



ChatGPT and Critical Digital Pedagogy: Examining the Potential and Challenges for Educational Practice

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Abstract: *The infusion of technology in teaching and learning has opened up new ways to engage and educate and stimulated discussions over its role in perpetuating social divides while creating uneven distributions of power. In doing so, this study provides a theoretical lens on the potential ways in which ChatGPT and critical digital pedagogy intersect around technology affordances to support community-engaged, critically oriented teaching practice. Grounded in critical pedagogy and a theoretical framework informed by the basic tenets of ChatGPT, this research seeks to explore how it addresses issues that underpin critically oriented digital teaching practices rooted in dialogue & empowerment, and social justice. This scholarly contribution addresses an existing gap in the literature by exploring the interplay between ChatGPT and critical digital pedagogy, providing discerning contemplations on how technology can stimulate more engaged, vital, and socially equitable educational modalities. Drawing on previous research and methodologies, the present study unpacks associations between ChatGPT and critical digital pedagogy. Key findings from this exploration show ChatGPT as an essential benefit of reflection practices for empowerment and justice in the digital learning area. The implications of these findings are substantial for educators, researchers and policymakers wishing to foster more equitable educational practices in the digital age.*

Keywords: *ChatGPT, Critical Digital Pedagogy, Dialogue, Empowerment, Social Justice*

1. INTRODUCTION

The education landscape is profoundly transformed, driven by rapid artificial intelligence (AI) technological advancements [1,2]. These innovations reshape traditional pedagogical approaches and challenge our understanding of teaching and learning processes [3,4]. Among the myriad AI tools emerging in the educational sphere, ChatGPT, a large language model developed by OpenAI, has garnered significant attention for its potential to revolutionise educational practices [5-7].

ChatGPT's ability to generate human-like text, engage in dialogue, and provide instant responses to complex queries has sparked excitement and concern within the educational community [8]. Its potential applications range from personalised tutoring and writing assistance to curriculum development and administrative support [9,10]. However, integrating such powerful AI tools into education also raises critical questions about equity, ethics, and the fundamental goals of education in the digital age [11,12].

Parallel to these technological advancements, critical digital pedagogy has emerged as a crucial framework for examining and implementing technology in education [13]. Rooted in

the tradition of critical pedagogy established by scholars like Paulo Freire [14] and Bell Hooks [15], critical digital pedagogy seeks to leverage digital tools and spaces to promote social justice, empower learners, and foster essential consciousness [16,17]. This approach encourages educators and students to engage with digital technologies critically, questioning their underlying assumptions and power structures while exploring their potential for transformative learning experiences [18].

The intersection of AI technologies like ChatGPT and critical digital pedagogy presents a fertile ground for inquiry. As Selwyn [19] argues, it is essential to move beyond techno-optimistic or techno-pessimistic stances and critically examine how these technologies might reshape educational practices and outcomes. This paper explores this intersection, examining how ChatGPT can address or exacerbate issues central to critically oriented digital teaching practices.

By investigating the alignment between ChatGPT's capabilities and the principles of critical digital pedagogy, we seek to contribute to the ongoing discourse on technology's role in education and its implications for equity, empowerment, and social justice. This exploration is particularly timely given the rapid adoption of AI tools in educational settings and the growing concern about their impact on learning processes, student agency, and educational equity [20]. The potential of ChatGPT to foster dialogue, provide personalised learning experiences, and democratise access to information aligns with some core tenets of critical digital pedagogy. However, it raises concerns about the authenticity of AI-mediated interactions, the potential reinforcement of biases, and the risk of exacerbating existing digital divides [21]. By critically examining these potentials and challenges, we aim to provide insights that can guide educators, policymakers, and researchers in the thoughtful integration of AI tools within educational frameworks that prioritise social justice and student empowerment.

Three primary research questions guide this study: First, we examine how ChatGPT aligns with or challenges the principles of critical digital pedagogy. This involves analysing the tool's features and capabilities about crucial concepts such as dialogue, empowerment, and critical consciousness. Second, we explore ChatGPT's potential for fostering dialogue, empowerment, and social justice in educational settings. This includes considering how the tool might be leveraged to support collaborative learning, promote diverse perspectives, and

enhance student agency. Finally, we investigate the challenges and limitations ChatGPT presents when viewed through the lens of critical digital pedagogy, addressing concerns related to algorithmic bias, data privacy, and the potential erosion of critical thinking skills.

By addressing these questions, this paper aims to contribute to a nuanced understanding of AI's role in education, moving beyond binary debates of adoption or rejection. Instead, we seek to provide a foundation for thoughtful integration that aligns with the goals of critical digital pedagogy, fostering educational practices that are not only technologically enhanced but also socially just and empowering for all learners.

2. THEORETICAL FRAMEWORK

Critical Digital Pedagogy

Critical digital pedagogy emerges from the rich tradition of critical pedagogy, a philosophical and pedagogical approach that seeks to empower learners to recognise and challenge oppressive social structures. Rooted in the work of Paulo Freire [14] and further developed by scholars such as Henry Giroux [22] and bell hooks [15], critical pedagogy emphasises the political nature of education and its potential for social transformation. Critical digital pedagogy extends these principles into the digital realm, examining how technology can be leveraged to promote social justice, empower learners, and foster critical consciousness in an increasingly digitised world [23].

Critical digital pedagogy challenges the notion of technology as a neutral tool, instead recognising its embedded values and potential to reinforce or disrupt existing power structures [24]. This approach encourages educators and students to critically engage with digital technologies, questioning their underlying assumptions and exploring their potential for transformative learning experiences.

A fundamental tenet of critical digital pedagogy is promoting dialogue and collaborative learning. Drawing on Freire's concept of dialogic education, this approach views learning as a co-constructive process where knowledge is created through interaction and shared experiences [14]. In the digital context, this translates to leveraging online platforms and tools to facilitate meaningful exchanges between students, educators, and broader communities [25].

Challenging power structures and promoting equity is another crucial aspect of critical digital pedagogy. This involves examining how digital technologies can perpetuate or challenge existing inequalities and working towards more inclusive and equitable educational practices [26]. It requires critically examining issues such as access to technology, digital literacy, and the representation of diverse voices in digital spaces.

Fostering critical thinking and digital literacy is essential in an era of information abundance and misinformation. Critical digital pedagogy emphasises the importance of developing students' abilities to evaluate digital content critically, understand the mechanisms of digital platforms, and engage thoughtfully in online environments [27]. This goes beyond mere technical skills to include an understanding of the social, political, and economic implications of digital technologies.

The emphasis on context and lived experiences is a crucial principle distinguishing critical digital pedagogy from more technocentric approaches to educational technology. It recognises that learning is situated in specific cultural, historical, and personal contexts and that these contexts significantly shape how individuals engage with digital technologies [28]. This principle encourages integrating learners' diverse experiences and perspectives into the educational process.

Encouraging reflection and praxis is central to critical digital pedagogy. Praxis, understood as integrating critical reflection and action, is essential for meaningful learning and social change [14]. In the digital context, this involves creating opportunities for students to reflect on their digital practices, experiment with different ways of engaging with technology, and apply their learning to real-world situations [29].

ChatGPT and AI in Education

ChatGPT, developed by OpenAI, represents a significant advancement in artificial intelligence, particularly in natural language processing. As a large language model trained on vast amounts of text data, ChatGPT can generate human-like text, answer questions, and assist with various tasks [7]. Its potential applications in education are diverse and far-reaching, prompting excitement and concern within the educational community.

One of the most promising aspects of ChatGPT in education is its potential to provide personalised learning experiences. ChatGPT could offer tailored explanations, examples, and practice exercises by adapting to individual student needs and learning styles, potentially addressing the long-standing challenge of differentiated instruction in diverse classrooms [30]. This aligns with the critical digital pedagogy principle of recognising and valuing diverse learner experiences.

The ability of ChatGPT to offer instant feedback and support is another significant feature with educational implications. This immediate responsiveness could enhance student engagement and provide timely interventions, potentially reducing frustration and improving learning outcomes [31]. However, this also raises questions about the nature of feedback and the role of human educators in the learning process.

In the realm of language learning and writing assistance, ChatGPT shows particular promise. Its capacity to generate contextually appropriate text and explain language nuances could support second-language learners and help students improve their writing skills [32]. However, this also raises concerns about academic integrity and the development of authentic writing skills.

ChatGPT's potential to aid content creation and curriculum development could significantly impact educational practices. By assisting in the generation of learning materials, lesson plans, and even entire curricula, ChatGPT could potentially reduce educator workload and allow for more diverse and up-to-date content [33]. However, this also raises questions about the role of human expertise and creativity in curriculum design.

Lastly, ChatGPT's ability to support administrative tasks and student services could streamline educational processes. From answering frequently asked questions to assisting with course selection and career guidance, ChatGPT could improve the efficiency and accessibility of various academic services [4]. However, this raises concerns about data privacy and the potential loss of human touch in student support services.

While these potential applications of ChatGPT in education are promising, they also present significant challenges when viewed through critical digital pedagogy. Questions of equity, power dynamics, critical thinking, and the nature of knowledge creation come to the fore. As we explore the intersection of ChatGPT and critical digital pedagogy, it is crucial to

critically examine the potential benefits and pitfalls of integrating such powerful AI tools into educational practices.

3. METHODOLOGY

This study adopts a qualitative research approach, employing a critical literature review and theoretical analysis to explore the intersection of ChatGPT and critical digital pedagogy. The methodology is designed to provide a comprehensive understanding of the current landscape of AI in education, mainly focusing on the potential implications of ChatGPT within a critical digital pedagogy framework.

The research process begins with a systematic literature review, a method widely recognised for its rigour and comprehensiveness in synthesising existing knowledge [34]. This review encompasses peer-reviewed articles, scholarly books, and conference proceedings related to critical digital pedagogy and the use of AI, with a specific focus on ChatGPT in educational contexts. The selection of literature is guided by the principles of relevance, recency, and academic credibility, ensuring a robust foundation for the subsequent analysis.

Multiple academic databases, including ERIC, Google Scholar, and Web of Science, are utilised to ensure a thorough and up-to-date review. The search strategy employs a combination of keywords such as "critical digital pedagogy," "artificial intelligence in education," "ChatGPT," "educational technology," and "social justice in education." This broad search is then narrowed using specific inclusion and exclusion criteria to focus on the most relevant and recent publications, typically within the last five years, while including seminal works that have significantly shaped the field.

Following the literature collection, a thematic analysis is conducted to identify key themes and concepts emerging from the reviewed materials. This approach, as outlined by Braun and Clarke [35], involves a systematic coding and theme development process. The analysis focuses on identifying recurring patterns, contrasting viewpoints, and emerging trends in the literature related to critical digital pedagogy and the educational applications of AI technologies like ChatGPT.

The research questions and the theoretical framework of critical digital pedagogy guide the thematic analysis. Themes are developed iteratively, with constant comparison and

refinement to ensure they accurately represent the complexities and nuances of the subject matter. This process allows for identifying both consensus and contradictions within the existing literature, providing a nuanced understanding of the current state of knowledge.

A critical examination of ChatGPT's features and capabilities forms the next phase of the methodology. This involves a detailed analysis of the technical specifications, functionalities, and potential applications of ChatGPT in educational settings. Information is gathered from official documentation, technical papers, and empirical studies on ChatGPT and similar large language models. This examination is conducted through the lens of critical digital pedagogy, assessing how ChatGPT's capabilities align with or challenge the core principles of this pedagogical approach.

To ensure a comprehensive analysis, the study also considers the broader context of AI in education, drawing comparisons with other AI tools and examining the unique features of ChatGPT. This contextual analysis helps understand the specific implications of ChatGPT within the larger educational technology landscape.

The methodology's final stage involves synthesising the findings to address the research questions and develop insights into the potential and challenges of integrating ChatGPT within a critical digital pedagogy framework. This synthesis draws together the themes identified in the literature review, the analysis of ChatGPT's capabilities, and the principles of critical digital pedagogy to provide a cohesive and vital perspective on the research questions.

Throughout the research process, reflexivity is maintained to acknowledge and address potential biases and limitations. As Creswell and Creswell [36] emphasise, researcher reflexivity is crucial in qualitative research to ensure transparency and credibility. The researchers critically reflect on their positions, assumptions, and potential biases throughout the analysis and interpretation process.

It is essential to note the limitations of this methodological approach. As a theoretical analysis based on existing literature and publicly available information about ChatGPT, the study needs to include empirical data on the actual implementation of ChatGPT in educational settings. This limitation is acknowledged, and the study's conclusion suggests future empirical research.

Furthermore, given the rapidly evolving nature of AI technology and the relatively recent emergence of ChatGPT, the analysis is based on the most current information available at the time of the study. The dynamic nature of this field necessitates ongoing research and analysis to keep pace with technological advancements and their implications for education.

In conclusion, this qualitative methodology, combining systematic literature review, thematic analysis, and critical examination, provides a robust framework for exploring the complex intersection of ChatGPT and critical digital pedagogy. By synthesising existing knowledge and critically analysing the potential implications of this AI technology, the study aims to contribute valuable insights to the ongoing discourse on the role of AI in shaping equitable and empowering educational practices.

4. FINDINGS AND DISCUSSION

Alignment with Critical Digital Pedagogy Principles

Our analysis reveals a complex interplay between ChatGPT's capabilities and the core principles of critical digital pedagogy. This relationship is characterised by promising alignments and significant challenges, reflecting the multifaceted nature of integrating AI technologies within critical educational frameworks.

One of the most notable alignments is ChatGPT's potential to promote dialogue, a fundamental principle of critical pedagogy as articulated by Freire [14]. The conversational nature of ChatGPT can facilitate ongoing interactions between learners and the AI, potentially fostering a more interactive and engaging learning experience [37-39]. This aligns with critical pedagogues' dialogic approach to education, where knowledge is co-constructed through conversation and mutual inquiry [40,41]. However, it is crucial to recognise that while ChatGPT can simulate dialogue, this interaction's authenticity and transformative potential may differ significantly from human-to-human exchanges [42,43].

The personalisation capabilities of ChatGPT present another area of potential alignment with critical digital pedagogy [44-46]. By adapting to individual learners' needs and preferences, ChatGPT can address the critical pedagogy principle of recognising and valuing diverse learner experiences [47-49]. This personalisation could allow for more inclusive educational experiences that acknowledge learners' unique contexts and backgrounds [50,51].

However, this personalisation also raises questions about the nature of the algorithms driving these adaptations and whether they truly recognise the complexity of learner identities and experiences.

ChatGPT's ability to provide quick access to a wide range of information aligns with the critical digital pedagogy goal of democratising knowledge [52]. By offering instant responses to queries on various topics, ChatGPT could support learners from diverse backgrounds, providing access to information that might otherwise be difficult to obtain [53-55]. This democratisation of knowledge aligns with critical pedagogy's emphasis on empowering learners through access to information. However, this potential benefit must be balanced against concerns about the quality, accuracy, and possible biases in the information provided by AI systems [56,57].

Despite these alignments, our analysis also identified several challenges and potential misalignments between ChatGPT and the principles of critical digital pedagogy. A significant concern is the potential for ChatGPT to reinforce existing societal biases and power structures [58-60]. As an AI trained on existing data, ChatGPT may inadvertently perpetuate biases in its training data, contradicting the critical pedagogy goal of challenging oppressive structures. This risk highlights the need to critically examine AI systems and their potential impact on equity and social justice in education.

Another concern is the potential need for the promotion of critical thinking skills. While ChatGPT can provide information, it may not inherently foster critical consciousness development, a critical pedagogy's central aim [22]. There is a risk that learners might passively consume the information provided by ChatGPT without engaging in the necessary analysis and questioning that are fundamental to critical pedagogy [61,55,62].

The issue of decontextualisation presents another challenge. ChatGPT's informative responses may need a deeper contextual understanding and connection to lived experiences emphasised in critical digital pedagogy [63,29]. This disconnect could lead to a superficial engagement with complex social and cultural issues, missing the nuanced understanding that critical pedagogy seeks to foster.

Potential for Fostering Dialogue, Empowerment, and Social Justice

Despite the challenges, ChatGPT shows promise in several areas related to the goals of critical digital pedagogy, particularly in fostering dialogue, empowerment, and social justice. The multilingual capabilities of ChatGPT present a significant opportunity for supporting linguistic diversity and inclusivity in educational settings [64,45]. By providing support in multiple languages, ChatGPT could break down language barriers and create more inclusive learning environments [32]. This aligns with critical digital pedagogy's emphasis on recognising and valuing diverse voices and experiences in the educational process.

ChatGPT's potential for scaffolding learning is another promising area [65,55]. By providing tailored explanations and examples, ChatGPT can potentially empower learners to engage with complex concepts at their own pace [31]. This individualised support aligns with critical pedagogy's goal of empowering learners and recognising their unique learning journeys. However, ensuring that this scaffolding supports, rather than replaces, the development of learners' independent critical thinking skills is crucial.

The ability of ChatGPT to facilitate reflection presents another potential alignment with critical digital pedagogy. By prompting learners to reflect on their learning processes and experiences, ChatGPT could support the development of critical consciousness and praxis, vital elements of critical pedagogy [14]. However, the depth and authenticity of this AI-facilitated reflection compared to human-guided reflection require further investigation.

Challenges and Limitations

Several significant challenges emerge when considering ChatGPT through the lens of critical digital pedagogy. The digital divide remains a pressing concern, as the reliance on technology to access ChatGPT may exacerbate existing digital inequalities [24]. This potential to widen educational disparities contradicts the core principles of equity and social justice in critical digital pedagogy.

The authenticity of dialogue in human-AI interactions presents another challenge. While ChatGPT can engage in conversation, these interactions' depth, emotional resonance, and transformative potential may fall short of the human-to-human dialogue central to critical

pedagogy [66]. This limitation raises questions about the nature of knowledge construction and the role of human relationships in the learning process.

Data privacy and surveillance concerns associated with AI technologies like ChatGPT pose significant challenges to the emancipatory goals of critical pedagogy [67,68]. The collection and use of student data raise ethical questions about privacy, consent, and the potential for surveillance in educational settings [69-72]. These concerns conflict with critical pedagogy's emphasis on creating safe, empowering learning environments complimentary from oppressive monitoring.

Lastly, the potential for over-reliance on ChatGPT presents a significant challenge to developing independent critical thinking skills [73-75]. While ChatGPT can provide information and support, there is a risk that learners might become dependent on AI-generated responses, potentially hindering their ability to engage in independent analysis and critical reflection [76-78]. This dependency could undermine the core goal of vital pedagogy, which is to develop autonomous, critically conscious learners.

In conclusion, our analysis reveals a complex landscape of potential benefits and significant challenges in integrating ChatGPT within a critical digital pedagogy framework. While ChatGPT offers promising possibilities for promoting dialogue, personalisation, and access to information, it also presents risks of reinforcing biases, limiting critical thinking, and exacerbating educational inequalities. Moving forward, it is crucial to approach the integration of AI technologies like ChatGPT in education with a vital, reflective stance, carefully considering how these tools can be leveraged to support, rather than undermine, the goals of equity, empowerment, and social justice in education.

5. IMPLICATIONS AND RECOMMENDATIONS

Integrating ChatGPT within a critical digital pedagogy framework presents significant opportunities and challenges for educational practice. Based on our findings, we propose a set of recommendations aimed at harnessing the potential of this AI technology while addressing its limitations and aligning its use with the principles of critical digital pedagogy.

A fundamental implication of our study is the urgent need for developing AI literacy among educators and students [79-81]. As AI technologies like ChatGPT become increasingly

prevalent in educational settings, all stakeholders must possess the skills to engage with and evaluate AI-generated content [8] critically. This involves understanding how AI systems function and developing the ability to analyse their outputs critically, recognise potential biases, and understand their limitations. Educators should be equipped to guide students in questioning the information provided by AI systems, encouraging them to cross-reference with other sources and to consider the societal implications of AI technologies [4].

To this end, we recommend developing and implementing comprehensive AI literacy programs in teacher education and professional development initiatives. These programs should cover technical aspects of AI, ethical considerations, and pedagogical strategies for integrating AI tools like ChatGPT into critical digital pedagogy practices. For students, AI literacy should be incorporated into existing digital literacy curricula, fostering a generation of learners who can engage critically and ethically with AI technologies [82].

Our findings also highlight the importance of promoting collaborative AI use. Rather than viewing ChatGPT as a replacement for human interaction, we recommend encouraging its use as a tool for collaborative learning. This approach aligns with critical digital pedagogy principles, emphasising the importance of dialogue and collective knowledge construction [14]. Educators could design learning activities where students analyse ChatGPT's responses critically, discuss their implications, and collaboratively construct knowledge [31]. This collaborative approach can help mitigate the risk of over-reliance on AI and foster the development of critical thinking skills.

The ethical implications of integrating AI in education necessitate the development of clear ethical guidelines. These guidelines should address issues of equity, privacy, and transparency, ensuring that the use of ChatGPT aligns with the social justice goals of critical digital pedagogy [10]. We recommend that educational institutions, in collaboration with AI ethics experts, develop comprehensive policies governing the use of AI in academic settings. These policies should address data privacy and algorithmic bias, potentially exacerbating educational inequalities [83].

Moreover, these guidelines should emphasise transparency, requiring clear communication to students about when and how AI tools are used in their education. This

transparency is crucial for maintaining trust and empowering students to make informed decisions about their engagement with AI technologies [72].

Contextual integration of ChatGPT is another critical recommendation emerging from our study. ChatGPT should not be viewed as an end but should be carefully contextualised within broader learning objectives and pedagogical approaches. This involves aligning the use of ChatGPT with the principles of critical digital pedagogy and ensuring that it supports, rather than detracts from, the development of critical consciousness and social justice awareness [22]. Educators should be encouraged to design learning experiences that integrate ChatGPT in ways that promote reflection, critical thinking, and engagement with real-world issues. This could involve using ChatGPT-generated content as a starting point for critical analysis or as a tool for exploring multiple perspectives on complex social issues [29]. The key is to ensure that ChatGPT always serves broader pedagogical goals aligned with critical digital pedagogy.

Finally, our findings underscore the importance of continuous evaluation of the impact of ChatGPT on educational outcomes. We recommend the implementation of regular assessment processes to evaluate the effects of ChatGPT integration on learning outcomes, student empowerment, and progress towards social justice goals. This evaluation should go beyond traditional measures of academic achievement to consider factors such as critical thinking skills, student agency, and engagement with social issues [84].

This continuous evaluation process should involve multiple stakeholders, including educators, students, administrators, and AI ethics experts. It should employ quantitative and qualitative methods to capture AI integration's complex and multifaceted educational impacts. The results of these evaluations should be used to iteratively refine and improve the integration of ChatGPT and other AI technologies within critical digital pedagogy frameworks [4].

In conclusion, integrating ChatGPT within a critical digital pedagogy framework requires a thoughtful, ethical, and context-sensitive approach. By developing AI literacy, promoting collaborative AI use, establishing ethical guidelines, ensuring contextual integration, and implementing continuous evaluation processes, educators can work towards harnessing the potential of AI technologies like ChatGPT while staying true to the principles of critical digital pedagogy. This approach can contribute to developing educational practices that

are both technologically enhanced and socially just, empowering, and critically engaging for all learners.

6. CONCLUSION

This study has comprehensively examined the potential intersection between ChatGPT, a cutting-edge AI language model, and critical digital pedagogy, a framework that seeks to leverage digital technologies for empowerment and social justice in education. Our analysis has revealed a complex landscape characterised by promising alignments and significant challenges, underscoring the nuanced considerations required when integrating AI technologies within critical educational frameworks.

The potential of ChatGPT to revolutionise educational practices is evident in its capacity to offer personalised learning experiences, provide increased access to information, and support dialogue and reflection. These capabilities align with several core principles of critical digital pedagogy, including recognising diverse learner experiences, democratising knowledge, and promoting reflective practice. ChatGPT's ability to engage in multilingual communication and provide instant, tailored responses presents opportunities for creating more inclusive and responsive learning environments.

However, our study has also identified significant challenges and potential risks associated with integrating ChatGPT in educational settings. These include the possible reinforcement of societal biases, concerns about developing critical thinking skills, and questions about the authenticity of AI-mediated educational experiences. The risk of exacerbating digital divides and perpetuating inequalities through technology-dependent learning approaches is a concern that resonates with critical pedagogy's focus on social justice and equity.

The integration of ChatGPT within a critical digital pedagogy framework thus requires careful consideration and intentional design. Educators and policymakers must navigate a delicate balance, harnessing the potential benefits of AI while remaining vigilant to its limitations and possible negative impacts. This necessitates a commitment to developing AI literacy among educators and students, establishing clear ethical guidelines for AI use in

education, and ensuring that AI tools are integrated into ways that support, rather than supplant, human-centred pedagogical approaches.

As we move forward, the integration of AI technologies like ChatGPT in education must remain firmly grounded in the principles of critical digital pedagogy. This means continually questioning how these technologies can be leveraged to promote empowerment, foster critical consciousness, and work towards social transformation. It requires a shift from viewing AI as a mere efficiency tool to understanding its potential as a catalyst for critical engagement and social change.

The findings of this study point to several important directions for future research. There is a pressing need for empirical studies examining the impact of ChatGPT in diverse educational contexts, investigating how its use affects learning outcomes, student engagement, and the development of critical thinking skills. Such studies should employ mixed-method approaches to capture both quantitative outcomes and the qualitative experiences of learners and educators.

Furthermore, future research should develop pedagogical approaches that effectively integrate ChatGPT and similar AI technologies within critical digital pedagogy frameworks. This could involve creating and evaluating learning designs that use ChatGPT to promote dialogue, encourage essential analysis, and explore complex social issues. Research should also address the ethical implications of AI in education, including data privacy, algorithmic bias, and the potential impacts on educational equity.

As we navigate the evolving landscape of AI in education, we must remain committed to the core principles of critical digital pedagogy. This means ensuring that technology is a tool for empowerment and social transformation rather than reinforcing existing inequalities or promoting uncritical acceptance of technological solutions. It requires a continual process of critical reflection and adaptation as we seek to harness the potential of AI while staying true to our educational values and goals.

In conclusion, the integration of ChatGPT within critical digital pedagogy frameworks presents exciting possibilities and significant challenges for the future of education. By approaching this integration with a vital, reflective stance and prioritising the goals of empowerment, social justice, and critical consciousness, we can work towards educational

practices that are both technologically enhanced and deeply human-centred and socially transformative. As we continue to explore and shape the role of AI in education, let us strive to create learning environments that empower all learners to engage critically with technology, challenge societal inequities, and participate actively in shaping a more just and equitable world.

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