

Navigating Educational Frontiers in the AI Era: A Teacher's Autoethnography on AI-Infused Education

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Keywords: Autoethnography, Artificial Intelligence, AI in Education, Teaching, Experience, Generative AI, GenAI, Curriculum Design.

Abstract: This autoethnography explores the impact of generative artificial intelligence (GenAI) on teaching and research practices within the educational landscape. The author's experiences with generative AI are examined through a dual-layered exploration, encompassing academic research and educational practices. The paper emphasizes the pivotal role of AI in revolutionizing classroom dynamics and alleviating the workload of educators and researchers. Ethical considerations surrounding the use of AI are critically examined, ensuring responsible research practices. The reflective journey reveals the extensive time dedicated to tasks outside the classroom, highlighting the impact of AI on the workload of educators and researchers. The paper calls for a shift in curriculum design to incorporate comprehensive digital and AI literacy training and emphasizes the necessity for future research to delve into effective pedagogical approaches and long-term impacts of AI integration. Overall, this autoethnographic methodology sheds light on the profound impact of AI on both teaching and research practices within the educational landscape.

1 INTRODUCTION

In the ever-evolving landscape of education, the role of a teacher extends far beyond the frontiers of the traditional classroom. As an educator navigating the complex intersections of technology and pedagogy, I find myself at the forefront of a transformative journey, one that intertwines the responsibilities of a classroom teacher and the challenges and aspirations of a researcher pursuing a doctoral degree. In this autoethnography, I delve into the intricate tapestry of my experiences, emphasizing the pivotal role that artificial intelligence (AI) plays in not only revolutionizing classroom dynamics but also alleviating the formidable workload that accompanies the dual responsibilities of teaching and research.

1.1 Through the Lens of the Dual Role of a Teacher and Researcher

Within the realm of my College for Higher Vocational Education, where knowledge pursuit converges with vocational training, AI implementation emerges as a

beacon of innovation. As a teacher, I grapple with daily demands, necessitating strategic AI integration to streamline tasks and foster a conducive learning environment. This narrative explores AI's transformative impact on my teaching practices, detailing revelations, challenges, and profound changes in student learning experiences. Simultaneously, my roles as a research assistant and doctoral candidate in AI in education create a unique vantage point, bridging theoretical frameworks with practical application. This autoethnography reflects on the synergy between my teaching and research roles. Join me on this odyssey through the dual realms of teaching and researching in the age of AI, where the focus is on the teacher's perspective within the technology-infused educational landscape.

1.2 Background

In November 2022, OpenAI ushered in a revolutionary era in the field of artificial intelligence with the release of its groundbreaking generative AI tool, *ChatGPT* (OpenAI, 2023). This milestone marked the initiation of a prolific publishing wave that saw not only the emergence of subsequent text-to-text tools like *Google's Bard*, *Grok*, but also text-to-image

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tools such as *Midjourney* and *DALL-E*. Also, tools that combine several tools such as *Poe* or *Perplexity* were developed. Despite being just over a year old, *ChatGPT* catalyzed an enthusiastic response from the research community, inspiring a plethora of papers examining the profound impact and utility of generative AI (AL-Smadi (2023)). The integration of generative AI in education holds immense promise, poised to transform conventional teaching and learning paradigms by introducing personalized experiences, streamlining administrative tasks, and enhancing feedback mechanisms (Grassini, 2023; Zaman, 2023; Kadaruddin, 2023). However, this transformative integration is not without its complexities and challenges, as highlighted in recent scholarly works (Kadaruddin, 2023; Lampou, 2023). Ethical concerns, algorithmic bias, and the imperative for comprehensive educator preparation emerge as critical considerations in this evolving landscape. Delving specifically into medical education, the advent of generative AI technologies, exemplified by *ChatGPT* and *Bard*, introduces novel opportunities for self-directed learning and writing assistance (Preiksaitis and Rose, 2023). Yet, this advancement is accompanied by heightened scrutiny concerning academic integrity and data accuracy, necessitating a nuanced approach to implementation. In essence, while the potential benefits of generative AI in education are significant, the path forward demands careful navigation, with a steadfast commitment to caution and responsibility (Grassini, 2023; Zaman, 2023; Kadaruddin, 2023; Lampou, 2023). This paper stands as a significant contribution to this burgeoning scientific discourse, uniquely offering insights from the dual perspectives of a teacher and researcher. By bridging the realms of academia and practical application, it aims to enrich the ongoing discussion on the implications and practicalities of integrating generative AI tools into educational settings, showcasing the transformative potential of these innovations in both theory and practice.

2 METHODOLOGY

Adhering to an autoethnographic framework, this study embarks on a dual-layered exploration, delving into the intertwining realms of the researcher’s experiences with generative AI (GenAI), within the contexts of both academic research and educational practices. This paper focuses on the latter and the personal impact on teaching.

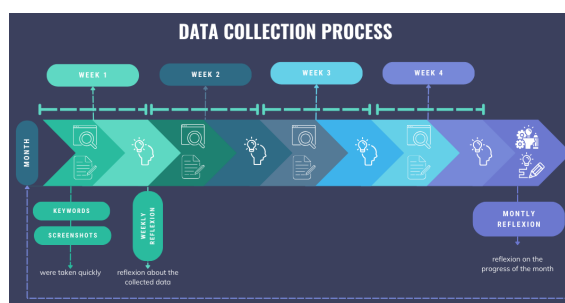


Figure 1: Data collection process of one month.

2.1 Data Collection

The autoethnographic methodology employed in this study centers on the researcher’s introspective examination of interactions and engagements with GenAI, emphasizing the integration of personal experiences, reflections, and interpretive analysis. Two distinct journals were maintained throughout the three-month study duration: one focusing on the researcher’s role as a teacher and the other illuminating the experiences as a researcher. The research process is depicted in Figure 1. The researcher diligently documented observations and reflections in both journals from September to November, capturing evolving insights and responses to generative AI. Entries within the journals encompassed quick keyword notations during real-time AI interactions, supplemented by more detailed reflections at the conclusion of each week. The dual-journaling approach allowed for a targeted exploration of the unique impact of *ChatGPT* in the realms of teaching and research. To augment the richness of the autoethnographic data, screenshots were systematically captured and integrated into the journals. This visual documentation served as a tangible record of the researcher’s encounters with *ChatGPT*, offering a contextualized perspective on the evolving utilization and critical reflections over time.

2.2 Data Analysis and Reflexive Narrative

The data collected underwent an iterative analysis process, involving a systematic review of both teacher and researcher journals. Themes, patterns, and transformative moments emerged as the researcher navigated the complexities of integrating generative AI tools into educational and research practices. Building on the identified themes, the researcher developed a reflexive narrative that synthesizes personal experiences, reflections, and critical analyses. This narrative aims to provide a nuanced understanding of how generative AI, specifically *ChatGPT*, influenced the re-

searcher's workflow, decision-making processes, and perspectives in the realms of teaching and research.

2.3 Ethical Considerations

Throughout this autoethnographic exploration, careful attention was given to ethical considerations surrounding the use of AI. The researcher critically examined the potential biases, subjectivities, and ethical implications inherent in both the utilization of *ChatGPT* and the autoethnographic approach. This reflexive engagement with ethical considerations serves as an integral component of the study, ensuring transparency and responsible research practices.

In synthesizing personal encounters with generative AI, this autoethnographic methodology aims to unravel the complex tapestry of the researcher's dual roles, shedding light on the profound impact of AI on both teaching and research practices within the educational landscape.

3 HARNESSING THE POWER OF GENERATIVE AI

3.1 Unveiling the Hidden Workload: Beyond the Classroom

In the initial stages of my reflective journey, a stark realization emerged, shedding light on the extensive time dedicated to tasks outside the classroom. The considerable chunk of time invested in preparing materials, crafting intricate slides, undertaking assessments, and engaging in continuous professional development became increasingly apparent. It wasn't a solitary revelation; discussions with colleagues unveiled a shared sentiment, with some reporting excessive correction times, particularly prevalent in language classrooms. Determined to delve into the intricacies of non-teaching hours, I embarked on research, finding an OECD (2015) study that crystallized the core tasks of teachers.

1. Teaching: Delivering lessons and instructions to students in a classroom setting.
2. Lesson Planning: Developing and preparing educational materials and lesson plans.
3. Student Assessment: Evaluating and assessing students' academic performance through tests, assignments, and examinations.
4. Classroom Management: Creating and maintaining a conducive learning environment, including managing student behavior and engagement.

5. Student Support: Providing guidance, counseling, and support to students to help them achieve their academic and personal goals.
6. Professional Development: Engaging in continuous learning and development to enhance teaching skills and knowledge.
7. Collaboration: Working with colleagues, parents, and other stakeholders to support student learning and well-being.

This realization underscores the pressing need for more efficient workflows to alleviate the considerable workload placed on teachers' shoulders. As the demand for streamlined processes becomes evident, a crucial question emerges: which Generative AI tools can serve as valuable allies in this quest for efficiency? These tools stand poised to not only ease the burdens of material preparation, assessments, and professional development but also redefine the landscape of educational productivity. Section 3.2 and Figure 2 show an overview of these teacher tasks and useful GenAI tools.

3.2 Generative AI Tools

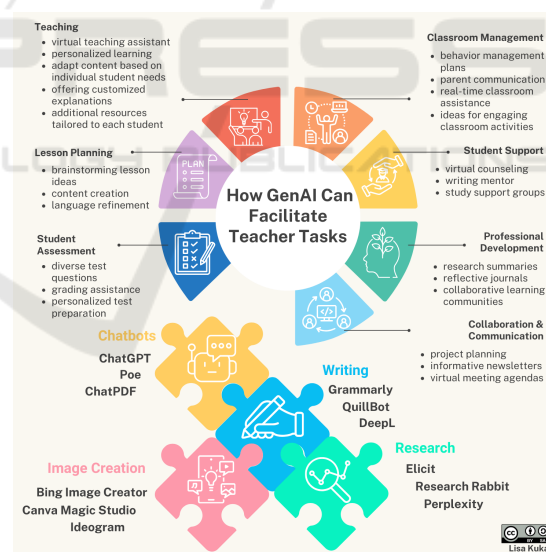


Figure 2: How GenAI can facilitate teacher tasks.

In navigating the rich spectrum of generative AI tools, teachers conscientiously prioritize usability and practicality in their professional endeavors. Adhering to the principle of "less is more," a deliberate selection of generative AI technologies has proven invaluable. *ChatGPT* and *Poe*, functioning as versatile chatbots, adeptly assist in various tasks such as lesson planning, content creation, and generating keywords for slides. *Grammarly* and *QuillBot* enhance the writing process,

providing robust support for grammar checking and summarization. *DeepL* contributes to linguistic diversity through effective translation. Visual elements are elevated with the inclusion of *Ideogram* and *Bing Image Creator*. The integration of *Canva Magic Studio* further amplifies the toolkit, offering advanced capabilities for image manipulation and creating visually engaging learning materials. This strategic amalgamation ensures a seamless fusion of text and visuals in educational content. Additionally, for professional development, *Elicit*, *Perplexity*, and *Research Rabbit*, collectively empower teachers with a comprehensive suite of tools that epitomize efficiency and user-friendly functionality. This holistic approach to technology adoption reflects a commitment to elevating the teaching experience through thoughtful integration.

3.3 Preparation, Lesson Planning, and Professional Development

While the core duty of teachers centers around the act of teaching itself, the journey commences much earlier—with the demanding realms of preparation and professional development. Before stepping into the classroom, teachers engage in meticulous lesson planning, often creating materials. In the absence of a standard textbook in my field, I rely heavily on creating slides to complement my teaching, encompassing both content delivery and engaging exercises. Formulating these materials can be time-consuming, especially when striving for creativity and student engagement. I found *ChatGPT* an invaluable asset that not only sparks ideas for creative tasks but also formulates exercises, significantly slashing the time invested in this preparatory phase. Moreover, with the assistance of *Gamma.app*, the process of creating slides is streamlined, introducing a level of automation that enhances efficiency and allows for a more focused allocation of time to other essential tasks. As a valuable companion in lesson planning, *ChatGPT* consistently generates adaptable and creative ideas, seamlessly integrating with my teaching style. It serves as a collaborative partner, enhancing the structure of presentations and providing essential keywords for slides. Interestingly, the AI's suggestions often align with my initial plans but bring forth additional nuanced perspectives, contributing to a richer educational experience. Moreover, the iterative use of *ChatGPT* correlates with an improvement in the quality of prompts and ideas, demonstrating its capacity to adapt and evolve with consistent engagement.

An invaluable aspect of my teaching arsenal in-

volves the seamless integration of text-to-image creation tools, specifically *Ideogram* and *Bing Image Creator*. Both user-friendly and freely accessible, these tools empower teachers to effortlessly enhance presentations and inject creativity into various tasks. Whether curating images to complement slides or engaging students in the language classroom by visually conceptualizing characters from literature, these tools play a pivotal role in elevating the visual and creative dimensions of teaching, making them accessible and beneficial resources for educators.

GenAI has a significant impact on teacher professional development, particularly in the context of computer programming pedagogy (Dickey et al., 2023). Educators need to guide students in effectively using GenAI to preserve core skill development (Dickey et al., 2023). However, there is a generation gap in the perception of GenAI, with Gen Z students being more optimistic about its potential benefits compared to their Gen X and Gen Y teachers (Chan and Lee, 2023). Furthermore, it has proven to be a valuable instrument for crafting course content, presenting a more rapid approach to content development, and broadening the spectrum of educational resources (Dickey and Bejarano, 2023). Additionally, Dickey and Bejarano (2023) provides educators with a framework to leverage its capabilities. However, its potential as a coach for teachers is still under investigation, facing challenges in delivering insightful and innovative feedback (Wang and Demszky, 2023).

3.4 Administrative Tasks

Administrative tasks, a significant facet of the teaching profession, often consume considerable time, especially in the meticulous crafting of emails. Precision is paramount in communication with parents or school administrators, requiring careful drafting to maintain a professional tone devoid of errors or typos. In this realm, *ChatGPT* emerges as a valuable ally, facilitating the email composition process. Whether crafting emails to the headmaster or the educational directorate, *ChatGPT* not only assists in concise and effective communication but also surprises with valuable insights, such as reminders on ethical guidelines, data anonymization and protection, enhancing the professionalism of my correspondence. This AI-driven support significantly enhances the professionalism and efficiency of my administrative correspondence. A translated draft can be seen in Figure 3.

Research findings indicate that GenAI can play a substantial role in supporting teachers with administrative tasks in education. Ahmad et al. (2022) and Pawar (2023) underscore the advantages of GenAI,

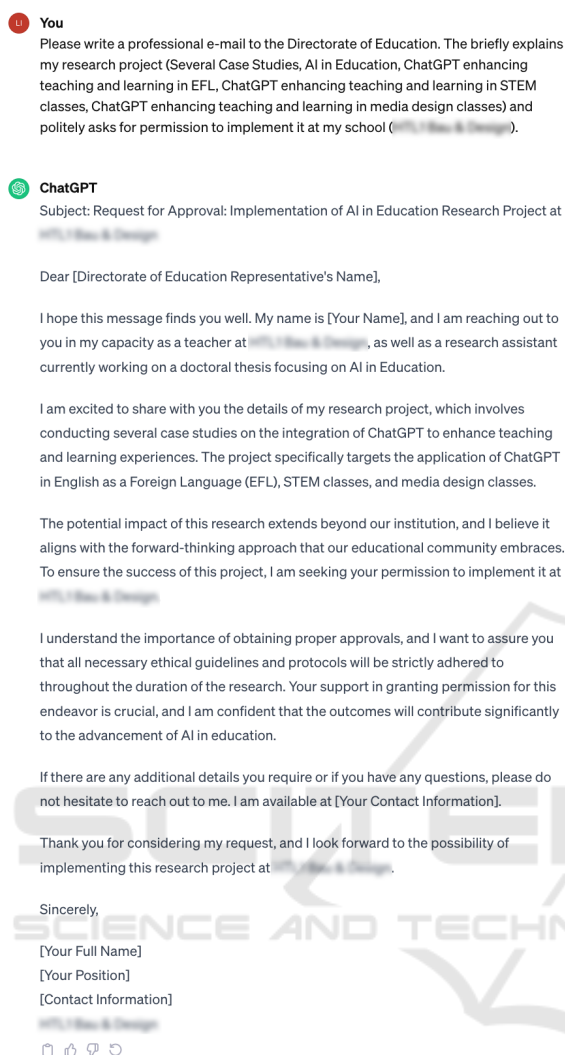


Figure 3: *ChatGPT's* draft for a mail to the Directorate of Education (The original prompt and answer of *ChatGPT* were written in German and translated for this paper).

including the improvement of accessibility, efficiency, and accuracy in administrative tasks. They note its capacity to reduce the workload of teachers while enhancing staff engagement and performance. These studies collectively suggest that GenAI can be a valuable tool for teachers in managing administrative tasks and enhancing the overall educational experience.

3.5 Student Assessment

In the realm of vocational training, staying abreast of swiftly evolving technologies is paramount, ensuring students are equipped for specific workfields. Professional development extends beyond technical

skills, encompassing vital aspects of didactics and pedagogy. As a teacher, the journey of learning is perpetual, aiming to remain up-to-date and adept at delivering quality education. In this pursuit, I've found invaluable support from Generative AI tools such as *Elicit*, *Perplexity*, and *Research Rabbit*. These tools, adept at processing natural language queries, facilitate the exploration of research papers in diverse areas, augmenting my ability to stay informed and continually enhance my pedagogical approach. Additionally, tools like *ChatPDF* or *AskPDF* have proven beneficial, providing a valuable means to swiftly grasp the essence of research papers and distill key statements. These tools not only offer a comprehensive overview but also serve as a bridge, simplifying scientific language for educators less accustomed to its nuances. The interactive nature of these tools further facilitates comprehension, allowing teachers to seek clarifications and confirm their understanding. This streamlining of complex academic language contributes to a more inclusive and accessible learning environment, fostering improved engagement and comprehension among educators navigating scientific discourse.

Exploring the expansive potential of AI in the field of student evaluation, *ChatGPT* emerges as a versatile ally in creating assessment rubrics. By providing clear expectations and desired outcomes in the prompts, *ChatGPT* showcases its capacity to generate precise and tailored rubrics for evaluating student performance. This not only streamlines the assessment process but also ensures alignment with specific educational objectives, offering a novel and efficient approach to enhancing the feedback loop.

Providing comprehensive feedback, particularly in the language classroom, is a vital aspect of teaching, but it becomes a substantial undertaking with classes ranging from 25 to 30 students. EFL teachers invest significant hours in crafting feedback that holds paramount importance for their students. Yet, students, in turn, may only glance at the feedback and make corrections, a process consuming significantly less time than what teachers invest. To address this challenge, *ChatGPT* proves to be a valuable tool. By utilizing an assessment rubric provided to *ChatGPT*, teachers can generate feedback efficiently, especially for instances requiring extensive written comments. An example can be seen in Figure 4. While this does not replace teacher feedback, it serves as a supplemental resource, allowing teachers to focus on more personalized aspects. The teacher still engages in the crucial task of reading the essay and checking the feedback, with results open for discussion in the classroom setting.

This combination of AI tools has become an indis-



Figure 4: Response by *ChatGPT*, after it has been provided with the Writing Assessment Scale by BIFIE et al. (2015) and a Student's Text.

pensable asset, significantly elevating the efficiency and creativity in both the administrative and pedagogical aspects of my role.

3.6 Experiences from the Classroom

In a media design class with 16-year-old students, the task was to design an analog or digital game. Typically, students relish the opportunity to craft their own gameplay as well as game art, but this time, a group of four found themselves mired in demotivation during their brainstorming session. Recognizing their struggle, I suggested they leverage *ChatGPT* to spark inspiration. I guided them through the process, demonstrating how to extract rich ideas. As they read through titles and short idea descriptions generated by *ChatGPT*, a palpable shift occurred. The atmosphere lightened, and they not only embraced the provided prompts but also began crafting their own. With newfound enthusiasm, the group narrowed down to two promising ideas. In a stroke of ingenuity, they de-

ecided to involve their fourth member, who was unwell and unable to attend in person. Through a remote connection, they pitched both ideas to their absent teammate, initiating an engaging discussion. The student at home, eager to comprehend the proposed concepts, fired off a barrage of questions. The on-site students responded with quick, imaginative answers, a collaborative dance inspired by the initial *ChatGPT*-generated ideas. The exchange sparked a dynamic process of adaptation and development, transforming the *ChatGPT* suggestions into a wholly unique and compelling game concept. What started as a demotivated group transformed into one of the standout teams in the class. This anecdote illustrates the transformative power of leveraging AI, not just as a tool but as a catalyst for creativity, collaboration, and ultimately, the creation of something truly exceptional.

Another anecdote gives insight into the workflow of a media production class. A group of 15-year-old students embarked on the challenge of redesigning an existing website to enhance its user experience (UX) and user interface (UI). As they delved into the project, faced with lengthy text sections that needed refinement, they turned to *ChatGPT* for assistance. Recognizing the potential of AI in text optimization, the students seamlessly integrated *ChatGPT* into their workflow. The tool proved invaluable in succinctly refining verbose content, allowing them to maintain clarity while significantly enhancing the website's overall readability. Beyond text refinement, the students leveraged *Bing Image Creator* to curate mood boards and gather design inspiration. This dynamic combination of AI tools not only streamlined their creative process but also sparked innovative design ideas that might have otherwise remained undiscovered. The class witnessed a fusion of creativity and technology as these young designers harnessed the power of AI to elevate their UX/UI designs. This anecdote showcases how seamlessly integrating AI tools into educational settings can empower students to overcome challenges and infuse a fresh perspective into their creative endeavors. The anecdotes highlight the necessity for classrooms to impart both technical proficiency in Generative AI (GenAI) and a reflective mindset. This emphasis on technical acumen and critical thinking serves as a crucial foundation, fostering a symbiotic relationship between GenAI and educational pursuits, enriching the learning experience. Insights from Chan and Hu (2023) emphasize addressing concerns, aligning with the imperative to instill a reflective mindset. Simultaneously, Chan and Zhou (2023) reveals a positive correlation between perceived value and the intention to use, reinforcing the importance of technical competence and

a critical thinking attitude in students engaging with generative AI tools. Together, these studies underscore the potential of GenAI to enhance student assessment, cautioning against overlooking ethical and practical considerations. This emphasizes the need for a balanced and thoughtful approach in educational settings, aligning with the discourse on the transformative role of generative AI in education.

4 CHALLENGES AND LIMITATIONS

In my extended engagement with *ChatGPT*, a growing concern surfaces as I observe an increased frequency of inaccuracies in factual information and a rise in typographical and grammatical errors within the generated content. This raises a critical issue about the reliability of the information produced by the generative AI. Simultaneously, a parallel concern takes root, centered around the potential deskilling of my own writing abilities. The ease with which AI generates text might inadvertently diminish the honing of my own linguistic and creative skills. Moreover, there is a lingering worry about the risk of overreliance on generative AI, potentially leading to a reduction in teacher involvement. This apprehension extends beyond personal skills to a broader concern about the potential undermining of professional expertise. As the allure of AI assistance grows, striking a balance between leveraging its benefits and preserving the integral role of the teacher becomes a crucial aspect to navigate in the educational landscape.

These problems concern me as an experienced teacher and scientist who has already acquired many skills, so the question arises as to what it looks like for inexperienced students who may not have fully developed essential skills yet. As educators, the challenge lies in fostering an understanding among students that while technological tools like GenAI are invaluable, the cultivation of independent communication skills and thinking skills (critical thinking, computational thinking, etc.) remains paramount. Striking a balance between leveraging technology and nurturing foundational cognitive abilities becomes crucial. There is a risk that overreliance on these tools might hinder the development of essential skills, prompting a reflection on how best to guide students toward a harmonious and effective integration of GenAI within a broader framework of holistic learning.

The integration of GenAI in education requires evidence-based guidelines and policies to ensure responsible use (Chan and Lee, 2023; Perera and Lankathilaka, 2023).

5 IMPLICATIONS FOR EDUCATION AND FUTURE RESEARCH

Foundational skills such as reading, writing, and calculating serve as the bedrock of education, forming the essential groundwork for intellectual growth. In the ever-evolving landscape, it becomes imperative to extend the educational trajectory to encompass the fostering of digital literacy and AI literacy. As technology assumes a more integral role in various aspects of life, ensuring that students possess the competencies to navigate, understand, and harness the potential of digital tools, including AI, becomes a pivotal objective. The implications for education entail a shift in curriculum design to incorporate comprehensive digital and AI literacy training. Future research must delve into effective pedagogical approaches, assessments, and long-term impacts to ascertain how best to equip students with the skills needed to thrive in a technology-driven world while preserving the foundational skills that underpin a well-rounded education.

The integration of GenAI into student learning underscores the necessity for comprehensive teacher training courses. These courses become imperative not only for pre-service teachers but, critically, for in-service teachers who navigate the evolving educational landscape. Equipping educators with the skills and knowledge to effectively incorporate GenAI tools into their teaching methodologies is paramount. These training courses should encompass not only the technical aspects of utilizing AI in the classroom but also address pedagogical considerations, ethical implications, and strategies to guide students in responsible and effective use. In-service teacher training becomes an essential component in ensuring that educators are well-prepared to navigate the nuanced intersection of traditional teaching methods and the innovative integration of GenAI into contemporary education.

Future research in the realm of educational technology, particularly the integration of GenAI, holds the key to unlocking innovative pedagogical practices. Investigating the long-term impact on student learning, exploring optimal teacher training methods, and delving into ethical considerations will shape the future landscape of education. Understanding how to strike a balance between leveraging AI tools and preserving foundational skills is a critical avenue for exploration. Additionally, research that examines the broader societal implications and equity considerations in the adoption of GenAI in education will contribute valuable insights for crafting inclusive and effective educational policies. The evolving role of

GenAI in education prompts a call for rigorous research endeavors to inform best practices, ensuring that educational systems adapt to the changing technological landscape while prioritizing student development and well-rounded learning.

6 CONCLUSION

In conclusion, this autoethnography has provided a comprehensive exploration of the transformative impact of artificial intelligence (AI) on teaching and research practices within the educational landscape. The author's experiences with generative AI (GenAI) have been meticulously examined, shedding light on the pivotal role of AI in revolutionizing classroom dynamics and alleviating the formidable workload accompanying the dual responsibilities of teaching and research. Ethical considerations surrounding the use of AI have been critically examined, ensuring transparency and responsible research practices. The reflective journey has revealed the extensive time dedicated to tasks outside the classroom, highlighting the profound impact of AI on the workload of educators and researchers. Moreover, the paper has underscored the necessity for a shift in curriculum design to incorporate comprehensive digital and AI literacy training, emphasizing the importance of future research to delve into effective pedagogical approaches and long-term impacts of AI integration. Overall, this autoethnographic methodology has unraveled the complex tapestry of the researcher's dual roles, shedding light on the profound impact of AI on both teaching and research practices within the educational landscape. As the educational landscape continues to evolve, the integration of AI presents both opportunities and challenges, and this autoethnography serves as a valuable contribution to understanding and navigating these frontiers in the AI era.

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