Towards Responsible Use: Student Perspectives on ChatGPT in Higher Education

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Abstract: The advent of generative artificial intelligence (AI) tools, particularly Large Language Models (LLMs) like ChatGPT, presents a dichotomy of opportunities and challenges within the educational sector. These tools offer the promise of personalized learning support, accessible at any time, thereby enhancing educational engagement and resource availability. However, they also introduce significant concerns, notably the risk of plagiarism, complicating their integration into academic settings. Despite the widespread adoption of ChatGPT by students, there remains a gap in understanding their experiences with these tools and the need for frameworks to guide responsible use. To address this knowledge gap, this study investigates the utilisation of ChatGPT for academic tasks and students' perceptions of its benefits and drawbacks in a university context. The findings reveal that half of the students used ChatGPT either regularly or occasionally for academic tasks. However, only slightly more than one-third of the participants expressed confidence in maintaining the authenticity and originality of their outputs when using ChatGPT. In terms of utility, respondents' perceptions varied, with 25.0% considering it moderately useful, 39.3% very useful, and 10.7% extremely useful for their assignments. Notably, 42.8% observed a significant enhancement in the quality of their work with ChatGPT, compared to assignments completed independently. Despite these advantages, 71.4% of students encountered errors or inaccuracies in ChatGPT's outputs, underscoring the tool's limitations. A significant majority (89.7%) advocate for the establishment of specific guidelines or training to foster effective and responsible usage of ChatGPT in academic contexts. The Chi-square test indicated a significant difference in ChatGPT usage between White and BAME students (p=0.031). These findings underscore the broad utilisation of ChatGPT in student learning and general satisfaction with its application. Nonetheless, students acknowledge the tool's potential for errors and inaccuracies. In light of these challenges, there is a pronounced demand for clear guidelines and proper training to navigate the responsible use of ChatGPT in educational settings. This study illuminates the imperative for educators and institutions to develop strategies that not only leverage the benefits of generative AI tools but also mitigate their risks and promote meaningful learning outcomes.

Keywords: Generative AI tools, ChatGPT, Responsible use, Student perceptions, Academic assignments

1. Introduction

The advent of artificial intelligence (AI) has profoundly impacted various domains, including education. Among the most notable advancements in AI is the development of large language models (LLMs), particularly ChatGPT, designed to understand and generate human-like text based on vast amounts of data. Developed by OpenAI, ChatGPT is a sophisticated AI model that utilises deep learning techniques to engage in meaningful dialogues, answer questions, and provide explanations across a wide range of topics. The deployment of ChatGPT in educational settings represents a significant shift in how students and educators interact with information and learning resources.

The integration of ChatGPT into educational practices has been the subject of many studies, highlighting various benefits, challenges, and future research directions. Sevnarayan (2024) explores the dynamics of ChatGPT usage from the perspectives of students and lecturers in an open distance e-learning university. The findings suggest that ChatGPT is particularly beneficial in supporting distance learners by offering timely assistance and fostering a sense of connection with the learning material. However, the research also points out the need for adequate training and support to maximise the benefits of ChatGPT. Sandu et al. (2024) present a case study on the impact of ChatGPT in educational practices within Australian higher education. Their research indicates that ChatGPT enhances student engagement and learning outcomes by providing interactive and immediate support. The study also highlights the importance of integrating AI literacy into the curriculum to help students and educators effectively utilize ChatGPT.

Firat (2023) investigates the perceptions of students and scholars towards ChatGPT in universities. The study finds that while there is a general positive attitude towards the use of ChatGPT, concerns about data privacy and the ethical implications of AI in education persist. Firat (2023) suggests that addressing these concerns through transparent policies and ethical guidelines is essential for the widespread acceptance of ChatGPT in academic settings. Almogren et al. (2024) examine the factors influencing the acceptance of ChatGPT in higher education through a comprehensive theoretical framework. Their study identifies key factors such as perceived ease of use, perceived usefulness, and social influence as significant predictors of ChatGPT adoption. The research underscores the importance of user-centred design and ongoing evaluation to ensure the

effective implementation of ChatGPT in educational settings. Hasanein and Sobaih (2023) explore the drivers and consequences of ChatGPT use in higher education from the perspectives of key stakeholders. They identify factors such as perceived usefulness, ease of use, and the quality of feedback as critical determinants of ChatGPT adoption. The study also notes the potential of ChatGPT to reduce the workload for educators by automating routine tasks, thereby allowing them to focus on more complex teaching responsibilities. Rasul et al. (2023) highlight how ChatGPT can facilitate personalised learning by adapting to individual student needs and providing tailored feedback. However, they also caution against over-reliance on AI, noting potential issues such as inaccuracies in generated content and the need for continuous monitoring by educators to ensure the quality and reliability of information. According to Das and Madhusudan (2024), higher education students perceive ChatGPT as a valuable tool for enhancing their academic experience. Their study reveals that students appreciate the accessibility and immediate feedback provided by ChatGPT, which supports self-directed learning and helps clarify complex concepts.

In the context of higher education, the responsible use of AI tools, such as ChatGPT, is vital for upholding academic integrity and fostering equitable learning outcomes. Responsible use entails not only adherence to principles of academic integrity (Yang, 2023) but also an awareness of the potential biases and limitations inherent in AI systems (Díaz-Rodríguez et al., 2023). Scholars have expressed concerns about the potential for AI systems to reinforce existing biases and inequalities within education (Ferrer et al., 2021). Language models like ChatGPT are trained on vast amounts of internet data, which may reflect and perpetuate societal biases, including those related to race and culture (Ray, 2023). Furthermore, the concept of "responsible use" must be scrutinised within the context of power dynamics present in educational institutions. The introduction of AI technologies in education is not a neutral process; rather, it carries the risk of reinforcing existing power structures and norms (Mohamed et al., 2020).

Constructivism Learning Theory is a learning theory positing that learners construct their own understanding and knowledge through experiences and reflecting on those experiences (Fosnot, 2005). Jean Piaget and Lev Vygotsky are two prominent figures associated with this theory. Piaget's theory emphasises the processes of assimilation and accommodation, where learners integrate new information into existing frameworks or adjust their frameworks to include new information (Piaget, 1954). Vygotsky, on the other hand, highlights the social context of learning, arguing that knowledge is constructed through interaction with others and the environment (Vygotsky, 1978). Constructivism asserts that learning is an active, contextualised process of constructing knowledge rather than passively receiving information. This approach emphasises the importance of the learner's active involvement in the learning process and the significance of real-world contexts. In a constructivist classroom, students are encouraged to use active techniques such as experiments, real-world problem-solving, and discussions to create a more profound understanding and meaning (Fosnot, 2005).

Using ChatGPT in educational settings can be effectively explained through the lens of Constructivism Learning Theory. ChatGPT serves as a dynamic tool that facilitates the construction of knowledge by allowing students to interactively engage with information. This aligns with Piaget's idea of active learning, where students assimilate and accommodate new knowledge through interaction with AI, thereby refining and expanding their cognitive structures (Piaget, 1954). ChatGPT's interactive nature supports Vygotsky's concept of social constructivism. Although AI is not a human peer, it can simulate conversational interactions that promote deeper understanding. Students can engage in dialogue with ChatGPT, ask questions, and receive immediate feedback, mimicking the collaborative learning processes described by Vygotsky (Vygotsky, 1978). This interaction encourages students to articulate their thoughts, confront misconceptions, and build new understanding through guided discovery (Hasanein and Sobaih, 2023).

Despite the expanding body of research on the use of ChatGPT in education, several knowledge gaps remain. The user experience and acceptance of ChatGPT among diverse student populations, including those with varying learning styles and needs, require further study. Understanding how demographic factors, such as gender and ethnicity, influence the acceptance and effectiveness of ChatGPT can help in designing more inclusive and accessible AI-based learning solutions (Almogren et al., 2024). This research, utilising a questionnaire survey, aims to understand the experiences and opinions of students at a university regarding their use of ChatGPT. The study particularly focuses on potential differences in opinions between genders, ethnicities concerning demographic factors.

2. Methodology

This study employed a quantitative research design, utilising a structured questionnaire to gather data from university students regarding their experiences and opinions on using ChatGPT. The questionnaire comprised

three main sections: demographic information, usage patterns, and perceptions and opinions. It was administered online using Microsoft Forms. This research seeks to explore the different experiences and acceptance of ChatGPT among various student groups. The study was conducted at one British University. Aiming to capture a diverse cross-section of the student population, the survey targeted both domestic (home) and international students. Efforts were made to include participants from various ethnic backgrounds, with the sample comprising students who identified as White as well as those from Black, Asian, and Minority Ethnic (BAME) groups. This diverse participant pool allows for a more nuanced understanding of how different student groups perceive and engage with ChatGPT in their academic pursuits. Upon completion of data collection, the responses were downloaded and prepared for analysis using Python. The primary analytical method employed was the Chi-square test, which determined if there were significant differences in opinions between genders, ethnicities (White vs BAME) regarding their experiences with ChatGPT. The survey was approved by the Ethics Committee of the School of Archaeology, Geography and Environmental Science, University of Reading.

3. Results

The questionnaire reveals that half (50%) of the surveyed students used ChatGPT either occasionally or regularly for academic tasks (Figure 1.a). None of the students indicated using ChatGPT frequently or very frequently. Notably, 20% of surveyed students reported never using ChatGPT for academic assignments. The *p*-value of the Chi-square test (0.822) is significantly higher than 0.05, indicating no statistically significant difference in the frequency of ChatGPT use for academic assignments between different genders. Conversely, the *p*-value (0.031), which is less than 0.05, indicates a statistically significant difference in the frequency of ChatGPT usage for academic assignments between different ethnic groups (White vs BAME students). Among White students, 57.14% never used ChatGPT for academic assignment, and 28.57% used ChatGPT occasionally or regularly (Table 1). In contrast, 8.70% never used ChatGPT for academic assignments, and 56.52% of BAME students used ChatGPT occasionally or regularly.

Table 1: Contingency table of the frequency of ChatGPT usage for academic assignments among White and Black, Asian and Minority Ethnic (BAME) students

	Frequency of ChatGPT usage for academic assignments					
Ethnicity	Never	Rarely	Occasionally	Regularly	Frequently	Very frequently
White	57.14	14.29	28.57	0.00	0.00	0.00
BAME	8.70	34.78	30.43	26.09	0.00	0.00

Approximately 35.8% of the participants expressed confidence or substantial confidence in maintaining the authenticity and originality of their outputs when using ChatGPT (Figure 1.b). A quarter of the students, 25%, are not very confident, and notably, 7.1% of students do not feel confident at all. The Chi-square test yielded a *p*-value of 0.281, indicating no statistically significant difference in students' confidence in the authenticity and originality of their work when using ChatGPT between different genders. The p-value (0.467), greater than 0.05, suggests no statistically significant difference in confidence levels regarding the authenticity and originality of work when using ChatGPT between White and BAME students.

The largest segment, 39.3%, rated ChatGPT as "Very useful," indicating a strong positive reception (Figure 1.c). Additionally, 25.0% found it "Moderately useful," and 10.7% considered it "Extremely useful," suggesting that a majority of students view ChatGPT as a valuable tool in their academic work. Conversely, 17.9% of students rated it as "Slightly useful," and 7.1% found it "Not useful at all", indicating that a minority of students either do not see significant benefits or may encounter issues with its application. The Chi-square test yielded a *p*-value of 0.606, indicating no statistically significant difference in students' opinions on the overall usefulness of ChatGPT in assisting with assignments between different genders. The *p*-value (0.722), greater than 0.05, suggests no statistically significant difference in the perceived usefulness of ChatGPT for assignments between White and BAME students.

Notably, 42.8% of surveyed students agree or strongly agree that using ChatGPT significantly enhanced the quality of their work, compared to assignments completed independently (Figure 1.d). Meanwhile, 17.9% of students disagree with the statement, and 3.6% strongly disagree. This distribution highlights that while a substantial portion of students acknowledge improvements in the quality of their assignments with ChatGPT, many are either indifferent or sceptical about the tool's effectiveness. The Chi-square test yielded a *p*-value of 0.731, indicating no statistically significant difference in students' opinions on the quality of their work when

using ChatGPT compared to completing assignments without it between different genders. The *p*-value (0.078), greater than 0.05, indicates no statistically significant difference in perceptions of quality differences when using ChatGPT for assignments between White and BAME students. A significant majority, 71.4%, reported experiencing errors or inaccuracies, while 28.6% did not encounter such issues (Figure 1.e). The Chi-square test *p*-value of 0.806 is much higher than the typical significance level of 0.05, indicating no statistically significant difference in opinions between genders regarding encountering errors or inaccuracies in ChatGPT. Based on the Chi-square test (*p*=1), there is no significant difference in students' opinions on encountering errors or inaccuracies in ChatGPT across different ethnicities.

A substantial majority of students, 48.3%, agree with the establishment of specific guidelines or training to foster effective and responsible usage of ChatGPT in academic contexts, while an additional 41.4% strongly agree, indicating a clear consensus on the importance of such guidelines or training (Figure 1.f). A smaller proportion, 10.3%, remains neutral, neither agreeing nor disagreeing. Notably, there are no respondents who disagree or strongly disagree with the need for guidelines or training. The Chi-square test *p*-value of 0.279 is higher than the typical significance level of 0.05, indicating no statistically significant difference in opinions between genders regarding the need for specific guidelines or training on how to effectively use ChatGPT in an academic setting. Given the *p*-value of 0.156, there is no statistically significant difference in opinions on the need for specific guidelines or training for ChatGPT between White and BAME students.

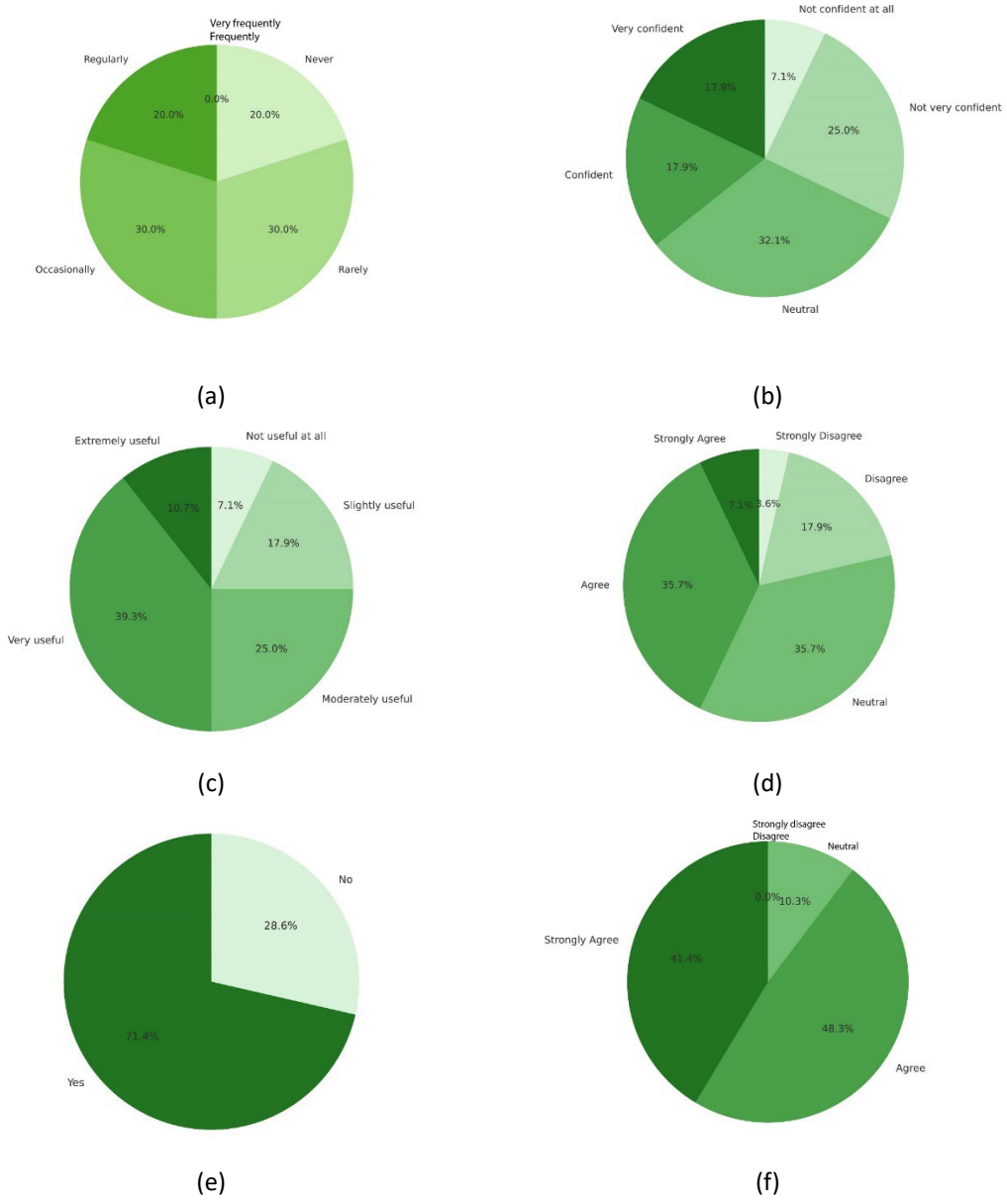

Figure 1: Frequency of Students' Usage and Opinions of ChatGPT

(a) Frequency of student use of ChatGPT for academic assignments; (b) Frequency of students' confidence in the authenticity and originality of their work when using ChatGPT; (c) Frequency of students' opinions on the overall usefulness of ChatGPT in assisting with their assignments; (d) Frequency of students' perceptions of significant differences in the quality of their work when using ChatGPT compared to completing assignments without ChatGPT; (e) Frequency of students' reports of encountering errors or inaccuracies in ChatGPT during its use; (f) Frequency of students' opinions on the need for specific guidelines or training on effectively using ChatGPT in an academic setting

4. Discussion

4.1 Interpretation of Results Using Constructivism Learning Theory

Constructivism, as posited by Jean Piaget and Lev Vygotsky, suggests that learners actively construct their understanding and knowledge through experiences and reflections (Fosnot, 2005). This theoretical framework can elucidate how students engage with and benefit from ChatGPT in their academic endeavours.

The data indicates that half of the surveyed students used ChatGPT either regularly or occasionally for academic tasks (Figure 1.a). This pattern of usage aligns with the constructivist emphasis on active engagement and self-directed learning. Students appear to use ChatGPT as a supplementary tool, integrating it into their learning processes as needed. Approximately 35.8% of participants expressed confidence in maintaining the authenticity and originality of their outputs when using ChatGPT, while a quarter were not very confident (Figure 1.b). Vygotsky's social constructivism emphasizes the role of interaction in learning (Vygotsky, 1978). The varying levels of confidence among students could be interpreted as reflecting their differing experiences and the extent to which they have effectively interacted with ChatGPT to internalise its capabilities and limitations. The need for better management of AI-generated content highlights the importance of providing students with the skills to critically evaluate and reflect on the information generated by AI, an essential aspect of constructivist learning. The majority of students rated ChatGPT as "Very useful" or "Moderately useful," with 39.3% and 25.0% respectively (Figure 1.c). This positive reception aligns with constructivist principles that value tools and resources supporting active learning and problem-solving. ChatGPT's ability to provide immediate feedback and tailored responses can facilitate the construction of knowledge by allowing students to engage in iterative learning processes, and receive feedback, which supports Piaget's concept of active learning (Piaget, 1954). A significant portion of students (42.8%) reported that ChatGPT enhanced the quality of their work, although some were sceptical or indifferent (Figure 1.d). This finding can be understood through Vygotsky's notion of the Zone of Proximal Development (ZPD), which suggests that students can achieve higher levels of understanding with appropriate support (Vygotsky, 1978). ChatGPT can act as a scaffold within the ZPD, helping students to accomplish tasks they might not be able to complete independently (Figure 2) (Cicconi, 2014). However, the reported concerns about errors and inaccuracies (71.4% experiencing issues, Figure 1.e) suggest that while ChatGPT can enhance learning, it also requires critical engagement and reflection, core aspects of constructivist learning. Students must learn to identify and correct errors, fostering deeper understanding and critical thinking skills. The overwhelming consensus among students for the need for specific guidelines or training (89.7% agreeing or strongly agreeing, Figure 1.f) underscores the importance of structured support in the effective use of AI tools. From a constructivist perspective, this need reflects the importance of scaffolding—providing learners with the necessary support to use new tools effectively (Fosnot, 2005). Guidelines and training can help students integrate ChatGPT into their learning processes more effectively, enhancing their ability to construct knowledge and apply it in meaningful ways.

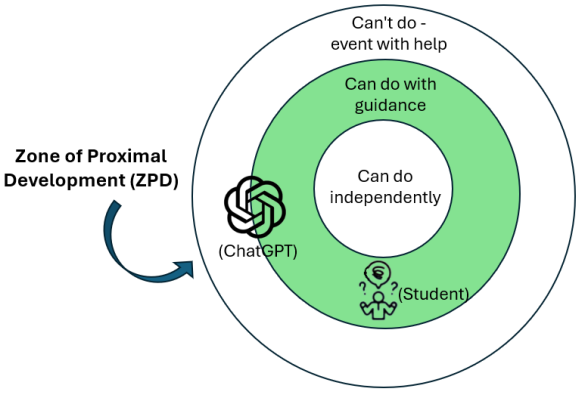

Figure 2: ChatGPT can support students' leaning in the Zone of Proximal Development (ZPD) (after (Dorrell, 2022))

4.2 No Significant Difference in ChatGPT Usage Between Genders

The Chi-square analysis of the survey data revealed no significant differences in opinions on using ChatGPT between genders. This finding is particularly interesting in the context of existing research on gender differences in the adoption and use of technology in educational settings. Previous studies have often suggested that gender can influence technology acceptance and usage patterns, with some reporting that males are generally more inclined towards technology adoption compared to females (Venkatesh and Morris, 2000). However, the current study challenges this notion by showing a convergence in attitudes towards ChatGPT among male and female students. The lack of significant gender differences might be attributed to several factors. Firstly, the ubiquitous nature of digital technologies and their integration into academic and social activities have likely diminished traditional gender gaps in technology use. As digital natives, today's students — regardless of gender — are generally comfortable with technology, including advanced AI tools like ChatGPT (Bouzar et al., 2024). This comfort level may contribute to the uniformity in their perceptions and usage patterns. Secondly, the specific context of ChatGPT as an educational tool might also play a role. ChatGPT's utility in assisting with academic assignments, providing feedback, and offering personalised learning support appeals equally to both male and female students. Studies have shown that when the perceived usefulness of a technology is high and directly related to academic performance, gender differences in technology adoption tend to diminish (Teo, 2008). The practical benefits of using ChatGPT for improving academic outcomes could, therefore, transcend gender-based preferences and attitudes.

4.3 Significant Differences in ChatGPT Usage Between Ethnic Groups

The Chi-square test revealed a statistically significant difference in the frequency of ChatGPT use between White and BAME students, with a *p*-value of 0.031. This significant disparity highlights the divergent patterns of technology adoption and utilization among different ethnic groups. Several factors may contribute to this disparity. One possible explanation is that BAME students may view ChatGPT as a means to level the playing field in academic settings where they might feel disadvantaged. As noted by Roscoe et al. (2022), ChatGPT can provide personalised assistance and explanations that some students may not feel comfortable seeking from instructors or peers due to cultural barriers or fear of stigmatization (Yang, 2021). In addition, cultural attitudes towards education and technology use might also play a role. BAME students might perceive generative AI tools like ChatGPT as valuable resources to support their academic endeavours, especially in contexts where they might lack other forms of academic support. The inclination towards using such tools can be seen as a strategy to bridge gaps in academic preparedness and performance (Selwyn, 2009). Furthermore, the higher usage of ChatGPT among BAME students could also reflect a broader trend of minority students actively seeking out supplementary educational resources. Research indicates that minority students often engage in proactive learning behaviours, utilising various online tools and platforms to enhance their learning experiences (Larson et al., 2018). This proactive approach might stem from a desire to overcome systemic educational barriers and achieve academic success.

4.4 Implications of the Results

The implications of these findings are multifaceted, affecting students, educators, and policymakers. For students, the results suggest that while ChatGPT is a valuable educational tool, its benefits depend on proper

usage and understanding. The mixed confidence in the tool's authenticity and originality indicates a need for critical engagement with AI-generated content. Educational institutions need to carefully integrate AI literacy into their curricula, ensuring students are equipped to discern and verify information produced by ChatGPT (Firat, 2023). For educators, the findings highlight ChatGPT's potential to facilitate personalised learning. However, reported inaccuracies and errors necessitate a balanced approach where ChatGPT is used as a supplementary tool rather than a replacement for traditional teaching methods. Training educators to effectively incorporate ChatGPT into their pedagogical practices is crucial for maximising its benefits (Sandu et al., 2024). Policymakers should consider these insights when developing regulations and guidelines for AI use in education. The high demand for specific guidelines and training underscores the need for comprehensive policies that address the ethical, practical, and pedagogical aspects of AI integration in education. These policies should focus on the ethical use of AI to ensure equitable access and usage (Hasanein and Sobaih, 2023).

The disparity between White and BAME students in ChatGPT usage raises concerns about potential over-reliance on AI tools among BAME students. As cautioned by Xie and Wang (2024), excessive dependence on AI for academic tasks could potentially hinder the development of critical thinking skills and original thought processes. Educators need to be aware of this trend to ensure that all students, regardless of ethnicity, develop the necessary skills for academic and professional success.

The findings of this study underscore the varying experiences and acceptance levels of ChatGPT among various student groups, with notable difference between White and BAME students (Table 1). The concept of responsible use, as previously explained, must therefore be contextualised within these disparate outcomes. The results suggest that while ChatGPT is a valuable tool for many students, its design and application may inadvertently align with white-centric norms, thereby placing additional responsibility on Black students and other students of colour to adapt to these norms. This dynamic raises concerns about the equity of AI-driven educational tools. If such technologies continue to operate within frameworks without fully accounting for the diverse cultural contexts of all students, they may risk perpetuating systemic biases and reinforcing existing inequalities in education (Ferrer et al., 2021). The responsibilisation of marginalised groups to conform to dominant norms represents a significant ethical challenge in the deployment of AI technologies. In light of these considerations, the responsible use of ChatGPT should be re-envisioned as a practice that actively resists these biases by fostering inclusivity and ensuring that the technology is adaptable to the needs of all students, regardless of their racial or ethnic background (Zheng, 2024). This reconceptualisation of responsible use not only addresses the ethical deployment of AI tools but also contributes to a broader effort to decolonise educational technologies and create more equitable learning environments (Mohamed et al., 2020).

4.5 Limitations and Future Outlook

As with most studies, this research is not without limitations. The primary limitation is the sample size and demographic diversity of the survey participants, which may limit the generalisability of the findings. Future research should aim to include a more diverse sample, for example, from multiple countries, to enhance the validity of the results (Das and Madhusudan, 2024). Moreover, the current study focuses primarily on students' perspectives, whereas the views of educators and administrators are equally important for a holistic understanding of ChatGPT's impact in higher education (Sevnarayan, 2024). An additional limitation is the exclusive focus on ChatGPT as the generative AI tool used in teaching and learning contexts. While ChatGPT represents only one facet of the rapidly evolving landscape of generative AI technologies, other tools, such as Perplexity and Copilot, offer distinct features and functionalities that could potentially enhance their educational value. Future research should expand beyond ChatGPT to include a comparative analysis of various generative AI tools in educational contexts.

5. Conclusion

The integration of generative AI tools, particularly ChatGPT, in teaching and learning has gained substantial attention due to its potential to transform educational practices. These findings underscore the broad utilisation of ChatGPT in student learning and a general satisfaction with its application. Nonetheless, students acknowledge the tool's potential for errors and inaccuracies. In light of these challenges, there is a pronounced demand for clear guidelines and proper training to navigate the responsible use of ChatGPT in educational settings. This study illuminates the imperative for educators and institutions to develop strategies that not only leverage the benefits of generative AI tools but also mitigate their risks to uphold academic integrity and promote meaningful learning outcomes.

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