Technoarete Transactions on Applications of
Information and Communication Technology (ICT) in Education
Volume 5, Issue 3, July 2026

e-ISSN: 2583-3154

Adopting GenAI in Higher Education, a Faculty Workshop Addressing Beliefs and Agency

Graziano Cecchinato[1], Romina Papa[2*]

[1]University of Padua, Padua, Italy
[2]ADi - Association of Italian Teachers and School Leaders, Bologna, Italy
*Corresponding Author Email: romina.papa73@gmail.com

Abstract

This paper reports the results of an intensive faculty-development workshop on generative AI (GenAI), delivered to a community of university teachers with an established practice of peer observation and reflective teaching within the Mentor Project. Adopting a pre-post, single-group design (N = 26 at pre-test, N = 25 at post-test) and drawing on a four-dimension model of teacher engagement with GenAI (Perceptions, Acceptance, Knowledge, Practices), the study examines whether a short, intensive, 15-hour training can shift faculty beliefs about the pedagogical opportunities and risks of GenAI, moving teachers from an established Adopter profile toward a more advanced Collaborator practice. Using Wilcoxon signed-rank test, results show significant post-workshop increases, with large effect sizes, in beliefs related to the personalization of learning activities, student creativity, and the redefinition of the teacher's role in AI-supported environments, while none of the risk-related items showed a significant decrease: concerns about assessment integrity and process reliability remained stable, and privacy-related concerns increased. These results suggest that GenAI training is most effective when it extends pedagogical values faculty already hold, and cannot be separated from institutional decisions on data governance and academic-integrity standards. The paper discusses implications for the design of online faculty-training programs supporting sustainable GenAI adoption in higher education.

Keywords

Faculty training, GenAI, higher education, pedagogical beliefs.

INTRODUCTION

The adoption of new technologies in university teaching rarely follows top-down logic or short-lived enthusiasm. It tends to occur when a tool or a method responds to a concrete instructional need and can be sustained by the institution's existing resources and infrastructure. This is true also when the technology is generative artificial intelligence (GenAI) whose adoption is accelerating across higher-education systems worldwide [1], and above all when the faculty has engaged in peer observation and reflection on its own teaching through peer mentoring.

This paper reports on a GenAI training initiative addressed to exactly this kind of community as these teachers are willing to use GenAI tools given their prior engagement with active and technology-supported pedagogy. The study investigates whether a short, intensive training format is sufficient to translate favourable attitudes into stable, sustainable classroom practice. As the data will show, the answer is not straightforward, and the resulting evidence carries direct implications for how institutions should design and deliver ICT-based faculty training.

The workshop was delivered to faculty affiliated with the Mentor Project, an initiative launched in 2013 at the University of Palermo to face the isolation of university teachers through reciprocal classroom observation [2] [3] [4]. Each participant acts simultaneously as observer and observed, generating a form of internal, collegial feedback [5] that operates without imposed hierarchies. The Mentor Project since then has become a university-wide initiative growing from 13 to 135 participants by 2026, based on three components: reciprocal classroom visits, feedback sessions that include students' perspectives, and annual training cycles on teaching-related topics.

Participants are, in general, already trained in active-learning methods such as Team-Based Learning [6], Problem-Based Learning [7] and Project-Based Learning [8]: their challenge with GenAI is therefore not to be convinced of the value of active teaching, but to identify tools and workflows that make their existing practice scalable within the constraints of everyday academic work (large classes, tight schedules, disciplinary fragmentation).

To interpret how teachers' practice might change in response to GenAI, the study draws on the four-dimension model proposed by Zhai [9] - Perceptions, Acceptance, Knowledge, and Practices - which also identifies four progressively more advanced faculty profiles (Observer, Adopter, Collaborator, Innovator). Faculty in this sample, already advanced in their pedagogical orientation, would be expected to sit at the Adopter level; the workshop's core question is whether an intensive intervention can push them into stable Collaborator practice, closing the gap between favourable beliefs and actual, technology-supported instructional routines.

The training was delivered in an intensive format, 15 hours in three days, combining a short interactive theoretical introduction with hands-on tool sessions. Content covered the fundamentals of GenAI applications in education, implications for instructional design, hands-on use of specific tools, and the infrastructural and ethical issues these tools raise such as plagiarism detection, data privacy, security, and authenticity assessment in online and hybrid settings. The facilitation approach shifted the enphasis away from technical GenAI knowledge transmission and toward mentor-led observation and reflective post-session discussion: the goal was to create a space in which teachers could test tools against authentic instructional problems and discuss workable solutions with peers, deferring the more demanding, iterative redesign of practice to a later phase.

METHOD

The study adopts a pre-post, single-group design with 26 teachers at the pre-test and 25 at the post-test as one participant did not complete the post-workshop questionnaire. Participants were predominantly experienced university professors in the fields of engineering and architecture, life sciences, and the humanities; about half reported no or only occasional prior use of GenAI tools in their teaching.

The study tests a single hypothesis: an intensive GenAI workshop produces statistically significant shifts in teachers' beliefs about GenAI, in the direction predicted by the theoretical framework, an increase for pro-GenAI items and a decrease for anti-GenAI (risk-related) items. Given that the sample is already oriented toward active teaching, changes are expected to focus on dimensions consistent with pedagogical values already internalized (active learning, personalization, creativity) rather than on more epistemically resistant dimensions such as critical thinking and plagiarism.

Beliefs about GenAI were measured through a questionnaire organized into four thematic groups: Learning, Critical Thinking, Process Assessment and Plagiarism, and Role of the Teacher, with 8 items per group (32 items in total), balanced between statements expressing positive potential (pro-GenAI) and statements expressing risk or concern (anti-GenAI). Responses were collected on a 6-point scale (1 = Not at all, 6 = Extremely), administered before and after the workshop.

The questionnaire was developed specifically for this study and has not undergone formal psychometric validation in prior research; this is acknowledged as a limitation below. Informed consent was obtained orally from all participants at the start of the workshop, prior to data collection.

The questionnaire was administered anonymously on two occasions (before and after the workshop). Pre-post comparisons for the 25 pairs were conducted using the Wilcoxon test. The biserial rank correlation was calculated as a measure of effect size. All analyses were conducted using Jamovi version 2.7 with the Rj module added for Propensity Score Matching [10].

RESULTS

Eight of the sixteen pro-GenAI items showed statistically significant post-workshop increases ($p < .05$), with large effect sizes on:

1. Item 1D (shift from content transmission to support for knowledge construction: $W = 18.0$, $p = .007$, $r = −0.889$), which shows the largest change, indicating that teachers increasingly see GenAI as an aid to guided knowledge-building rather than as a content delivery mechanism.
2. Item 5D (customization of activities: $W = 21.0$, $p < .001$, $r = −0.871$) and Item 5A (deeper exploration and meaning-making: $W = 60.0$, $p = .025$, $r = −0.631$), which point to a perceived gain in the personalization of learning activities.
3. Item 7A (promotion of student creativity: $W = 32.0$, $p = .005$, $r = −0.803$) and Item 3D (teacher's role in guiding tool usage: $W = 32.0$, $p = .012$, $r = −0.803$), which reflect a reconfiguration of the teacher's role toward facilitation and guidance.
4. Item 7C (understanding how students respond to feedback: $W = 43.0$, $p = .016$, $r = −0.735$) and Item 3C (promotion of new assessment formats: $W = 61.0$, $p = .047$, $r = −0.625$) and Item 7D (reduced screen time, more room for interactive activity: $W = 50.0$, $p = .033$, $r = −0.692$), which suggest a shift in how teachers imagine assessment and classroom time when supported by GenAI.

None of the sixteen risk-related (anti-GenAI) items showed a significant post-workshop decrease. Concerns about plagiarism, the epistemic reliability of AI-assisted work, and the complexity of assessing student process remained stable.

A further result concerns Item 8B (hinders privacy awareness: $W = 62.5$, $r = −0.615$): privacy-related concerns increased after the workshop. Hands-on exposure to GenAI tools appears to sharpen faculty awareness of data-governance risks, data exposure and institutional liability, which they had previously perceived as less concerning than after the workshop. This finding has a direct and practical implication: institutions introducing GenAI into online or hybrid teaching need to pair faculty training with clear IT governance frameworks, since informed use of these tools tends to heighten rather than resolve data-related concerns.

Table 1. Descriptive characteristics

Characteristic	Category	Pre-intervention, n = 26 n (%)	Post-intervention, n = 25 n (%)
Gender	Female	14 (53.8)	14 (56.0)
	Male	12 (46.2)	11 (44.0)
Teaching experience	Less than 10 years	3 (11.5)	3 (12.0)

Characteristic	Category	Pre-intervention, n = 26 n (%)	Post-intervention, n = 25 n (%)
	10 to 20 years	9 (34.6)	7 (28.0)
	More than 20 years	14 (53.8)	15 (60.0)
Teaching area	Engineering and Architecture	10 (38.5)	11 (44.0)
	Life Sciences	12 (46.2)	10 (40.0)
	Arts and Humanities	4 (15.4)	4 (16.0)
Previous experience using GenAI for teaching	None	9 (34.6)	8 (32.0)
	Occasional	10 (38.5)	11 (44.0)
	Frequent	7 (26.9)	6 (24.0)

Table 2. Significant pre-post changes on pro-GenAI belief items (Wilcoxon test)

Item	Short description	Wilcoxon W	p	r (effect size)	Direction
1D	Shifts the teacher's role from transmission to support for knowledge construction	18.0	.007	-0.889	post > pre
5D	Allows for customization of activities	21.0	<.001	-0.871	post > pre
7A	Promotes creativity	32.0	.005	-0.803	post > pre
3D	Promotes the teacher's role in guiding usage	32.0	.012	-0.803	post > pre
7C	Helps the teacher understand how students handle feedback	43.0	.016	-0.735	post > pre
7D	Reduces screen time and frees up space for interactive activities	50.0	.033	-0.692	post > pre
5A	Allows for deeper exploration and the attribution of meaning	60.0	.025	-0.631	post > pre
3C	Promotes new forms of assessment	61.0	.047	-0.625	post > pre

DISCUSSION

The first finding of the research was that the post-workshop shift in pro-GenAI beliefs occurred on pedagogical values already held by the faculty. In fact, statistically significant increases were concentrated in active knowledge construction ($W = 18.0$, $p = .007$), personalization ($W = 21.0$, $p < .001$), and student creativity ($W = 32.0$, $p = .005$). Training for participants who belonged to the Mentor Project community, already competent in student-centered methodologies like Team-Based Learning and Problem-Based Learning, succeeded because it demonstrated how GenAI tools can make existing active-learning paradigms scalable within everyday classroom constraints.

The second finding was that risk-related beliefs concerning plagiarism, assessment complexity, and epistemic reliability remain stable. Furthermore, the statistically significant increase in privacy concern (Item 8B: $W = 62.5$, $r = -0.615$) shows that hands-on exposure has sharpened faculty awareness of data exposure instead of reducing it.

Prior research such as that on ethical impact of GenAI in teacher training [11] similarly observed that even an extensive GenAI training program of about 80 hours failed to reduce faculty skepticism regarding content originality and privacy issues. Likewise, wider survey data on faculty attitudes toward institutional AI governance [12] [13] [14] [15] establish that improving digital data literacy naturally heightens sensitivity to privacy and governance.

Analyzed through Zhai's four-dimension model (Perceptions, Acceptance, Knowledge, Practices), the intervention succeeded in consolidating *Perceptions* by realigning cognitive beliefs among the already receptive faculty members. However, it did not provide evidence of shifts toward *Practices* that characterize a transition from an *Adopter* to a *Collaborator* and this seems to require a longer temporal horizon.

However, the study has clear limitations: the sample ($N = 25$) is small and drawn from a professional community that was already strongly reflective and technology-oriented, which limits generalizability. The single-group pre-post design, in the absence of a control group, does not allow alternative explanations for the observed changes (e.g., maturation or concurrent events unrelated to the workshop). The questionnaire, developed specifically for this study, has not undergone formal validation in prior research. In addition, the design captures beliefs immediately after the

e-ISSN: 2583-3154

workshop and does not track subsequent changes in classroom practice.

CONCLUSIONS

These results indicate that short, intensive GenAI training can shift faculty beliefs in pedagogically coherent directions, but translating these beliefs into stable practices requires investments in infrastructures and data-governance frameworks or guidelines.

The workshop appears to have successfully consolidated favourable perceptions among an already receptive faculty group, without yet producing evidence of technology-integrated practices that would mark a transition from an Adopter to a Collaborator profile and the stability of risk-related beliefs, together with the increase in privacy-related concern, suggests that faculty who become more competent users of GenAI also become more attentive to privacy issues. Institutions that invest in faculty training without investing in data-governance policies and guidelines risk leaving faculty without a stable structure in which to enact their good disposition toward GenAI in their courses.

These considerations point to several directions for future research, for instance longitudinal designs that follow faculty after the workshop period would help establish whether favourable perceptions eventually translate into stable practices. Replicating this study with larger and more heterogeneous samples, including faculty with less prior engagement in reflective teaching communities, would help clarify how much of the observed belief change depends on the specific characteristics of a community such as the Mentor Project. Finally, future work could usefully examine how faculty-training programs might be redesigned to address the more epistemically resistant dimensions such as concerns about privacy.

REFERENCES

[1] OECD (2026), *Reimagining Teaching in an Accelerating World*, International Summit on the Teaching Profession, OECD Publishing, Paris, https://doi.org/10.1787/d0edfe8c-en.

[2] Cannarozzo, M., Gallo, P., Coco, A. L., Megna, B., Musso, P., and Scialdone, O., 2019, The Peer Observation: "Mentore" Project at University of Palermo. In: *Knowledge Management and Organizational Learning*, edited by Springer International Publishing (Cham: Springer), pp. 237–248. https://doi.org/10.1007/978-3-030-29872-2_14

[3] Felisatti, E., Scialdone, O., Cannarozzo, M., and Pennisi, S., 2019, Il mentoring nella docenza universitaria: il progetto "Mentori per la didattica" nell'Università di Palermo. *Italian Journal of Educational Research*, (23), 178-193. https://doi.org/10.7346/SIRD-022019-P178

[4] Università degli Studi di Palermo, Progetto Mentore, Date of access: 10/03/2026. https://progettomentore.unipa.it/.

[5] Nicol, D., 2019, Reconceptualising feedback as an internal not an external process. *Italian Journal of Educational Research*, (Special Issue), 71-84. https://ojs.pensamultimedia.it/index.php/sird/article/download/3270/3130

[6] Michaelsen, L. K., and Sweet, M., 2011, Team-based learning. *New Directions for Teaching and Learning*, 128(128), 41-51. https://doi.org/10.1002/tl.467

[7] Hung, W., Jonassen, D. H., and Liu, R., 2008, Problem-based learning. In: *Handbook of Research on Educational Communications and Technology*, edited by A. Januszewski and A. Molenda (New York: Routledge), pp. 485-506. https://www.academia.edu/download/50946792/PBL_Ch38_AECT_Handbook_ed3.pdf

[8] Thomas, J. W., 2000, A review of research on project-based learning. Report, The Autodesk Foundation. https://tecfa.unige.ch/proj/eteach-net/Thomas_researchreview_PBL.pdf

[9] Zhai, X., 2025, Transforming teachers' roles and agencies in the era of generative AI: Perceptions, acceptance, knowledge, and practices. *Journal of Science Education and Technology*, 34(6), 1323-1333. https://par.nsf.gov/servlets/purl/10630059

[10] The jamovi project, 2025, jamovi (Version 2.7) [Computer software], Date of access: 10/03/2026. https://www.jamovi.org.

[11] López-Vasco, F. E., Angulo-Álvarez, M. R., and Sosa-Zúñiga, D. I., 2025, Formación docente en IA Generativa: impacto ético y retos en educación superior. *Alteridad*, 20(2), 166-177. https://www.redalyc.org/journal/4677/467782177001/467782177001.pdf

[12] Kim, J., Klopfer, M., Grohs, J. R., Eldardiry, H., Weichert, J., Cox, L. A., and Pike, D., 2025, Examining faculty and student perceptions of generative AI in university courses. *Innovative Higher Education*, 50(4), 1281-1313. https://link.springer.com/content/pdf/10.1007/s10755-024-09774-w.pdf

[13] Verano-Tacoronte, D., Bolívar-Cruz, A., and Sosa-Cabrera, S., 2025, Are university teachers ready for generative artificial intelligence? Unpacking faculty anxiety in the ChatGPT era. *Education and Information Technologies*, 30(14), 20495-20522. https://accedacris.ulpgc.es/bitstream/10553/137396/1/s10639-025-13585-7.pdf

[14] Pangrazio, L., and Selwyn, N., 2019, 'Personal data literacies': A critical literacies approach to enhancing understandings of personal digital data. *New Media & Society*, 21(2), 419-437. https://doi.org/10.1177/1461444818799523

[15] Holmes, W., & Miao, F. (2023). *Guidance for generative AI in education and research*. Unesco Publishing. https://doi.org/10.54675/EWZM9535