L'era dell'AI nel *faculty development*. Un sondaggio sull'integrazione degli strumenti digitali e dell'IA

The Age of AI in faculty development. Survey insights on integration of digital tools and AI

Daniele Morselli
Associate Professor of Didactics and Special Pedagogy, Faculty of Education, Free University of Bozen-Bolzano, daniele.morselli@unibz.it

Susanne Schumacher
Research Fellow of Didactics and Special Pedagogy, Faculty of Education, Free University of Bozen-Bolzano, susanne.schumacher@unibz.it

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ABSTRACT

This contribution explores the integration of digital tools and artificial intelligence in higher education and its impact on faculty development. It highlights the transformative potential of AI in teaching, personalising learning and streamlining administrative tasks. The study focuses on a small university in Northern Italy, where a survey was conducted to identify faculty training needs related to student centred pedagogies, AI and digital technologies. Results indicate that while instructors do not integrate digital tools into their teaching, they face challenges in designing engaging, effective, and inclusive teaching and learning activities. The article emphasises the need for faculty development programs to equip educators with the competences to adopt student-centred pedagogies and the ethical use of generative AI.

Questo articolo esplora l'integrazione dell'intelligenza artificiale nell'istruzione universitaria e il suo impatto sul *faculty development*, evidenziando il potenziale trasformativo degli strumenti di IA nell'insegnamento, nella personalizzazione dell'apprendimento, e nelle attività amministrative. Lo studio si concentra su una piccola università nel Nord Italia, dove si è condotto un sondaggio per identificare le esigenze di formazione del corpo docente relative alle didattiche attive, all'IA e alle tecnologie digitali. I risultati indicano che i docenti non utilizzano strumenti della didattica digitale, e l'integrazione di didattiche coinvolgenti, partecipate e inclusive rimane per loro una sfida. Le conclusioni sottolineano la necessità di programmi di sviluppo del corpo docente per dotare gli educatori delle competenze necessarie per adottare didattiche centrate sugli studenti e sull'utilizzo etico dell'IA.

Keywords: faculty development, digital technologies, generative AI, survey, ethics of AI

Parole chiave: faculty development, didattica integrate dal digitale, IA generativa, indagine, etica dell'IA

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Corresponding Author:
Daniele Morselli, daniele.morselli@unibz.it

Introduction

The integration of generative artificial intelligence (AI) in higher education is no longer a distant dream, but a reality that is quickly shaping higher education (Kazimova *et alii*, 2025). Worldwide, universities are embracing AI tools to personalise learning, streamline administrative tasks, and enhance research capabilities, fundamentally reshaping the educational landscape (Bond *et alii*, 2024). As a result, higher education institutions are under immense pressure to adapt and innovate to preserve the relevance and impact of academic education. In this rapidly evolving landscape, faculty development plays a key role in equipping educators with the competences and mindset to adopt student centred pedagogies (Lampugnani, 2020; Sorcinelli, 2020) that engage students and foster deep learning (Biggs, Tang, Kennedy, 2022). By investing in such programs, higher education can empower educators to create inclusive, adaptive, and forward-thinking learning environments that prepare students for the challenges of an AI-driven world.

Like it or not, most university students are already using AI for study or for carrying out assignments. According to the Digital Education Council (2024), 86% of students already use AI in their studies; 58% of them, however, feel they are not skilled enough in its use, and 78% believe it should be universities to train for the use of AI. Students make use of generative AI to better understand concepts, summarise articles, and propose research ideas (Freeman, 2025). Furthermore, almost one-fifth of the surveyed university students admitted they generate texts for their assignments: not only does AI save time, but it also improves results and therefore final grades, which raises concerns related to academic integrity. In contrast, 61% of instructors already use AI in their teaching (Digital Education Council, 2025), yet 88% adopt a cautious approach, using AI in teaching only from minimal to moderate use.

While faculty development is more crucial than ever for the renewal and innovation of university teaching and learning, studies on how to best embed AI for faculty development are scarce (Tan, Cheng, Ling, 2024). This study explores the training needs of the academic staff at a small university located in Northern Italy. In January 2025, a questionnaire comprising both multiple-choice and open-ended questions was sent to all faculty members. The responses help identify themes for future training courses. The questionnaire focused on the use of digitally integrated teaching to enhance student participation, as well as the faculty training needs, including AI.

The following research questions aim to establish a baseline and subsequently inquire about the training faculty's needs:

– *RQ1: To what extent do the faculty integrate digital tools in their lessons?*
– *RQ2: What are the challenges that the faculty are facing in teaching?*
– *RQ3: What are the faculty's training needs, especially in terms of AI?*

The article's opening section is an outline of studies on faculty development in Italy and abroad, which provides the background to a subsequent section that highlights the most up-to-date reviews on the use of generative AI in higher education. Subsequently, it shows the methodology comprising descriptive statistics of the multiple-choice questions and a qualitative analysis of the open-ended question. The results summarise the main findings of the 104 answers, while discussion and conclusions follow.

1. Literature review

1.1 *Faculty development*

Initiated by medical education (Lampugnani, 2020), faculty development has been broadly defined as encompassing a diverse array of initiatives aimed at enhancing faculty performance across all dimensions of their professional roles (Sorcinelli, 2020). This includes their responsibilities as educators, researchers, advisors, academic leaders, and active contributors to institutional life. The evolution of faculty development moved through diverse stages. The initial phase, known as the Scholar Age, emphasised the enhancement of expertise within one's academic discipline. The 1970s were the Age of the Teacher: besides

knowing the subject matter, an awareness emerged on the importance of being able to teach. The 1980s were the Age of the Developer: the teaching and learning centres were growing fast, and an interest rose in measuring the outcomes through students' ratings of instruction.

The '90s marked a paradigm shift, as the focus transitioned from traditional teaching methods to prioritise student-centred learning (Sorcinelli, 2020), where the educator evolved from the "sage on the stage" delivering content to a "guide on the side" (King, 1993), that is a learning facilitator who supported active knowledge construction through collaborative engagement. Similarly, Steinert (2019) suggested a move "from rubies to oak". This metaphor describes the evolution of teaching and learning from a traditional, rigid, and authoritarian approach (symbolised by rubies, a static yet precious stone) to one that is more flexible, inclusive, and rooted in context (the oak, a robust and adaptable tree). For Lampugnani (2020), this has been the most important turnaround in faculty development, which has been also characterised with the switch from knowledge to competence-based education.

Eventually, the present Age of the Network reflects heightened demands for continuous learning at both individual and institutional levels, coupled with transformative shifts in faculty roles, student demographics, and evolving teaching/scholarship practices (Sorcinelli, 2020). As academia enters a new era of faculty development, it faces a more precarious workforce and diversifying demographics, with yet aging cohorts of faculty. Simultaneously, increasingly diverse students (first-generation immigrants, underrepresented groups) and external pressures (Massive Online Open Courses, data analytics, alternative providers) demand new competences, blending opportunities and disruptions. Moreover, faculty development does not happen in a vacuum but in a professional learning community. For Soares *et alii* (2024), interdisciplinary and collaborative approaches prove key for reflecting, learning, diversifying, rethinking, envisioning, and being intentional about their own pedagogies. Eventually, studies on the evaluation of faculty development rely predominantly on self-reporting rather than objective metrics tied to external observation or measurement (Lampugnani, 2020). This brings the risk of overreliance on a strictly positivist research paradigm remains, and it is critical to move research towards post-positivist, interpretivist, and critical theory frameworks, which can better contextualise and address complex educational dynamics.

1.2 *AI for teaching and learning in higher education*

Studies on AI technologies in higher education are growing fast, while the widespread use of generative AI is very recent. To cope with these challenges, this section considers the most recent literature reviews since 2024. The search was assisted with AI tools, with deep searches using Perplexity, and searches being conducted through Consensus and Elicit. The prompt to begin the co-constructed searches was "reviews on the use of AI for faculty development in higher education".

Most of the literature consulted highlights both advantages and risks of using generative AI in academia. A strength lies in its transformative potential to progress the Sustainable Development Goal 4 (SDG 4) by increasing accessibility, equity and quality, as well as reducing the mismatch between educational outcomes and labour demand (Pachava *et alii*, 2024). Batista, Mesquita, Carnaz (2024) highlight the versatility of AI, its acceptance from students and the educational progress it provides. With a textual narrative synthesis approach Tillmanns *et alii* (2025) identify as most recurrent themes mentorship, personalised learning, emotional intelligence, and higher-order thinking. These themes underline the need to strike a balance between human-centred educational practices and the many possibilities offered by generative AI. Other important themes include how to increase deep learning and creativity.

Moreover, scholars (Bond *et alii*, 2024; Kazimova *et alii*, 2025) agree that AI contributes to enhancing instruction in: 1) profiling and prediction, by deploying data-driven approaches for making informed decisions and forecasts, for example to help at risk students; 2) intelligent tutoring systems and personalised learning, that is improving the student's teaching and learning experience by providing tailored interventions and matching students' needs and interests; 3) assessment, by automating and improving the assessment processes. Not only these technologies enable the design of personalised educational interventions tailored to meet the specific needs of each learner, but also serve as powerful allies in preventing dropout, turning data into actionable solutions for a more inclusive and responsive education system (Panciroli, Rivoltella, 2023).

Next to the many advantages of using generative AI in teaching and learning, scholars also highlight challenges concerning academic integrity, assessment practices, and data fabrication (Buck, Limburg, 2023; Batista, Mesquita, Carnaz, 2024; Ocen et alii, 2025). Kazimova *et alii* (2025) see potential issues in data privacy and algorithmic biases, while for Bond *et alii* (2024) there is an urgent call for an improved focus on ethics. Higher education institutions should therefore create regulatory frameworks describing how AI tools may be deployed and contemporaneously set appropriate ethical standards among faculty and students (Ocen *et alii*, 2025). Eventually, research mostly focused on using AI applications for teaching, while studies on AI for teacher professional development are still missing (Tan, Cheng, Ling, 2024). We need to know which activities best increase the instructor' s comprehension of AI and help them integrate these technologies into teaching and learning.

2. Methodology

In January 2025, an online survey was launched without sampling to the faculty of a small university located in Northern Italy. In line with the call of Lampugnani (2020), the survey was composed of both multiple choice and open-ended questions, to move beyond a sole positivist view towards embedding a qualitative and therefore interpretive approach, whereby respondents could better express their needs. The questions focused on both teaching and learning activities to underline that learning also happens when the teacher does not lead the lesson, hence embracing a constructivist approach that puts the student at the centre of the learning process (Biggs, Tang, Kennedy, 2022). The questionnaire was composed of only eight questions so as not to overwhelm respondents. To improve validity (Ravitch, Carl, 2019), the authors solicited feedback from experts in Pedagogy and IT experts.

The first two questions were about role and faculty to which the respondents belonged to, followed by questions on digital tools they use in their teaching practice. Using a Likert scale on five levels (from "never" to "often"), this question asked about the frequency of use for the most popular tools, including MS Teams, shared files, learning management system, Mentimeter, Padlet and Kahoot. The subsequent question inquired about the challenges the interviewees are facing in teaching and learning. Another question inquired about how the respondents wanted to embed AI in teaching and learning, and the following, the only open-ended question, was about the topic(s) they would like to see covered in a course. The last two questions inquired about favourite day and time for such a course.

A total of 123 out of 296 faculty members (of which 173 permanent and 123 with fixed-term contract[1]) answered the questionnaire, with 104 giving consent to use data for research purposes; 53% were professors, while the rest were researchers. The distribution was: 35% from the Faculty of Education, 22% from Economics and Management, 21% from Engineering, 16% from Agriculture, 5% from Design and 2% from Competence Centres. Data analysis combined descriptive statistics for multiple-choice responses and thematic analysis for the open-ended question. Concerning the former, the results section shows descriptive statistics, since we scanned data by role (professor vs. researcher) and type of faculty (Education vs. other faculties) through Chi-Square tests, but results were distributed evenly, discouraging further inspections. Concerning the open-ended question, the 53 responses were analysed inductively by the co-authors, who independently categorised the data before comparing and refining their categories through multiple rounds of discussion to ensure intersubjectivity and data trustworthiness (Ravitch, Carl, 2019). Occasionally one response could fall into two themes, and in these cases it would be classified with both.

3. Results

This section provides key findings, the first part (from Tables 1 to 3) shows descriptive statistics while the second a qualitative analysis on the open answers. Table 1 shows how instructors make use of digital tools, the numbers in italics represent the medians.

1 Data from the university site, dates and facts of 2023.

	Never %	Rarely %	Sometimes %	Often %	Always %
Learning management system (MOODLE)	33	10	*15*	15	27
Web-based applications for collaborative work (e.g., Padlet)	*63*	13	12	10	2
Interactive presentation software (e.g., Mentimeter)	*54*	22	14	9	0
Quizzes (e.g., Kahoot!)	*60*	15	15	8	2
Shared files (e.g., Word) for students to work in groups	18	8	14	*27*	33
MS Teams	3	4	11	21	*62*

Tab. 1: *What app or digital tools do you use in your teaching and learning activities? (N=104). Medians in italics*

Table 2 lists the instructors' challenges in descending order when thinking of teaching and learning.

Proposing engaging, effective, and inclusive teaching and learning methodologies	52%
Assessment (diagnostic, formative and summative)	18%
Teaching in a multilingual environment	17%
Identifying intended learning outcomes	17%
Managing the students as a group	16%
None of the above	5%

Tab. 2: *Considering your teaching and learning activities, what are the challenges you are facing? (N = 104)*

Table 3 shows how instructors would like to integrate AI into teaching.

Support in the creation of teaching content	51%
Gamification of learning	33%
Aid for automated (especially diagnostic and formative) assessment	26%
Student personalised learning	21%
None of the above	21%

Tab. 3: *How would you like to integrate AI into your teaching? (N = 104)*

Eventually, Table 4 shows the qualitative analysis on what interviewees would like to see in a training course offered by the university. The themes are listed for importance in descending order. The first two themes (innovative pedagogies and improving teaching) are similar but were kept separated as they highlight the difference between teaching and learning, a difference that the following section discusses.

Emerging theme	Example from dataset	Percentage of answers
Innovative pedagogies	Fostering students' participation	19%
Improving teaching	Brain-friendly teaching, that is, leveraging insights from neurophysiology to develop effective forms of teaching	17%
Use of AI in general	AI tools	14%
Use of AI for research purposes	AI tools for textual analysis	9%
AI and academic dishonesty	AI and plagiarism	9%
No time for training courses	I have no time to participate in a training course. Safety courses first.	9%
Gamification of learning	The idea of gamification of learning is interesting	7%
Unclassified	Deep learning, machine learning	7%
AI for teaching	Capabilities of AI tools in university teaching in general	5%
Assessment	How to automate final exams	5%

Tab. 4: *What specific topics would you like to see covered in a training course you would participate in? (N = 53)*

4. Discussion

The first research question was: *To what extent do the faculty integrate digital tools in their lessons?* Table 1 suggests that the participants *always* use Teams, mostly as a repository of presentations and shared documents. Such confidence with Teams is probably due to the familiarity they have developed during the pandemic and later to meet colleagues, attend online courses, and supervise students. Furthermore, interviewees *often* use shared files and only *sometimes* deploy the university's learning management system, which would be much better to store documents and links, communicate with students (through the forum or when commenting assignments), and maintain students' privacy at the same time, for example when students upload assignments. In this regard Dominici (2022) highlights the potential of MOODLE for teaching and learning, even to prevent students' dropout. Moreover, the respondents *never* use web-based applications for collaborative work, interactive presentation software, and quizzes, which would help make interactive and engaging teaching and learning activities (Biggs, Tang, Kennedy, 2022; Dominici, 2022).

The second research question was: *What are the challenges that the faculty are facing in teaching?* Table 2 shows that more than half find it difficult to offer engaging, effective, and inclusive teaching and learning activities, which aligns with the paucity they use digital tools for their lessons as displayed in Table 1. These results suggest that instructors prefer the lecture-style. Furthermore, Table 3 shows that the most important AI-related need for the interviewees is to learn how to use it for creation of teaching materials (52%), which is consistent with the survey of Digital Education Council (2025), whereby top suggested use of AI is creating teaching materials.

The third research question was: *What are the faculty's training needs, especially in terms of AI?* The qualitative analysis of Table 4 shows two important top themes as "innovative pedagogies" and "improving teaching", suggesting that some participants are more teacher-centred, while others are more student-centred. Other important results of Table 4 concern AI related topics for a course on faculty development. First, the interviewees would like to know how to use AI in general which, in line with the Digital Education Council (2025), suggests they are taking their first steps towards embedding AI. The subsequent theme is AI for research purposes, followed by how to check students' academic integrity.

This last result underlines the faculty's fears of students using AI for cheating, which aligns with Freeman (2025), whereby students admit they use AI to generate texts for their assignments to obtain better marks. These findings are consistent with those made by the Digital Education Council (2025), whereby more than half of interviewed faculty members think that the present student assessment tasks need a profound change to cope with student's misuse of AI. In line with Batista, Mesquita, Carnaz (2024) and Ocen *et alii* (2025), using AI while maintaining academic integrity is a challenge that faculty development will have to address.

5. Conclusions

This article has outlined the outcomes of an online survey on faculty development. Since participation was voluntary, results cannot be generalised to the whole university's faculty members. Results suggest, however, that the participants make only limited use of digital tools for teaching and learning, and their challenge lies in designing engaging, effective, and inclusive teaching and learning methodologies. This mirrors Sorcinelli's (2020) faculty development stages, where the participants feel they are in the Scholar Age (highlighting knowledge within one's academic discipline) or the Teacher Age (highlighting the importance of being able to teach). There is, however, a need to move the faculty toward the Era of Student-Centred Pedagogies, shifting from being a "sage on the stage" to a "guide on the side" (King, 1993), or from "ruby" to "oak" (Steinert, 2019). To do so, the respondents need to learn digital tools to promote students' motivation, support their participation, and value their contributions (Dominici, 2022). Moreover, instructors must also address the design of coherent curricula to focus on student learning with appropriate teaching and learning activities to foster deep learning (Biggs, Tang, Kennedy, 2022).

Concerning AI, we suggest that university instructors feel caught between a rock and a hard place.

From one perspective, while they are starting to learn how to embed generative AI in their practices (Digital Education Council, 2024), they are also expected to train students to use it (Digital Education Council, 2025). From another perspective, knowing its added value for employability (Pachava *et alii*, 2024), they should encourage students to deploy it, while at the same time they fear students could use it for academic misconduct (Batista, Mesquita, Carnaz, 2024; Ocen *et alii*, 2025). Students will, however, continue using AI (Freeman, 2025), whether the faculty like it or not, sometimes to improve their learning, hence with a deep learning approach (Biggs, Tang, Kennedy, 2022), other times to cheat, to get the job done and save time, with a surface learning approach. Research shows that assessment plays a key role in driving the students' perspective and foster deep learning. Only when assessment is consistent with the intended learning outcomes can instructors ensure a deep learning approach. Assessment, therefore, can represent the lever to embed a critical use of AI, integrating it as a legitimate element when appropriate (Buck, Limburg, 2023). A blanket ban on generative AI, or tacitly tolerating its use without adapting academic practices, risks creating a disconnect between assessment methods and learning. Furthermore, we need to shift the focus from using assessment as a static and summative tool to a dynamic and formative process (Panciroli, Rivoltella, 2023).

All in all, students and faculty should be educated on how to use AI critically. In the complex and ever-evolving landscape of contemporary education, Panciroli and Rivoltella (2023) outline three essential directions to address the challenges posed by generative AI: 1) educating about AI, that is to foster critical thinking and awareness; 2) educating with AI, leveraging its potential to innovate teaching practices; and finally, 3) educating the AI, to guide its development towards ethical and responsible use. These three directions force scholars to rethink the role of education while, by paraphrasing Sorcinelli (2020), faculty development enters *the Age of AI*, to find a balance between educational practices centred on humans and the countless possibilities afforded by AI (Tillmanns *et alii*, 2025).

In this context, this article renews the call for an ethical use of AI (Bond *et alii*, 2024) alongside two orientations: the ethics of AI, and the ethics of AI technology itself (Panciroli, Rivoltella, 2023). The former refers to the pressing need to regulate data transparency and algorithmic accountability on the part of companies and developers. The latter, instead, shifts the focus towards the challenge of "educating artificial intelligence" – that is, shaping and programming AI systems to adhere to human norms, values, and ethical principles. This dual perspective underscores the importance of both external oversight and internal alignment in ensuring that AI serves humanity responsibly and ethically.

Eventually, as faculty development steps into *the Age of AI*, it is poised to undergo a profound transformation. This process can be achieved through a professional learning community (Soares *et alii*, 2024), which would involve engaging in shared dialogue and interdisciplinary collaboration, so faculty members can develop innovative strategies to integrate AI into teaching while fostering critical thinking and ethical awareness in students. Further, by embracing generative AI and digital tools, educators can create more inclusive, adaptive, and forward-thinking learning environments that not only enhance teaching practices but also prepare students for the challenges of an AI-driven world. It is, hence, crucial to ensure that the integration of AI is done ethically, striking a balance between leveraging AI's capabilities and preserving the human elements of education.

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