressure to incorporate emerging technologies into curricula, yet often lack the training and support needed to do so effectively (Bozkurt et al., 2024; Zawacki-Richter et al., 2019). Without appropriate resources, faculty may struggle to evaluate new tools, adapt assignments, or maintain academic integrity in the face of rapid technological change. Faculty development programs can help address these pressures; research shows that they are most effective when they are timely, situated in authentic practice, and focused on self-efficacy (Guskey, 2002; King, 2004).

The micro-credential was created to help fill the gap in AI-related faculty development offerings. This training program was a direct response to both practical instructional needs and evidence from the scholarship of teaching and learning. The rapid pace of change and the ethical complexity of GenAI tools heightened the urgency of this work, particularly as faculty questions and concerns multiplied with the spread of tools like ChatGPT. Faculty across departments expressed uncertainty—not only related to technical capabilities, but also about academic integrity, shifting student expectations, and grading practices. These concerns reflect broader national trends: as Dotan et al. (2024) note, low faculty preparedness combined with high levels of student use has created widespread tension in higher education.

Faculty often feel under-equipped to engage GenAI pedagogically or to model critical, ethical use in their classrooms. Moreover, concerns about the uncompensated labor of revising assignments and evaluating tools and a lack of protected time in which to do so further dampen enthusiasm.

The micro-credential was intentionally designed for faculty as the initial and primary audience, based on the foundational belief that educators must first feel confident and competent in their own use of GenAI before they can effectively guide students in its application. Rather than impose a one-size-fits-all policy, the university opted to support faculty through a developmental model grounded in academic values, emphasizing capacity building, flexibility, and critical reflection over top-down compliance.

The micro-credential extends recent AI-related teaching tips, such as Zhang's (2025) work on GenAI in database instruction and Sundberg and Holmström's (2024) no-code machine learning pedagogy, by focusing upstream on faculty capacity rather than student assignments. Rather than promoting GenAI as a tool to be used uncritically or ubiquitously, the micro-credential emphasizes informed decision-making, helping faculty develop the discernment to know when GenAI use is appropriate, beneficial, or potentially problematic. This approach empowers educators not only to model responsible use for students but also to make discipline- and even topic-specific judgments about how GenAI fits (or does not fit) within their teaching goals, course content, and academic values. By focusing first on faculty development, the course lays the groundwork for sustainable, scalable GenAI integration across the curriculum, grounded in educator agency.

Drawing on experiential learning theory (Kolb, 1984), the micro-credential engages faculty in hands-on, reflective activities that mirror the AI-supported learning environments they are expected to facilitate for students. This design aligns with findings from Yang and Romero-Hall (2024), who observed that student engagement in asynchronous courses is significantly enhanced when learners can actively apply concepts rather than passively absorb content. In keeping with adult learning theory (Bierema et al., 2025; Knowles et al., 2020), the course was designed to be self-directed, immediately relevant, and respectful of learners' prior experience and autonomy. Each module connects conceptual content to participants' disciplinary contexts and encourages practical application through customizable deliverables. Furthermore, the emphasis on responsible use aligns with frameworks of digital literacy and critical digital pedagogy (Selwyn, 2021), encouraging educators not just to adopt tools, but to interrogate their implications. In this way, the micro-credential is not simply a technology training initiative but a values-driven, pedagogically grounded intervention that addresses both faculty confidence and curricular integrity.

3. MICRO-CREDENTIAL DESIGN

3.1 Micro-Credential Structure

The micro-credential consists of five core modules and a concluding wrap-up. The course is fully asynchronous and is hosted in Canvas, the university's learning management system. In the course, faculty learners are encouraged to work through the modules at their own pace. Completion of all modules, including required assignments and the posttest, results in the awarding of a digital badge.

The content and structure of the micro-credential were co-developed by two faculty members, one from Information Systems and one from Anthropology, working in close collaboration with a team of instructional designers. This interdisciplinary approach ensured that the course balanced both technical and sociocultural perspectives on GenAI, while also grounding it in evidence-based teaching practices. Development occurred over the course of one academic semester (Fall 2023), with the credential launching in Spring 2024.

To accommodate varying levels of interest, availability, and instructional need, the micro-credential was designed with two participation pathways: a full badge-earning option and a more flexible audit option. Faculty seeking the badge are expected to complete all five modules in sequence, along with required assessments and artifact submissions, for an intended four to five total hours of engagement. This path offers the most structured and comprehensive experience and culminates in a digital badge. Alternatively, an "audit" option enables faculty to explore the content informally. Auditors may read and view all materials without completing the assignments, which takes approximately two hours. They may also choose

to engage with individual modules "à la carte" based on personal interest or relevance to their discipline. This flexible design promotes wide accessibility and ensures that even time-constrained faculty can benefit from the micro-credential's core content.

To recognize faculty achievement and promote institutional visibility, the micro-credential culminates in the awarding of a digital badge through Credly, a widely used platform for verified micro-credentials. Digital badges have been shown to support motivation, recognition, and learner autonomy, particularly in flexible or self-paced learning environments (Carey & Stefaniak, 2018; Gibson et al., 2015). The badge serves not only as a symbol of individual accomplishment but also as a shareable artifact that faculty can display on professional networking sites, curricula vitae, or department webpages. This visibility reinforces the value of faculty engagement with emerging technologies and helps signal an instructor's GenAI readiness to peers, students, and administrators. Moreover, issuing the badge through a trusted vendor ensures that the credential is portable and verifiable, allowing for broader recognition across institutions or professional contexts. While the learning experience itself remains the primary goal, the badge adds a layer of motivation, accountability, and institutional credibility to the process.

3.2 Pedagogical Approach

Each module in the micro-credential was designed using a consistent "read-view-do" structure to support faculty engagement and retention. After a short overview listing the module's learning outcome aims, activities, and criteria for success, learners are presented with short, curated readings and multimedia content to build foundational knowledge ("read" and "view"), followed by an applied task that requires participants to put concepts into practice ("do"). For example, in the ethics module, participants first explore core issues such as algorithmic bias and privacy through text and video, then craft an actionable plan for addressing these issues in their teaching context. Figure 1 shows a sample of a module overview.

This design ensures that learning is active and reflective, not just theoretical, and allows participants to build a portfolio of artifacts that demonstrate their evolving understanding. The predictable structure also helps reduce cognitive load and promotes self-paced completion (Clark et al., 2011), which is critical given the varied schedules and backgrounds of faculty participants. Importantly, the "do" elements are not just assessments but active learning exercises that generate reusable teaching resources that faculty can immediately apply or adapt to their courses.

The micro-credential's modular structure aligns with experiential learning theory (Kolb, 1984), which emphasizes the importance of active engagement and reflection in the learning process. By engaging faculty in both conceptual exploration and practical application, the modules support a full experiential cycle: concrete experience (e.g., experimenting with GenAI tools), reflective observation (e.g., discussing ethical implications), abstract conceptualization (e.g., understanding how transformer models work), and active experimentation (e.g., refining GenAI prompts or crafting syllabus statements). The balance of input (reading/viewing) and output (doing) also reflects principles from constructivist pedagogy (Piaget, 1952), which holds that learners construct knowledge most effectively when they apply it in meaningful contexts.

In addition to the structured module content, participants had access to a moderated Q&A discussion board, where they could pose questions, troubleshoot issues, and exchange insights with peers and facilitators. Research supports the inclusion of such forums in asynchronous courses, showing that Q&A spaces can help students support their own and others' inquiry processes, foster collaborative meaning-making, and enhance overall learning engagement (Jansson et al., 2021). This space helped reinforce the micro-credential's learner-centered ethos and ensured that support was available despite the asynchronous format.

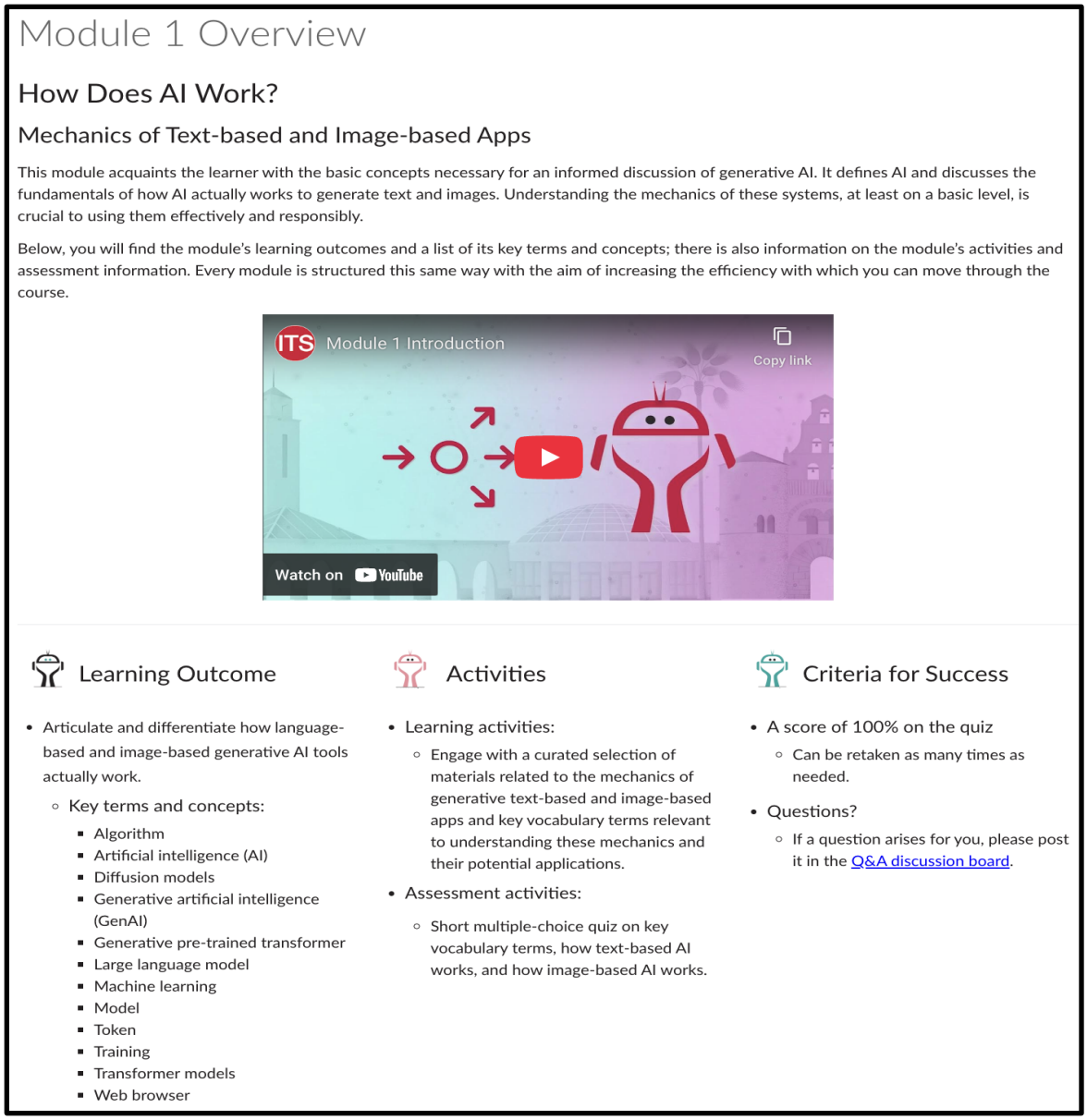

Figure 1. Sample Module Overview From Introductory Module

3.3 Module Content

The micro-credential includes five sequential modules, each designed to build GenAI literacy through a scaffolded progression from conceptual understanding to ethical reflection, applied experimentation, and tool adoption. Each module concludes with a tangible artifact that demonstrates participant learning and provides immediate value for teaching practice.

Module 1: How does AI work?

Learning outcome: *Articulate and differentiate how language-based and image-based generative AI tools actually work.*

Description: This foundational module introduces faculty to the technical underpinnings of GenAI, including key concepts such as large language models (LLMs), transformer architectures, diffusion models, tokenization, and training data. The goal is to demystify how tools like ChatGPT generate text or images

and to dispel common misconceptions (e.g., that LLMs are sentient or "think" in the same manner as humans). Short videos and curated readings are used to support comprehension.
Assignment: Participants completed a vocabulary-based quiz to reinforce key terms and concepts.

Module 2: Ethics and responsible use
Learning outcome: *Describe bias, privacy, and other ethical concerns inherent in using generative AI tools.*
Description: This module explores ethical considerations such as algorithmic bias, data privacy, environmental impact, and the digital divide. Through readings, case studies, and guided reflection, participants examine how these issues intersect with their own teaching and disciplinary contexts. The module emphasizes responsible decision-making and encourages faculty to consider not only whether to use GenAI, but how and why.
Assignment: Participants drafted an action plan outlining how they would address one or more ethical issues in their own course or professional setting. Before submission, they were encouraged to run their plan through a GenAI tool and reflect on the tool's response.

Module 3: What can AI do?
Learning outcome: *Construct a syllabus statement on using generative AI tools appropriate to a course.*
Description: In this module, participants are introduced to practical instructional and scholarly uses of GenAI. Through examples and sandbox-style experimentation, they explore how GenAI can support assignment design, formative feedback, research productivity, and student engagement. A key focus is on helping educators clarify their expectations for students and reflect on how GenAI use might vary across disciplines. The module presents sample syllabus language and raises questions about academic integrity, accessibility, and transparency.
Assignment: Participants created a syllabus statement that clearly communicated their position on student and/or instructor use of GenAI.

Module 4: Finding apps that are right for you
Learning outcome: *Understand the variety of popular generative AI options and begin to selectively build a tailored toolkit appropriate to your own academic work.*
Description: This module helps faculty build a personalized GenAI toolkit by introducing categories of tools (e.g., chatbots, image generators, code generators, grammar checkers). Evaluation criteria include accessibility, privacy, cost, discipline relevance, and potential use cases. The module is especially useful for those unsure where to begin with GenAI integration.
Assignment: Participants conducted an "App Chat," either with a colleague or a GenAI tool, discussing the pros and cons of different tools and justifying their selections based on teaching goals and ethical priorities.

Module 5: AI in action
Learning outcome: *Iteratively refine prompt results leading to effective querying of generative AI.*
Description: The final module offers hands-on practice with prompt engineering and iterative refinement. Faculty engage in structured practice with GenAI tools, focusing on prompt engineering and output evaluation. The module introduces prompt refinement techniques, such as clarifying roles, adding constraints, or requesting rewrites. This hands-on experimentation serves as both a confidence-builder and a capstone application.
Assignment: Participants submitted a transcript of an interaction with a GenAI tool, annotated to highlight how they revised prompts, what changes resulted, and what they learned in the process.

A public-facing version of the micro-credential (https://globalcampus.sdsu.edu/certificate-programs/career-skills-institute/academic-applications-of-artificial-intelligence/) is available through the

university's continuing education platform. This version maintains the structure and pedagogical progression described above.

4. DATA AND EVALUATION

4.1 Descriptive Statistics

A total of 374 faculty members began the micro-credential during the initial implementation period. Of those, 145 completed the posttest, which is the threshold for inclusion in the analyses that follow. The gap between initial and final participation reflects the micro-credential's flexible design: some participants engaged in an audit-only mode that did not require formal completion; others were still progressing through the course at the time of writing; and some likely disengaged before finishing. While it is difficult to precisely quantify each of these subgroups, this variation underscores the importance of offering multiple pathways through professional development and points to future opportunities for tracking participation across different engagement levels. The remainder of this section focuses only on participants that completed the full course (n = 145).

Participants represented a diverse cross-section of academic roles, including lecturers, assistant professors, associate professors, and full professors, indicating broad relevance and appeal across faculty ranks. Table 1 displays the distribution of this population by academic role.

Academic role	Count (percentage)
Lecturer	73 (50.3%)
Assistant professor	12 (8.3%)
Associate professor	27 (18.6%)
Full professor	33 (22.8%)

Table 1. Academic Roles of Badged Participants (n = 145 Participants)

Compared to the overall distribution of academic roles at the university, lecturers were underrepresented in the micro-credential (50.3% micro-credential vs. 61.8% university), as were assistant professors (8.3% micro-credential vs. 9.8% university). In contrast, associate professors (18.6% micro-credential vs. 11.6% university) and full professors (22.8% micro-credential vs. 16.9% university) were overrepresented. This distribution suggests that while the program drew participants across faculty ranks, tenured faculty may have been more likely to engage in the initial offering.

Completion time, calculated as the number of days between pretest and posttest submissions, ranged widely, with a mean (median) of 69 (24) days. This distribution suggests that while many participants progressed through the course in a concentrated time frame, others took advantage of the micro-credential's self-paced format over longer durations. This variability in engagement reinforces the value of asynchronous design in supporting professional learning across a wide array of faculty schedules and commitments.

4.2 Participant Feedback and Course Effectiveness

Participants were asked to evaluate each module of the micro-credential in terms of three criteria: perceived progress on the intended learning objective, informativeness, and whether the time to complete aligned with their expectations. These three dimensions capture not only what participants learned but also how they experienced the learning process across different content areas. Three Likert-style questions were created ad hoc for the micro-credential and are detailed in the Appendix. For the learning progress and informativeness scales, higher numbers indicate more positive perceptions, meaning participants felt they learned more or found the module more informative. For the time-to-complete measure, higher numbers indicate more time required to complete the module, with "2" representing that the module took about the amount of time the participant expected. Table 2 presents the aggregated results from these evaluations.

Responses suggest that modules were generally seen as informative and well-paced, with high levels of self-reported learning progress across all five areas. Notably, Module 4 ("Finding apps that are right for you") received the highest informativeness rating, while Modules 3 and 4 had the highest reported learning gains. These findings support the micro-credential's emphasis on practical application and customizable, discipline-specific engagement.

Module	Learning progress mean (median)	Informativeness mean (median)	Time to complete mean (median)
Module 1: How does AI work?	3.70 (4) / 5	3.99 (4) / 5	2.07 (2) / 3
Module 2: Ethics and responsible use	3.63 (4) / 5	4.03 (4) / 5	2.17 (2) / 3
Module 3: What can AI do?	3.88 (4) / 5	4.10 (4) / 5	2.22 (2) / 3
Module 4: Finding apps that are right for you	3.88 (4) / 5	4.19 (4) / 5	2.25 (2) / 3
Module 5: AI in action	3.65 (4) / 5	3.85 (4) / 5	1.99 (2) / 3

Table 2. Participant Evaluations of Micro-Credential Modules (n = 145 Participants)

To evaluate the effectiveness of the micro-credential in influencing faculty members' engagement with GenAI, participants were administered a pretest before beginning the course and a posttest upon completion. The tests included a series of Likert-scale items assessing knowledge, attitudes, and behavioral intentions related to GenAI. Two questions on perceptions and use of GenAI were created ad hoc for the micro-credential and are detailed in the Appendix. The remaining eight questions were based on Goldberg et al. (2024a)'s instrument, where higher numbers indicate greater levels of agreement. The scale included 1 (strongly disagree), 2 (disagree), 3 (somewhat disagree), 4 (somewhat agree), 5 (agree), and 6 (strongly agree).

To ensure a fair comparison of pretest and posttest perceptions, we paired participants' pretest and posttest responses. Table 3 displays a comparison of pretest and posttest responses to these items. Note that 10 out of 145 participants are excluded from this analysis due to missing data, leaving a remainder of 135 participants. Pretest and posttest scores were compared statistically via two-tailed paired t-tests.

Results revealed statistically significant improvements in several key areas, most notably in participants' overall perceptions of and engagement with generative AI. Faculty reported a more favorable perception of GenAI post-intervention, with mean scores increasing from 3.55 to 4.10 ($p < 0.001$). Self-reported use of GenAI also rose significantly, from 3.34 to 3.80 ($p < 0.001$), suggesting that faculty felt more confident experimenting with GenAI tools in academic settings.

Some shifts in perception were more nuanced. For example, participants' sense of staying up to date with AI-related developments did not change statistically significantly (4.15 to 4.20, $p = 0.49$). Similarly, levels of trust in the accuracy of AI-generated content remained unchanged (2.98 pre and post, $p = 0.93$), as did concerns about AI's ethical implications (4.79 to 4.86, $p = 0.50$) and potential impacts on job security (3.48 to 3.53, $p = 0.64$). In keeping with the micro-credential's explicit goals, it did not appear to dampen critical engagement or ethical caution.

Other shifts were reflective of increased confidence. Skepticism about AI's role in education declined significantly (2.89 to 2.52, $p < 0.001$), and faculty demonstrated stronger agreement that AI would play a role in their professional future (4.32 to 4.78, $p < 0.001$). Perceptions of AI's complexity also decreased (2.08 to 1.92, $p = 0.09$), indicating a slight reduction in perceived barriers to entry. Similarly, participants showed a stronger belief that AI output must be verified, with a high pre-course mean (5.33) increasing to 5.49 ($p = 0.08$), underscoring a persistent and healthy skepticism regarding AI-generated content.

To further gauge satisfaction, participants were asked whether they would recommend the micro-credential to a colleague. The response was overwhelmingly positive: 142 out of 145 participants (98%) answered "yes." This endorsement indicates strong perceived value and suggests high potential for continued adoption and word-of-mouth diffusion across departments. Taken together, these findings

suggest that the micro-credential enhanced faculty members' GenAI literacy and self-efficacy while preserving critical awareness and ethical reflection. This suggests that the micro-credential did not merely increase usage or enthusiasm for GenAI, but that it did so without ignoring GenAI's dangers and downsides: it helped faculty become thoughtful, deliberate, and pedagogically grounded in their engagement with these tools.

Question	Pretest mean (median)	Posttest mean (median)	Difference (95% CI)	Significance	Cohen's *d*
Perception of generative AI. (Higher numbers reflect more positive perceptions.)	3.55 (4) / 5	4.10 (4) / 5	0.56 (0.39 – 0.72)	$p < 0.001$	0.57
Use of generative AI. (Higher numbers reflect more use.)	3.34 (4) / 5	3.80 (4) / 5	0.47 (0.32 – 0.61)	$p < 0.001$	0.53
I regularly follow news and updates about AI.	4.15 (4) / 6	4.20 (4) / 6	0.05 (-0.13 – 0.23)	$p = 0.49$	0.05
I trust AI algorithms to provide accurate information.	2.98 (3) / 6	2.98 (3) / 6	0.00 (-0.19 – 0.18)	$p = 0.93$	0.00
The ethical use of AI is a major concern for me.	4.79 (5) / 6	4.86 (5) / 6	0.07 (-0.17 – 0.31)	$p = 0.50$	0.05
I have concerns about AI's impact on job security.	3.48 (4) / 6	3.53 (4) / 6	0.06 (-0.14 – 0.26)	$p = 0.64$	0.05
I am skeptical about the benefits of AI in education.	2.89 (3) / 6	2.52 (2) / 6	-0.38 (-0.58 – -0.19)	$p < 0.001$	0.34
AI will play a significant role in my future career.	4.32 (4) / 6	4.78 (5) / 6	0.45 (0.24 – 0.66)	$p < 0.001$	0.36
AI technology is too complex for me to grasp.	2.08 (2) / 6	1.92 (2) / 6	-0.14 (-0.32 – 0.03)	$p = 0.09$	0.14
I feel that it is necessary to verify the validity and accuracy of the responses that AI generates.	5.33 (6) / 6	5.49 (6) / 6	0.17 (-0.05 – 0.39)	$p = 0.08$	0.13

Table 3. Comparison of Pretest and Posttest Likert Responses (n = 135 Participants)

5. CONCLUSIONS

The faculty-focused micro-credential described in this study represents a replicable, scalable approach to building GenAI literacy in higher education. By grounding instruction in ethical frameworks, experiential learning theory, and practical application, the micro-credential not only increased participants' confidence and perceived competence but also reinforced a need for thoughtful, critical engagement with GenAI tools. Participant evaluations of individual modules confirmed that the course content was seen as informative,

appropriately paced, and conducive to meaningful learning gains across core areas. Importantly, the micro-credential did not aim to advocate for constant or universal use of GenAI in teaching. Instead, it supported faculty in developing the discernment necessary to decide when, how, and whether to use such tools, aligning with broader goals of academic integrity, disciplinary relevance, and pedagogical purpose. In addition, including material regarding the dangers and downsides of GenAI may have helped faculty with antecedent skepticism stay engaged, supporting completion.

5.1 Limitations and Future Work

Looking ahead, several avenues for future work have emerged. First, the micro-credential will require ongoing revision as the GenAI landscape evolves. New tools, use cases, and ethical dilemmas are emerging rapidly, and the curriculum must be agile enough to reflect this shifting terrain. Some of these changes are straightforward; for example, wording in the micro-credential was updated from "Google Bard" to "Google Gemini." However, others are more involved. Regular content audits and expert consultations will be necessary to ensure that the materials remain current, accurate, and pedagogically relevant.

Second, the data we reported, both in module-level evaluations and in pretest-posttest comparisons, are based on self-reported perceptions, attitudes, and anticipated behaviors. We did not receive feedback from those who did not complete the micro-credential. Moreover, although the participants we did hear from indicated increased confidence and intent to engage with GenAI, these self-assessments may not fully translate into sustained or consistent instructional use. Faculty may report enthusiasm or progress without yet having fully integrated GenAI into their courses, or their practices may evolve differently over time. Future research should consider incorporating direct measures of instructional behavior, such as classroom observations, analysis of instructional artifacts, or follow-up interviews, to examine how reported gains manifest in actual pedagogical practice. Additionally, understanding how these faculty changes impact student experiences and outcomes will be a critical next step in evaluating the broader effectiveness of GenAI-focused professional development.

Third, while this paper has focused on faculty, the micro-credential has since been adapted for staff and student audiences. For students in particular, the micro-credential is being integrated into first-year experience courses to provide foundational knowledge that will benefit students throughout their college experience. Future research will examine outcomes for those groups and explore how faculty preparedness may influence student attitudes and behavior around GenAI use. There is also interest in creating discipline-specific add-ons or pathways that contextualize GenAI use within academic or professional domains.

Finally, this study relied on self-reported data from a single institution, which is appropriate for an implementation-focused case study but limits generalizability. The micro-credential has since been adopted or adapted by partner institutions, and future multi-site analyses are planned. Additionally, integrating behavioral and performance-based indicators (e.g., rubric-rated artifacts, classroom observations) is a priority for future research and will enable stronger triangulation of outcomes. Future research will include qualitative interviewing and follow-up surveys approximately one year after completion to examine how faculty integrate GenAI into practice over time.

5.2 Implications

The micro-credential makes a direct contribution to the field of Information Systems education, which is increasingly shaped by advances in GenAI, machine learning, and data-driven decision-making. GenAI tools such as large language models (LLMs) and image generators are not only transforming workplace practices but are also influencing how core Information Systems topics, such as database management, systems analysis, human-computer interaction, and business analytics, are taught and learned. Faculty equipped with GenAI literacy are better positioned to model and teach practices like prompt engineering, data stewardship, and responsible use, and these skills are rapidly becoming essential in Information Systems-related professions. This aligns with the goals of the IS2020 curricular guidelines, which emphasize agility, critical thinking, and ethical awareness as core competencies for future Information Systems professionals (Leidig & Salmela, 2022).

Within the Information Systems discipline, faculty often serve dual roles as educators and digital transformation leaders, as illustrated by the micro-credential's co-development by an Information Systems faculty member and its alignment with broader pedagogical innovation goals. It complements existing Information Systems education initiatives aimed at integrating emerging technologies into curricula by focusing not just on student learning outcomes, but on the professional development of faculty as the key drivers of change, and as the parties responsible for providing helpful GenAI instruction and guardrails. As technologies continue to reshape how we teach, learn, and evaluate knowledge, institutions must invest in faculty development not only as a matter of professional upskilling, but as a foundation for curricular and cultural transformation.

Beyond its broad instructional implications, GenAI is reshaping core Information Systems competencies, particularly in software development. Code generation, debugging, and refactoring capabilities are now deeply integrated into industry workflows, accelerating the need for Information Systems faculty to prepare students for AI-augmented development environments. Although our dataset did not include discipline-level breakdowns, informal feedback from participants in computing-focused fields suggests strong interest in incorporating GenAI into programming assignments and systems analysis. Future research should examine discipline-specific adoption, especially within areas where GenAI tools are becoming essential professional infrastructure.

A related issue for both Information Systems education and higher education more broadly is navigating the tension between restrictive and embracing approaches to GenAI. Some instructional contexts (especially assessment) may warrant strong guardrails or disallowing GenAI use, while other contexts, such as design or prototyping, may benefit from full integration of GenAI tools to support productivity and learning. Although our study did not explicitly measure faculty attitudes toward this distinction, the micro-credential's syllabus-statement activity revealed that many faculty adopted a nuanced stance: they saw value in encouraging GenAI use for authentic professional tasks while simultaneously restricting its use in mastery-oriented assessments. Future investigations could further explore how faculty across disciplines negotiate this balance and how it shapes their pedagogical design choices.

In addition to demonstrating the short-term effectiveness of the micro-credential, this study points to broader implications for teaching, curriculum design, and faculty development research. Pedagogically, the results suggest that structured, experiential GenAI training can help faculty make more deliberate, values-aligned decisions about AI use in their classrooms. This type of foundational preparation is likely to shape how instructors frame AI use for students, how they design assignments in AI-rich contexts, and how they scaffold responsible use across the curriculum. For Information Systems education specifically, the micro-credential provides a model for how institutions might prepare faculty to teach emerging technologies proactively rather than reactively.

From a research perspective, the study contributes to the growing body of work on AI literacy by offering an institutional model that others can adapt, study, and extend. Future work can examine how faculty translate these gains into classroom practice, how student learning is influenced by faculty GenAI readiness, and how institution-wide GenAI development initiatives contribute to long-term cultural and curricular change. Such lines of inquiry will help build a more coherent evidence base around GenAI integration in higher education.

Notably, the micro-credential has attracted interest from peer institutions seeking to adopt or adapt the curriculum for their own contexts. In response, versions of the program have been made available through cross-institutional and public channels, including an offering to host on the university's continuing education platform and a university system-wide version designed to support broader faculty access. While specific implementation details vary, all versions retain the same values-driven, modular structure outlined in this paper. The micro-credential's continued evolution has been supported through cross-campus partnerships, including faculty developers, instructional designers, and technology leaders. The model presented here provides a flexible, effective starting point for that ongoing work.

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APPENDIX

Custom-Developed Survey Items

To assess participants' experiences across the micro-credential, we developed three survey items tailored to the structure and aims of the micro-credential. These items were administered for each learning objective and module, capturing (1) perceived progress, (2) informativeness, and (3) alignment between expected and actual time to complete. These items were administered at the conclusion of the course. The full wording of these items is provided below.

1. This course is organized around five learning objectives; please use the progress scale to describe your growth or gains on each of them.
[Learning objective]
    1. No apparent progress
    2. Slight progress
    3. Moderate progress
    4. Substantial progress
    5. Exceptional progress

2. How informative was each of the course modules?
[Module]
    1. Not very informative
    2. Somewhat informative
    3. Informative
    4. Very informative
    5. Extremely informative

3. For each module, please indicate your "time to complete" expectations.
[Module]
    1. Less time than I expected
    2. About the amount of time I expected
    3. More time than I expected

To evaluate shifts in participants' perceptions and use of GenAI, we developed two survey items tailored to the goals of the micro-credential. These items were administered at both the start and conclusion of the course, enabling pretest–posttest comparison. The full wording of these items is provided below.

1. Which of the following statements best describes your perception of generative AI?
    1. Negative: This is overhyped and not a good use of our time.
    2. Skeptical: I have reservations about the potential negative consequences and impacts that generative AI might introduce.
    3. Neutral: I'm still forming an opinion about generative AI's impact and need more information to make a judgment.
    4. Cautiously Optimistic: While I'm cautious about potential challenges, I believe generative AI has the potential to be a transformative force.
    5. Optimistic: I'm highly optimistic about generative AI's potential to bring about significant advancements and improvements.

2. Which of the following best describes your use of generative AI?
    1. It is intriguing; however, I'm not sure how it fits into [the university]'s mission.
    2. I don't use it yet but want to actively investigate implementation

3. I don't use it yet but plan to implement it in the near future (< 1 year)
4. I am a new active user (< 1 year)
5. I am an experienced active user (> 1 year)

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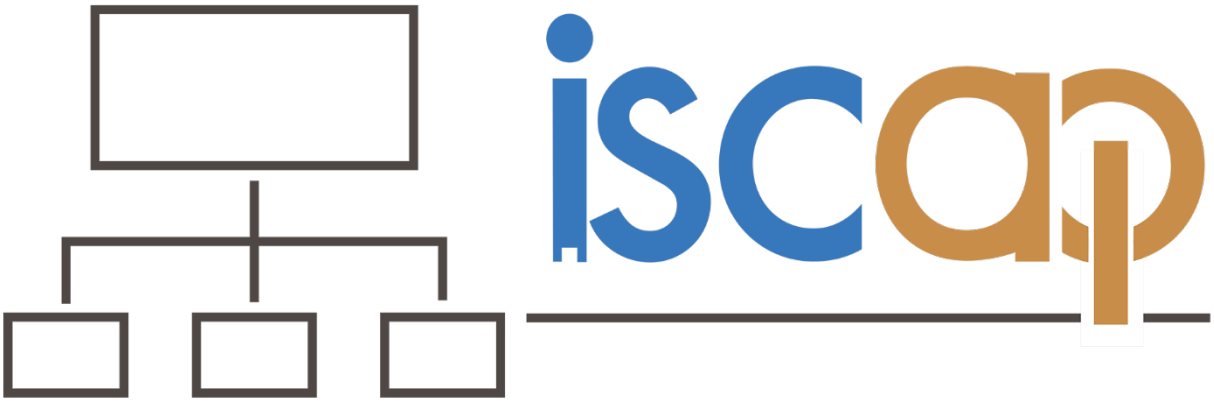

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