

CET Professionals' AI Readiness and the Integration of Generative AI in Professional Education: A Mixed-Methods Descriptive Study

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Abstract: Generative artificial intelligence (GenAI) is being adopted by Continuing Education and Training (CET) professionals to support their training and development design, yet little is known about the CET professionals' baseline readiness to adopt AI responsibly and how they concretely integrate AI tools into training and development work. This mixed-methods descriptive study examined (1) AI readiness across cognition, ability, vision, and ethics using an adapted validated survey (Wang et al., 2023), and (2) CET professionals' hands-on experiences in the integration of GenAI tools (e.g., ChatGPT, etc.) when designing training packages (8–24 hours). Forty-eight CET professionals completed the AI-readiness survey; a subset participated in follow-up interviews/focus groups. Survey results suggested generally high readiness across all four dimensions, with comparatively stronger in their “vision” and “cognition”. Qualitative findings portrayed GenAI as a “behind-the-scenes co-designer” used for brainstorming, outlining, case scenarios generation, and iteration. The CET professionals also shared their common concerns about privacy, bias, transparency, and over-reliance of AI tools. Participants reported readiness-building strategies centered on prompt experimentation, verification routines, and alignment to workplace constraints. Implications include embedding prompt-and-verify workflows, scenario-based ethics cases, and human-centered governance into professional development and education.

Keywords: AI readiness; generative AI; CET professionals; instructional design; professional education

1. Introduction

The rapid development of generative artificial intelligence (GenAI), particularly large language models and conversational AI systems, is reshaping how knowledge is produced, accessed, and applied across professional domains (Kasneci et al., 2023). In professional education and workforce development, GenAI has shown potential to support instructional design, content generation, assessment development, and reflective practice (Holmes & Tuomi, 2022). These developments are especially relevant for Continuing Education and Training (CET) professionals, who are responsible for designing industry-relevant and practice-oriented learning experiences for adult learners in rapidly changing skill environments (OECD, 2021).

However, the adoption of GenAI in professional training cannot be assumed to be straightforward. Prior research suggests that the integration of emerging technologies depends not only on the availability of tools, but also on educators' and trainers' readiness to understand, evaluate, and use them meaningfully in practice (Ertmer & Ottenbreit-Leftwich, 2010). In this regard, AI readiness has been conceptualized as a multidimensional construct that includes cognition, ability, vision, and ethics (Wang et al., 2023). This framework provides a useful lens for examining whether professionals are prepared to adopt AI responsibly and effectively.

Existing studies have explored AI readiness and GenAI use mainly among school teachers and university students, while research on CET professionals remains limited. This is an important gap because CET contexts differ from formal education in their strong industry orientation, emphasis on adult learning, and responsiveness to workforce needs

(Cedefop, 2020). As such, CET professionals may experience AI adoption in distinct ways that are not fully captured in prior studies.

To address this gap, this study adopts a descriptive mixed-methods approach to examine CET professionals' AI readiness and their integration of GenAI tools in training and development practices. Specifically, it addresses the following research questions:

RQ1. What is the level of AI readiness among CET professionals across cognition, ability, vision, and ethics, as measured using an adapted validated survey instrument?

RQ2. How do CET professionals integrate GenAI tools into their training and development practices, what are their concerns, and how do they prepare themselves to adapt AI in the design of training practices?

2. Method

This study employed a descriptive mixed-methods design to examine CET professionals' AI readiness and their integration of generative AI tools in training and development practices. Participants were CET professionals enrolled in a postgraduate Training Methods elective at a higher education institution in Singapore. The course focused on design and development training for adult learners in professional education contexts. Participation was voluntary, and informed consent was obtained prior to data collection. As part of the course, participants engaged in scaffolded, hands-on exploration of generative AI tools to support training design tasks, including content development, assessment planning, and iterative refinement of training materials. AI readiness was measured using an adapted version of the validated survey instrument developed by Wang et al. (2023), which assesses four dimensions: cognition, ability, vision, and ethics, using a five-point Likert scale. To complement the survey findings, qualitative data were collected through six semi-structured interviews with a subset of participants. The interviews focused on how participants used generative AI in training design, the concerns they encountered, and the strategies they adopted to use AI responsibly in practice. Quantitative survey data were analyzed using descriptive statistics, with means and standard deviations calculated for each AI readiness dimension. Qualitative data were analyzed using descriptive thematic analysis to identify recurring patterns in participants' AI integration practices, reported concerns, and readiness-building strategies.

3. Findings and Discussion

3.1 The level of AI readiness among CET Professionals across Cognition, Ability, Vision, and Ethics (RQ1)

Descriptive analysis showed that CET professionals demonstrated generally positive AI readiness across all four dimensions. Vision received the highest mean score ($M = 3.86$, $SD = .466$), followed by Ethics ($M = 3.71$, $SD = .634$), Cognition ($M = 3.64$, $SD = .635$), and Ability ($M = 3.50$, $SD = .618$). These results suggest that participants were generally optimistic about the value of AI in training and were aware of ethical issues, although their confidence in hands-on application was comparatively lower. Participants also reported positive perceptions of AI-enhanced innovation ($M = 3.81$, $SD = .539$), while perceived threats remained relatively neutral ($M = 3.20$, $SD = .877$). Overall, the findings indicate that CET professionals were generally ready to adopt AI in training practice, but further support may be needed to strengthen their practical ability. Cronbach's alpha coefficients ranged from .72 to .83 for all six variables, indicating acceptable reliability for the adapted survey.

Table 1.

Descriptive Statistics for AI-Related Subscales and Items

Subscale	Items	N	Mean	SD	Cronback Alpha
Cognition	CO1, CO2, CO3, CO4, CO5	48	3.64	0.635	0.72
Ability	AB1, AB2, AB3, AB4, AB5, AB6	48	3.50	0.618	0.83

Subscale	Items	N	Mean	SD	Cronback Alpha
Vision	VI1, VI2, VI3	48	3.86	0.466	0.78
Ethics	ET1, ET2, ET3, ET4	48	3.71	0.634	0.72
Perceived Threats	PT1, PT2, PT3, PT4, PT5	48	3.20	0.877	0.79
AI-enhanced Innovation	INN1, INN2, INN3, INN4, INN5	48	3.81	0.539	0.77

Note. All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Subscales Cognition, Ability, Vision, and Ethics constitute the AI readiness framework adapted from Wang et al. (2023). The sources of the remaining subscales are reported in Appendix A.

3.2 Integration of GenAI tools in CETs' Training and Development Practices (RQ2)

Qualitative analysis revealed three recurring patterns. First, CET professionals mainly used GenAI as a design support tool rather than a replacement for professional expertise. Common uses include generating ideas, refining learning objectives, developing examples or case scenarios, and supporting assessment design. Second, participants expressed concerns about accuracy, over-reliance, confidentiality, and bias, and emphasized the need to verify AI-generated outputs before applying them in practice. Third, participants described AI readiness as an ongoing developmental process, involving prompt experimentation, boundary-setting, and reflection on when and how AI should be used responsibly. Overall, the findings suggest that CET professionals adopted GenAI in a cautious and selective way, using it to augment rather than replace professional judgment. Additional details will be presented at the conference.

4. Discussion

This study provides descriptive insights into AI readiness among CET professionals and the integration of GenAI in training design. Consistent with the AI readiness framework proposed by Wang et al. (2023), participants reported relatively higher levels of vision and ethics than ability, suggesting generally positive orientations toward AI together with awareness of responsible-use issues. This pattern also supports prior work showing that positive perceptions of AI do not automatically lead to strong operational confidence or routine implementation (Chiu & Chai, 2020).

The qualitative findings further show that CET professionals used GenAI mainly as a support tool for brainstorming, structuring, and refining training design, rather than as a substitute for professional judgment. This result is in line with prior studies that describe GenAI as useful for drafting, idea generation, and iterative design support in educational practice (Holmes & Tuomi, 2022; Rudolph et al., 2023; Zhai, 2022). At the same time, concerns about accuracy, confidentiality, bias, and over-reliance influenced how AI was used in practice, echoing earlier research on ethical accountability and constrained adoption (Akgun & Greenhow, 2022).

Finally, the strategies reported by participants, including prompt experimentation, verification, and boundary-setting, suggest that AI readiness is better understood as an ongoing developmental process rather than a fixed competence. These findings highlight the need for professional development that strengthens not only technical ability, but also responsible and context-sensitive use of AI in CET practice.

5. Limitations and Conclusion

This study offers some descriptive insights into the AI readiness of CET professionals and their integration of generative AI tools into training and development practices. The findings suggest that CET professionals generally exhibit positive AI readiness, particularly in terms of strategic vision and ethical awareness, while demonstrating more cautious and selective use of GenAI as a design support tool. These results emphasize the importance of professional development approaches that prioritize reflective, ethically informed, and practice-oriented integration of AI in training and learning.

Several limitations should be acknowledged. The study involved a relatively small sample from a postgraduate programme, which may limit the generalizability of the findings. In addition, AI integration practices were based on self-reported reflections and course artifacts rather than direct observation. Finally, the descriptive design precludes conclusions about causal relationships between AI readiness and training outcomes. Future research could address these limitations by using larger samples, employing longitudinal designs, and incorporating observational methods to enhance the understanding of these phenomena.

Acknowledgements

This project is supported by the EdeX Grant from the Centre for Teaching, Learning and Pedagogy, Nanyang Technological University.

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A copy of the AI-readiness survey could be found [here](#)