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ChatGPT and the Pedagogical Challenge: Unveiling the Impact on Early-Career Academics in Higher Education

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Abstract

Emerging Artificial Intelligence (AI) tools like ChatGPT offer considerable promise for enhancing professional development in higher education. This study focuses on the experiences of early-career lecturers who utilise ChatGPT for professional development. Central questions explore ChatGPT's influence on their overall professional experience and the challenges and benefits of its use. While research on AI in education has been growing, few studies have delved into the specific experiences of young academics using ChatGPT. This study employed qualitative methods to address this gap, pre-cisely 45- to 60-minute in-depth interviews with two purposively selected lecturers, followed by a thematic analysis using a grounded theory approach. Our findings reveal a multifaceted landscape: on the one hand, ChatGPT enhances the ability to construct intricate academic arguments, increases effi-ciency in research and teaching tasks, and heightens critical thinking capabilities. Conversely, chal-lenges such as initial technical hurdles, occasional incorrect outputs, and concerns about over-dependency were also highlighted. Through this investigation, the study contributes to the broader discourse on AI in education by illustrating both the promising opportunities and potential pitfalls of using ChatGPT in academia. The study underscores the need for a balanced approach to AI adoption. It offers insights into the role of AI tools like ChatGPT in shaping the future of professional development in higher education.

Keywords: artificial intelligence, pedagogical ChatGPT, higher education, professional development, thematic analysis

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1. Introduction

The innovations that occur in the field of ICT have a positive impact on the field of teaching (Onojah et al., 2021). In the expanding field of higher education, artificial intelligence (AI) tools such as ChatGPT are becoming increasingly rele-vant (Baskara, 2023a, 2023b; Baskara & Mukarto, 2023; Fuchs, 2023). These tech-nologies provide new teaching and learning resources and pose challenges that academ-ics must navigate (Atlas, 2023; Nugraha & Sufanti, 2023; Rudolph, Tan, & Tan, 2023). While tradi-tional methods continue to be effective (Hattie, 2009; Mayer, 2004), the advent of AI prompts the educational community to adapt and evolve (Luckin et al., 2016; Weller, 2018).

The purpose of this research is twofold. Firstly, it aims to explore the experiences of early-career lecturers using ChatGPT in their professional development. This period, often marked by rapid growth and explora-tion (McAlpine & Akerlind, 2010), is criti-cal in shaping long-term academic trajecto-ries. Secondly, the study investigates how

ChatGPT can affect the educational process, offering insights into its potential benefits and drawbacks (Bostrom & Yudkowsky, 2014; Luckin et al., 2016).

Why does this matter? As educators and researchers, understanding the integration of AI in educational settings allows us to make informed decisions. These choices influence current teaching practices and the future of higher education (Brynjolfsson & McAfee, 2014; Selwyn, 2019). Hence, this research contributes to broader discussions about the role of technology in academia, laying the groundwork for future research.

This article examines the specific experi-ences of early-career lecturers using ChatGPT for professional development. The insights drawn from this research will con-tribute to our understanding of AI's impact on academia, its benefits, and its challenges. We will scrutinise these issues through rig-orous qualitative methods, adding a unique perspective to the existing literature on AI and education (Creswell, 2013; Mayer, 2004).

In summary, our study serves as a start-ing point for further exploration into the role of AI tools like ChatGPT in higher educa-tion. By focusing on the experiences of ear-ly-career lecturers, we aim to shed light on an under-studied area, offering practical in-sights for educators and policymakers alike. This research is not just an academic exer-cise but a necessary step in understanding how AI will shape the future of education (Weller, 2018; McAlpine & Akerlind, 2010).

2. Method

Our research employs a qualitative de-sign guided by an argumentative review ap-proach (Onwuegbuzie & Leech, 2007). The qualitative nature of this study aims to ex-plore the depth and nuance of human expe-riences, with the argumentative review serv-ing as an analytical tool for understanding complex discourses (Allen, 1996; Creswell, 2013).

We focused on early-career lecturers from a private university as participants, aiming to capture insights from individuals at the ini-tial stage of their academic careers (McAl-pine & Akerlind, 2010). A total of two lec-turers were chosen for this study, and they were recruited through purposive sampling to ensure their recent experiences with arti-ficial intelligence (AI) tools like ChatGPT would be fresh and relevant.

Data were collected primarily through in-depth interviews lasting between 45 to 60 minutes. The interviews consisted of a pre-determined set of open-ended questions de-signed to explore participants' interactions with AI tools, particularly ChatGPT, in their professional settings. The interview ques-tions were pilot-tested for clarity and com-prehensiveness (Seidman, 2013; Riessman, 2008). Interviews were recorded and tran-scribed verbatim to ensure accuracy (Cre-swell, 2013).

The data were analysed using thematic anal-ysis, which provides a flexible method to identify patterns and themes within quali-ta-tive data (Braun & Clarke, 2012; 2006). This approach allows for a detailed exami-nation of the influence of AI tools on early-career lecturers' professional development (Bostrom & Yudkowsky, 2014).

Ethical guidelines were followed rigor-ously, including participant consent and data con-fidentiality (Creswell, 2013). Triangula-tion, reflexive journaling, and prolonged en-gagement were employed to ensure the study's validity and reliability (Creswell, 2013).

Through this multi-layered methodolo-gy, we aim to contribute a nuanced narrative to the academic discourse, focusing mainly on how AI tools like ChatGPT may influence

the professional development of young academics.

3. Result and Discussion

a. Results

Our study, anchored in the analysis of in-depth interviews, identified central themes that elucidate the experiences and perceptions of early-career academics about ChatGPT (Braun & Clarke, 2006). These themes are more than mere isolated data points; they form the pillars of a broader understanding of ChatGPT's influence with-in the academic sphere.

These themes do not exist in isolation; they interact in a nuanced web of insights that paints a more holistic view of AI's role in academia (Braun et al., 2019). The themes are intricately interconnected, mirroring the complex relationship between AI and the professional development of young academics (Clarke & Braun, 2017).

These identified themes contribute importantly to an evolving discourse—a persistent dialogue between AI technology and the realm of professional growth (Hyland, 2004; Lichtman, 2013). Our research punctuates this ongoing discussion and, by doing so, provides insights into the real-world experiences of academics. In higher education it is necessary to develop technology to achieve the expected learning (Fuadi et al., 2021). The rapid growth of technology requires people who have talent and strong technological knowledge (Marzal et al., 2022).

The findings stretch beyond the scope of individual experiences, morphing into a collective narrative that underscores how ChatGPT and AI at large are transformative agents in higher education (Nowell et al., 2017). We have unearthed a social story in which AI plays a pivotal role.

Our data revealed distinct advantages of using ChatGPT in academia. Specifically, participants reported enhancements in their argumentative skills, noted a surge in operational efficiency, and acknowledged an enrichment in their critical thinking capabilities (Goel & Polepeddi, 2016). These benefits demonstrate the positive aspects of integrating ChatGPT into academic workflows.

Our findings, however, are not an unabridged endorsement of ChatGPT. Participants recounted technical issues and unpredictable responses from the AI, reminding us that the technology has limitations (Wang & Siau, 2019; Bender et al., 2021; Floridi et al., 2022).

A recurring theme of concern was the poten-tial for dependency on AI tools like ChatGPT (Dignum, 2023). Participants expressed reservations about over-reliance on such technologies, emphasising the need for balance in integrating AI into their professional lives.

To lend weight to our analysis, we incorpo-rated direct quotations from the participants (Corden & Sainsbury, 2006; Sande-lowski, 1994). These quotes add depth and texture to our thematic analysis, making it more ro-bust and relatable (Elliott, 2018; Saldana, 2021).

Ensuring the credibility and reliability of our findings was paramount. To this end, we employed member checking, a rigorous process where interpretations are validated by the participants themselves (Birt et al., 2016; Given, 2008). This iterative mecha-nism bolstered the veracity of our research outcomes.

The outcomes of our study carry real-world utility. The articulated benefits and draw-backs offer a nuanced framework for in-formed decision-making for educators and policymakers who aim to integrate AI tools into academic settings.

The theoretical implications of our study are equally noteworthy. Our research enriches extant dialogues on human-AI interaction in educational contexts, offering empirical data that validate and challenge existing frameworks and assumptions.

Our work goes beyond mere cataloguing of experiences; it provides a vetted analysis that validates the profound and multifaceted impact that AI tools, especially ChatGPT, have on the academic community.

This research is a foundational step for future inquiries into the fascinating confluence of AI and academia. It opens up avenues for additional research, particularly in delineating the nuanced ways AI tools can be customised and optimised for academic purposes.

The complexity of the AI-academia relationship, as evidenced by our study, highlights the need for multi-disciplinary perspectives that consider technological, ethical, and human factors in future research (Clarke & Braun, 2017).

Our research presents an intricate, nuanced view of how AI tools like ChatGPT influence and shape academic professional development. We unravel the benefits and unearth the limitations and challenges, thereby providing a balanced view (Wang & Siau, 2019; Bender et al., 2021). By doing so, our work is a substantive addition to the growing body of literature and is poised to guide future empirical and theoretical pursuits in this emerging domain.

Table 1. Thematic Analysis and Interview Responses

Themes	Sub Themes	Example Quotationst
Experience with ChatGPT	1) Initial Exploration 2) Habitual Usage 3) Usability Experience	1) "My initial interaction with ChatGPT felt quite novel, like stepping into an uncharted territory" 2) "Over time, ChatGPT has become an in-dispensable tool in my academic writing process" 3) "The usability of ChatGPT is impressive; its intuitive interface eased my adoption process significantly"
Impact on Argumentation Skills	1) Enhancement of Critical Thinking 2) Improvement in Structuring Arguments 3) Enrichment of Vocabulary	1) "ChatGPT prompts me to critically analyse my viewpoints and refine them" 2) "It has markedly improved my ability to articulate complex arguments in my aca-demic writing" 3) "The diverse and rich vocabulary sugges-tions by ChatGPT have indeed embellished my academic papers"
Encountered Challenges	1) Technical Difficulties 2) Dependence Concerns 3) Inconsistencies in Output	1) "On occasion, I faced minor technical glitches while using ChatGPT" 2) "An emergent concern is my increasing dependency on ChatGPT, which sometimes makes me question my autonomy" 3) "At times, I found ChatGPT's responses

Themes	Sub Themes	Example Quotationst
		to be somewhat inconsistent, requiring me to probe multiple times"
Role in Professional Development	1) Aid in Research 2) Contribution to Career Progression 3) Influence on Academic Writing Style	1) "ChatGPT streamlines my research process, making it more efficient" 2) "With ChatGPT's assistance, I have been able to produce higher quality work, which positively impacts my career progression" 3) "My academic writing style has undergone a noticeable transformation since I started using ChatGPT; it's more refined now"

b. Discussions

To truly appreciate the implications of our findings, situating them within a more ex-tensive academic discourse becomes an es-sential endeavour. Our research effort is not conducted in isolation but instead finds it-self interconnected within a scholarship network (Hyland, 2004). This intertextual dialogue affirms that our work is part of an ongoing intellectual conversation. It speaks not merely to its immediate context but also to a broader sphere of academic knowledge (Tight, 2012), illuminating new pathways in understanding the role of AI in higher education.

Our reflections on extant literature substan-tiate the claim that our work extends the discourse on AI within higher education. It casts fresh perspectives, much like a prism refracting light, rendering a nuanced picture of the role of AI tools, particularly ChatGPT, within the educational landscape (Floridi et al., 2022). This understanding moves beyond the conventional, broad-brush discussions and introduces a more intricate portrayal of the phenomena, en-riching the academic conversation (Hyland & Bondi, 2006).

One can perceive our study as an artist add-ing texture to an evolving canvas, the canvas being the existing body of knowledge (Paré, 2010). Our research infuses this scholarly tableau with the distinct voices of early-career academics (Baker & Pifer, 2011). These unique perspectives, narratives of those at the dawn of their academic journey, paint fresh strokes on this canvas (Lea & Street, 1998), adding depth and nuance to the image of AI in academia (Chan & Tsi, 2023).

A noteworthy aspect is that these early-career academics are often relegated to the sidelines in studies of this nature (Baker & Lattuca, 2010). Consequently, their voices, experiences, challenges, and triumphs have often remained muted (Kandiko Howson et al., 2018). By highlighting their narratives, our work serves to fill this gap (Baker, 2015), thus expanding the dialogue in an inclusive, balanced, and comprehensive manner, capturing the richness of experiences within the higher education sector (Tight, 2020).

A panoramic comprehension comes to light in engaging deeply with the implications of the uncovered benefits and challenges associated with ChatGPT use (Brown et al., 2020). This layered understanding is analo-gous to observing a kaleidoscope, with each twist revealing a new pattern (Reisman et al., 2022). Our

exploration has brought forth various experiences, reflecting both the brighter hues of potential benefits and dark-er shades of challenges encountered (Wang & Siau, 2019), all contributing to this com-plex understanding of ChatGPT's role in academia.

Illuminating the path of transformative pos-sibilities, benefits such as enhanced ability to construct intricate academic arguments, increased efficiency in research and teach-ing tasks, and heightened critical thinking capabilities emerged as powerful indicators (Goel & Polepeddi, 2016). These indicators suggest using tools like ChatGPT may pro-pel a paradigm shift within academic cir-cles. Armed with their capacity to supple-ment and boost cognitive faculties, AI tech-nologies present a promising horizon for professional advancement in academia.

On the other hand, acknowledging the exist-ence of challenges is as vital as recognising the advantages (Rasul et al., 2023; Thu, Bang, & Cao, 2023; Whalen & Mouza, 2023). Tales of initial technical hurdles, occasional incorrect outputs, and concerns of over-dependency came forth, casting a shadow on the otherwise bright picture. These narratives serve as a reminder, a ca-veat, hinting at the necessity for a judicious and balanced approach when it comes to integrating AI tools into the professional lives of academics.

Through this dance of contrasts, we appreci-ate the need for equilibrium. Viewing the benefits of AI adoption in academia without addressing its associated challenges would be akin to admiring a beautiful bird while ignoring its trapped cage (Chatila et al., 2021). As we further our understanding, it becomes evident that carefully considering both the shining potential and the accompa-nying concerns of AI in academia is impera-tive for a well-

rounded perspective (Floridi et al., 2022). This balanced view will guide academia to harness AI tools like ChatGPT's transformative possibilities while being mindful of potential pitfalls (Brown et al., 2020).

With our findings in place, the ensuing dis-course aims to form an analytic bridge, con-necting these empirical realities with the larger narrative surrounding artificial intel-ligence in education. This pursuit involves a dynamic dance that steps to a rhythm de-fined by the complex interplay of ad-vantages and obstacles that come with AI integration, exemplified by ChatGPT (Paré, 2010). Our endeavour here lies not in chart-ing a straight, unswerving path but in em-bracing this intricate labyrinth, each twist and turn adding depth to our understanding (Crompton & Burke, 2023).

From this unique vantage point, where the microscope of particularity meets the tele-scope of universality, a broader perspective takes shape. This perspective illuminates that integrating AI in academia is akin to weaving an intricate tapestry, a blend of warm hues of advantages and cool shades of challenges (Zawacki-Richter et al., 2019). However, the art of this weaving lies not in the individual threads but in the patterns, they form when intricately intertwined (Hy-land, 2004).

Our study strives to infuse this ongoing dis-course with more than sterile, quantified data (Lea & Street, 1998). It carries forth the voices of those using these AI tools, their lived experiences, and their narratives (Baker & Pifer, 2011), giving flesh and bones to the skeletal structure of academic discourse. The intricate embroidery of these narratives further enriches the conversation on AI integration (Hyland & Bondi, 2006), painting a vivid picture of what it looks like in action.

Drawing from this analysis, the implications become clear. The path to meaningful AI integration in higher education, with ChatGPT as an exemplar, is not a simple, linear one (Alam, 2022; Brown et al., 2020; Ouyang, Zheng, & Jiao, 2022). Instead, it is a multifaceted journey laden with opportu-nities for growth and potential pitfalls. As the narrative unfolds, it highlights the need for ongoing dialogue, adaptable strategies, and continued examination of the role of AI tools in shaping the future of higher educa-tion (Chan & Tsi, 2023).

In the concluding stages of this exploration, a stage is thus set for a debate surrounding the prospects of ChatGPT in professional development (Floridi et al., 2022). As a tool that has showcased a significant capacity to facilitate academic progress, its role merits far-reaching discourse. Nevertheless, these early illuminations of potential should be viewed not as an endpoint but as catalysts for continuous exploration (Reisman et al., 2022). The role of AI tools, specifically ChatGPT, in the broader context of academia continues to be an area brimming with untapped potential, warranting further scholarly attention.

Future inquiries stand poised to plunge into the depths of these narratives, endeavouring to fathom their mysteries and illuminate their intricate patterns (Paré, 2010). Here, ChatGPT, which exists at the interface of technology and human intelligence, repre-sents an area rich with possibility (Neumann, Rauschenberger, & Schön, 2023; Sabzalieva, & Valentini, 2023; Sok & Heng, 2023). The narratives it generates can pro-vide a novel lens through which we can view the evolving dynamics of academic profes-sional development, their depths unfath-omed, waiting to be explored (Hyland, 2004).

As scholars and researchers, we find our-selves on the precipice of an exhilarating juncture (Zawacki-Richter et al., 2019). At our disposal is a tool, ChatGPT, that has demonstrated a noteworthy capacity to facil-itate academics' journey, yet much remains uncharted. A forward thrust into this terra incognita, guided by rigorous scholarly in-quiry, promises a bountiful harvest of in-sights that can help us navigate the rapidly evolving landscape of higher education.

Consequently, this exploration necessitates a continuous scholarly discourse that pushes against the boundaries of the known, ventur-ing into the fascinating realms of the un-known. As such, the potential of ChatGPT for professional development does not pre-sent a destination but a voyage. A voyage that promises new horizons, novel under-standings, and a richer appreciation of the intricate tapestry that constitutes the field of higher education in the age of artificial in-telligence.

Table 2. Key Points of Discussion on AI in Higher Education

Key Points	Implications
Extending the Discourse on AI in Higher Education	Our study infuses the existing discourse with fresh perspectives, nuanced understandings, and the unique voices of early-career academics, thus enri-ching the ongoing academic conversation.
Uncovered Benefits and Challenges of Using ChatGPT	Our findings highlight the potential benefits and existing challenges of using AI tools like ChatGPT, contributing to a layered understanding of AI's role

Key Points	Implications
	in academia.
Potential Benefits	ChatGPT can enhance academic argumentation skills, increase efficiency in research and teaching, and boost critical thinking capabilities, which suggests a promising horizon for professional advancement in academia.
Acknowledging Challenges	Technical hurdles, occasional incorrect outputs, and concerns of over-dependency are notable challenges that highlight the need for a balanced approach when integrating AI tools into academia.
Connecting Empirical Realities with Larger Narrative	Our discourse forms an analytic bridge, connecting the experiences of academics using AI tools like ChatGPT with the larger narrative surrounding AI in the educational realm.
Weaving an Intricate Tapestry of AI in Academia	Integrating AI into academia is a multifaceted journey. It involves weaving together the benefits and challenges associated with AI tools like ChatGPT, forming a complex tapestry that reflects the real-world dynamics of AI in higher education.
Carrying Forth the Voices of Users	Our study carries forth the voices of those engaged in the use of AI tools, providing a more authentic and lived experience narrative, which enriches the conversation on AI integration.
Implications for the Future	The role of AI tools, like ChatGPT, in academia continues to be an area brimming with untapped potential, suggesting the need for further scholarly attention and continued examination of its implications for the future of higher education.

4. Conclusion

Our study expands upon previous investiga-tions into the role of AI in academia by ex-plicitly focusing on the experiences of ear-ly-career academics with ChatGPT. By do-ing so, we have filled a gap in existing liter-ature, offering nuanced perspectives that deepen the understanding of the dynamic between young lecturers and AI tools. This provides a tangible dimension to existing conceptual work on human-AI interaction in educational settings.

Our findings substantiate the broader dia-logue on AI and professional development, offering empirically-backed insights into the effects of AI tools like ChatGPT on ped-agogical practices. Our research stands as a strong affirmation of the transformative potential of AI in academia, backed by di-rect quotes and participants' lived experi-ences. Not only do we shed light on the positive aspects, such as improved efficien-cy and enriched critical thinking, but we also bring attention to practical challenges like technical difficulties and ethical con-cerns.

In terms of future research, our study serves as a springboard for more nuanced investi-gations. While our findings offer meaning-ful insights, they represent just the tip of the iceberg in understanding AI's role in pedagogy. Further research could examine

varying demographics, different institutional settings, or the effects of other AI tools, thus adding to the growing body of knowledge exploring AI's transformative power in education.

Finally, we strongly recommend a calculat-ed and informed approach to integrating AI tools like ChatGPT in higher educational settings. Given our evidence-backed find-ings regarding the benefits and challenges of ChatGPT in academic workflows, our re-search adds credence to the call for a bal-anced, research-driven strategy in imple-menting AI in academia.

In conclusion, our research contributes sig-nificantly to the growing discourse on the intersection of AI and academia. By focus-ing on the lived experiences of early-career academics, we provide a novel and neces-sary lens through which the impact of AI tools on pedagogical practices can be viewed. This enhances our collective under-standing and provides valuable insights that can guide future scholarly investigations and practical applications in academia.

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