Exploring Trust Dynamics in Higher Education: A Comprehensive Analysis of Educators' Perceptions of Students' Ethical Adoption of Generative AI

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Abstract

Generative Artificial Intelligence (GAI) present both transformative opportunities and complex ethical challenges in the evolving Higher Education (HE) landscape. This research explores the crucial aspect of trust among educators in HE regarding the ethical use of GAI, avital factor for its successful integration into teaching and learning environments. Through a survey research approach, this study combines quantitative and qualitative analysis to assess the levels of trust educators place in students' ethical use of GAI. The research examines key constructs such as transparency, reliability, accountability, cultural contexts, trust, and ethical alignment through descriptive and thematic analysis. This study explores two interrelated aspects: educator's trust in students' ethical use of GAI and educator's trust in GAI technology itself for teaching practices. The research posits that educator's trust in GAI may influence their trust in student's ethical use of the technology. By clarifying these distinct yet connected focuses, the findings reveal that trust is a critical lever in the adoption and effective use of GAI in HE. The research highlights how various dimensions of trust affect educators' engagement with GAI. These insights pave the way for the development of targeted guidelines aimed at strengthening trust and promoting an ethical framework for GAI in HE.

Keywords: Generative Artificial Intelligence, Trust, Ethical Use, Cultural Context, Higher Education, ChatGPT

1.0 Introduction

The genesis of Generative Artificial Intelligence (GAI) in educational contexts, dating back to the early 20th century, has evolved significantly with the advent of modern machine learning models like GPT-3 (Haenlein & Kaplan, 2019). These advancements, while facilitating personalised learning experiences, have sparked concerns regarding their potential to compromise academic integrity (Michel-Villarreal et al., 2023). Despite these concerns, UNESCO posits that GAI, when

employed responsibly, can significantly enhance educational outcomes while adhering to ethical standards (UNESCO, 2023). The ethical use of GAI by students is particularly concerning, as it involves considerations of academic integrity, the appropriateness of GAI interactions, and the long-term implications of GAI on learning outcomes (Michel-Villarreal et al., 2023). Educators play a crucial role in this context, as students' trust in the ethical use of GAI directly impacts the adoption and effective integration of these technologies in educational practices. In addition, research by Tan et al. (2024) highlights a lack of trust in students' responsible use of GAI in their summative assessments. The integration of GAI in educational setting has raised significant questions around trust, both in the technology itself and in how students ethically use it. This study aims to dissect these dynamics by focusing on two interrelated but distinct aspects — educators' trust in students' ethical use of GAI and educators' trust in GAI as a teaching tool. This study proposes that educator's trust in the technology may directly influence their perception of students' ethical use, creating a layered trust dynamic. This perspective is grounded in recent studies highlighting the importance of educator's confidence in GAI as a precursor to trusting students responsible use of these tools (Lucas et al., 2024; Nazaretsky, Ariely, et al., 2022). Addressing these challenges requires a comprehensive understanding of the factors that influence educators' trust in the ethical use of GAI by students. This includes exploring how educators perceive the risks and benefits associated with GAI, their experiences with GAI technologies, and their attitudes toward the ethical implications of such tools in educational settings. Furthermore, as GAI continues to evolve, there is a need for ongoing research to develop robust frameworks and guidelines that can support educators in fostering an environment of trust and ethical responsibility in the use of GAI (Moorhouse et al., 2023). Consequently, the research question addressed in this paper is: *How does educators' trust in students' ethical use of GenAI influence the integration and efficacy of these technologies within higher education settings?*

This paper aims to explore the dynamics of trust between educators and students concerning the ethical use of GAI in HE. The research identifies key factors that affect trust, assesses their impact of GAI adoption, and proposes recommendations to foster a trust-rich environment that supports the ethical use of GAI. This paper is structured as follows. Section 2 covers the related work, followed by the research methodology in Section 3. Section 4 presents the results and Section 5 provides the

relevant discussion. The paper concludes with research implications, limitations, and future work in Section 6.

2.0 Related Work

The literature review informing this study focuses on key themes around trust in GAI within HE. Relevant academic sources are identified through searches in databases such as Scopus, Web of Science, and Google Scholar using terms including “trust in AI,” “ethical AI in education,” “Generative AI,” “educators’ trust,” and “student use of AI.” The review focuses on peer-reviewed journal articles and conference papers exploring factors shaping trust in technology, particularly GAI, and its ethical considerations in educational settings. Inclusion criteria focus on studies examining trust in technology, ethical considerations in AI, and educator-student dynamics in HE settings. Empirical studies and theoretical frameworks are prioritised to ensure a balances and comprehensive review.

2.1 Generative Artificial Intelligence (GAI)

GAI has appeared as a transformative force within HE, marked distinctly by the introduction of OpenAI's ChatGPT in late 2022 (Bengio et al., 2000; Hinojo-Lucena et al., 2019; Radford, 2018). ChatGPT's widespread adoption has sparked broad discussions, extending the debate on GAI's impact far beyond academic circles. These discussions often reveal sharply divided opinions on technology's role in education, with some viewing it as potentially damaging ("doomsters"), while others ("boosters") see it as revolutionary (Selwyn, 2014). A systematic review found predominantly positive assessments of GAI's potential to enhance educational practices, with few addressing ethical concerns (Zawacki-Richter et al., 2019). Conversely, critiques focus on issues like the potential for corporate overreach, exemplified by concerns over automated plagiarism detection (Popenici & Kerr, 2017). Pre-ChatGPT discourse analyses by Bearman et al. (2023) highlight an urgent need for educational institutions to adapt, reflecting the shifting power dynamics GAI introduces into the learning environment.

In HE, GAI tools such as automated content generators, adaptive learning systems, and personalised assessment engines can significantly enhance the learning experience. While GAI can offer personalised learning experiences, there is a risk that

these technologies could also worsen existing disparities in educational access and quality if not implemented thoughtfully. Ensuring that GAI tools are accessible to all students and do not favor certain groups over others is essential for their ethical integration into educational systems (Lacey & Smith, 2023).

2.2 Trust and Ethical Considerations in GAI

Trust is a foundational aspect of effectively integrating new technologies, particularly AI, in educational settings. Trust in technology is influenced by many factors, including reliability, predictability, and ethical considerations (Faulkner, 2010; Tschannen-Moran, 2014). Faulkner (2010) emphasises that trust in technology is not solely based on its functional reliability but also on its ethical design and transparency. Within educational setting, trust in GAI is a multifaceted issue. It encompasses not only the reliability and performance of technology but also the adherence to ethical standards, crucial for fostering a productive educational environment. In the context of GAI, ethical concerns such as data privacy, algorithmic bias, and the potential for misuse are paramount, affecting stakeholder trust (Dunn et al., 2021). Empirical research underlines several trust-enhancing factors specific to GAI in education, such as system reliability, user experience, and alignment with educational goals (Batista et al., 2024; Mogavi et al., 2023; Shahzad et al., 2024). Studies also suggest that educators' trust in AI-powered educational technology can influence their trust in students' ethical use of such tools and educators who trust the transparency and reliability of these tools are more likely to believe that students will use them ethically (Lucas et al., 2024; Nazaretsky, Ariely, et al., 2022). The integration of GAI into HE has initiated a profound transformation in pedagogical methods and student engagement. As these GAI systems evolve, characterised by their ability to generate content autonomously based on extensive data sets, they are increasingly deployed to personalise learning and streamline educational processes. However, the rapid advancement and integration of GAI raises significant trust and ethical considerations (Haenlein & Kaplan, 2019). While GAI offers potential enhancements in educational outcomes, the dynamics of trust between educators and students regarding the ethical use of these technologies require careful consideration (Jobin et al., 2019).

2.3 Conceptual Framework for Exploring the Dynamics of Trust

Figure 1 shows a conceptual framework that provides a structured approach to understanding the dynamics of trust and ethical considerations in the use of GAI within HE settings. Trust in GAI is the overarching theme that encapsulates educators' overall confidence in students' ethical use of GAI tools. Educators' trust in students' ability to use GAI ethically involves several layers of confidence and expectation, ranging from students' technical competence to their moral judgment and adherence to ethical guidelines. According to Nguyen et al. (2023), trust in technologies like GAI extends beyond its functional capabilities to include how it manages data and maintains integrity. This aspect is supported by Stahl (2021), who emphasises the need for transparency and accountability in GAI systems to secure educators' trust. This framework is developed through the literature review process, comprises six constructs, which are discussed in the sub-sections below. The conceptual framework is developed based on a thorough review of existing literature on trust in technology, ethical considerations in GAI, and educator-student dynamics within higher education.

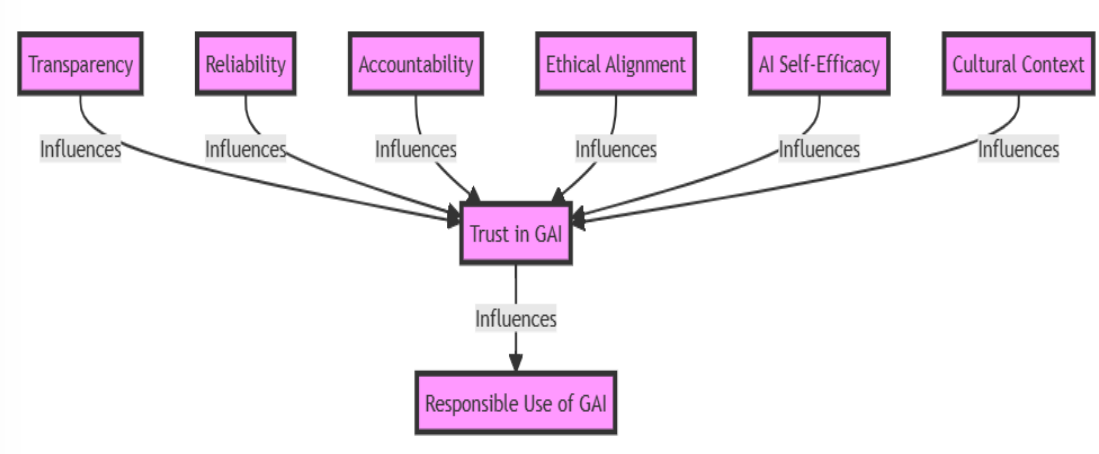

Figure 1. Conceptual Framework

Six key constructs are identified as central to understanding educators' trust in GAI. These constructs are selected due to their consistent presence in the literature. Each construct is further elaborated in the subsections below, detailing its relevance and role within the framework.

2.3.1 Transparency (T)

Ensuring that educators and students are aware of and understand these aspects can lead to more informed and confident use of GAI tools, thereby enhancing educational outcomes. It has been revealed through studies that algorithmic transparency supports

ethical use and improves trust, which are considered indispensable factors for the effective adoption of GAI technologies (Lacey & Smith, 2023).

2.3.2 Reliability (R)

Reliability refers to the consistent performance of GAI systems, crucial for their trustworthiness. In HE, reliable GAI ensures that tools used for student assessments and personalised learning are dependable and accurate. Studies show that reliability influences educators' willingness to integrate GAI into their teaching practices significantly (Haenlein & Kaplan, 2019; Lacey & Smith, 2023). Reliable GAI systems contribute to an environment where both students and educators feel secure in their interactions with the technology, leading to more positive educational outcomes and a greater acceptance of GAI as a beneficial educational tool. The consistent performance and reliability of GAI systems plays a pivotal role in fostering trust (Stolpe & Hallström, 2024). Reliable systems are crucial for gaining educators' trust, as they need assurance that the technology will function as expected without frequent errors or failures.

2.3.3 Accountability (A)

Accountability in GAI supports the ethical use of technology by providing clear pathways for addressing misuse and managing ethical breaches (Turilli & Floridi, 2009). These structures help in maintaining a balance between innovation and ethical responsibility, ensuring that GAI tools benefit educational environments without compromising integrity or fairness. Thus, accountability is not just about having reactive measures but also about proactively ensuring that GAI systems operate within agreed ethical parameters, fostering a culture of trust and responsibility. Strong accountability frameworks are likely to enhance trust by providing assurances that the systems are under responsible oversight.

2.3.4 Ethical Alignment (EA)

Ethical alignment is about ensuring that GAI systems adhere to ethical norms and values, particularly in sensitive areas like education. It involves aligning GAI functionalities with societal and educational standards to ensure that their deployment enhances learning without compromising ethical standards (Celik et al., 2022; Matthias, 2004). The importance of ethical alignment is also emphasised by Eason

(2007), who argues that trust in technology is greatly enhanced when the technology demonstrably aligns with societal ethical standards. Furthermore, Nazaretsky, Cukurova, et al. (2022) discuss how ethical alignment influences educators' perceptions of GAI, suggesting that educators are more likely to adopt GAI technologies that transparently uphold ethical standards. Systems that are ethically aligned are presumed to foster greater trust among educators, as these systems reflect broader societal and educational standards.

2.3.5 GAI Self-Efficacy (SE)

GAI self-efficacy is crucial for fostering a proactive and positive interaction with GAI technologies in educational settings. It reflects the confidence educators and students have in their ability to effectively understand and use GAI tools. When educators possess high GAI self-efficacy, they are more likely to explore advanced features of GAI systems, apply them creatively in their pedagogy, and adjust their instructional strategies based on GAI feedback and analysis (Celik et al., 2022). Moreover, GAI self-efficacy extends beyond personal competence, impacting the overall educational ecosystem by promoting a culture of innovation and continuous improvement. Training programs that enhance GAI self-efficacy can significantly improve the adoption rates and effective use of GAI in educational settings, leading to better learning outcomes and more personalised educational experiences (UNESCO, 2023). Higher GAI self-efficacy among educators is expected to increase their trust in GAI, as they feel more competent and in control of the technology.

2.4.6 Cultural Context (CC)

The literature also addresses how cultural and institutional factors influence trust in AI. Research by Hofstede et al. (2014) provides a framework for understanding how cultural differences impact technology adoption and trust in GAI systems. Institutional trust, on the other hand, is shaped by educational policies, leadership attitudes, and the overall organisational culture surrounding technology use. Cultural norms significantly influence the acceptance and effectiveness of GAI in education. Yu et al. (2023) emphasise that understanding cultural differences is crucial in designing GAI tools that are sensitive to the diverse backgrounds of students. This sensitivity can enhance the relevance and usability of GAI applications, making them more effective across various cultural contexts. In addition, institutional policies and educators’

attitudes toward technology significantly influence the extent to which these innovations are embraced (Bottery, 2004). Cultural context considers the influence of cultural norms and values on the perception and adoption of technology. It explores how cultural differences affect educators' trust in AI, reflecting the diverse settings in which GAI is implemented (Holmes et al., 2022). Adapting GAI systems to align with local cultural norms requires a deep understanding of the specific educational ecosystem. Therefore, differences in cultural context can affect educators' trust in GAI. CC is included as a core construct at the same level as the others due to its significant influence on trust in AI technologies. Cross-cultural studies have demonstrated that cultural norms and values shape how individuals perceive and trust AI systems. Kaplan et al. (2023) conducted a meta-analysis revealing that trust in AI varies considerably across cultures, with German participants displaying higher trust levels compared to Japanese participants. Similarly, Agrawal et al. (2023) explored cross-cultural differences between OECD countries and India, finding notable variations in perceived trust, responsibility, and reliance on AI systems versus human experts. These findings shows that CC is not merely a moderating factor but a fundamental component which shapes the educators' overall trust in student's ethical use of GAI. Recognizing the diverse cultural backgrounds of educators is crucial for understanding how trust in GAI develops and how it influences the ethical use of these technologies in higher education.

3.0 Research Methodology

This research adopts a survey research approach from Check and Schutt (2011), which has been previously applied to study the use of technology in HE by Tan et al. (2023). This approach is designed to investigate educators' perceptions and ethical considerations of GAI in HE. Survey research gathers information from a sample of individuals through both quantitative responses, using numerical rated items, and qualitative insights via open-ended questions. The survey was developed based on the key constructs identified in the conceptual framework (see Figure 1), incorporating both a five-point Likert scale (1-Strongly Disagree; 2-Disagree; 3-Neutral; 4-Agree; 5-Strongly Agree) and open-ended questions to ensure a comprehensive data collection process. Administered via Microsoft Forms, the survey ran for four weeks, with responses collected anonymously. Departmental research ethics approval was obtained

prior to data collection. The survey instrument was developed based on the conceptual framework, ensuring that each of the six constructs—Transparency, Reliability, Accountability, Ethical Alignment, GAI Self-Efficacy, and Cultural Context—was represented. For each construct, specific Likert-scale questions were designed to measure perceptions and attitudes. The items were formulated through an iterative process involving a review of relevant literature and expert input to ensure content validity and clarity.

For this study, a purposive sampling strategy was employed to target a specific subset of the population that possesses unique characteristics relevant to the research questions, the educators in HE who are engaged with or have perspectives on the use of GAI in their teaching environments. Participants were selected based on their involvement with educational technologies, including those who have either used GAI tools in their teaching practice or participated in workshops and seminars on GAI applications in education. The selection was facilitated through direct invitations sent via academic networks and professional social media platforms, such as LinkedIn and academic listservs related to educational technology. Additionally, snowball sampling techniques were utilised, where initial respondents were encouraged to recommend the survey to eligible colleagues, thus expanding the reach effectively within the academic community.

Following Tan et al. (2024), descriptive analysis was adopted to establish a baseline understanding of the data. This process included:

- *Mean Calculation*: Provided an average score for each question, indicating the overall trend or inclination of the respondents towards certain viewpoints on GAI.
- *Median Calculation:* Identified the middle value in the distribution of responses, which is particularly useful in understanding the central position of data in skewed distributions.
- *Standard Deviation:* Quantified the amount of variation or dispersion in responses, offering a clear picture of consensus or diversity in opinions among participants.

A thematic analysis was conducted on the open-ended responses gathered for each construct within the conceptual framework. This process involves steps such as immersing in the data to gain a deep understanding of the content and systematically coding the data in segments that highlight key features relevant to the research questions. Section 4 discusses the results.

4.0 Results

4.1 Demographics

The demographic breakdown of the 77 survey participants is presented in Table 1. The results indicate a diversity of age groups represented vary, providing a wide lens on the generational attitudes towards GAI. Young educators (21-30 years) make up 29.87% of the sample, suggesting a significant engagement from this demographic in GAI discussions. The 31-40 age group is the most represented at 37.07%, bringing a blend of youthful vigour and mature professional insight into the mix. With 68.83% male and 31.17% female participants, the gender distribution points towards a higher male engagement which might reflect broader trends in technology uptake and interest areas within academia. Table 1 also indicates that participants hail from both STEM (58.44%) and non-STEM (41.56%) fields, providing a balanced perspective from both technical and non-technical domains. This diversity is critical in evaluating the interdisciplinary implications of GAI tools. The experience levels among participants range from less than 2 years (23.37%) to over 10 years (24.67%), highlighting a mix of fresh insights and seasoned understandings within the educator community. The survey captured responses from educators in 11 different countries, with a notable majority from India (46.75%), followed by participants from China (9.09%), and a spread across other countries including the United States, United Kingdom, Australia, and several European and Asian nations. This global diversity is pivotal in assessing the cultural and regional nuances that might influence perceptions of GAI. Findings from underrepresented countries, like the single response from Norway, are included only when offering unique insights but not generalised.

The demographic diversity within the survey participants allows for a rich, multilayered analysis of the data. As shown in Figure 2, each demographic variable such as age, gender, professional background, teaching experience, and geographic location contributes to a more nuanced understanding of the factors that influence educators' trust in and use of GAI. The global spread of participants underscores the universal relevance of GAI discussions and the need for culturally aware educational technologies.

Characteristics	Count (n)	%
Age Group		
21-30	23	29.87
31-40	20	37.03
41-50	20	58.82
51-60	11	28.94
61 and older	3	3.75
Gender		
Female	24	31.16
Male	53	68.83
Teaching Domain		
Non-STEM	32	41.55
STEM	45	58.44
Teaching Experience		
<2 years	18	23.37
>10 years	19	24.67
2-5 years	19	24.67
5-10 years	21	27.27
Country		
Country	Count (n)	%
Australia	1	1.29
China	7	9.09
India	36	46.75
Indonesia	1	1.29
Japan	1	1.29
Malaysia	2	2.59
Netherlands	2	2.59
Norway	1	1.29
Spain	1	1.29
Taiwan	2	2.59
United Kingdom	20	25.97
United States of America	2	2.59

Table 1. Demographic Breakdown of Survey Participants

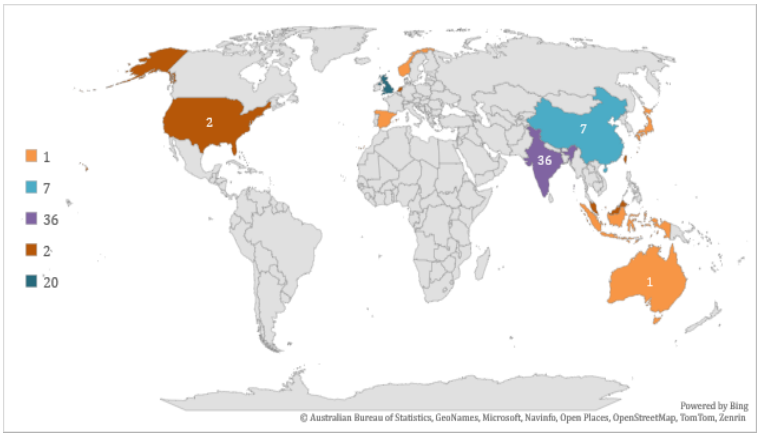

Figure 2. Global Distribution of Survey Respondents

The data gleaned from this demographic analysis not only frames the subsequent findings but also provides key insights into potential biases and areas of focused interest for future studies on the integration of GAI technologies in education. This detailed demographic overview is crucial for contextualising the attitudes and experiences that shape educators' perspectives on ethical GAI usage.

4.2 Descriptive Analysis

The descriptive analysis of the survey reveals nuanced insights into the educators' perceptions of GAI across six key constructs: Transparency (T), Reliability (R), Accountability (A), Self-Efficacy (SE), Cultural Context (CC), and Ethical Alignment (EA). Table 2 shows a detailed breakdown of each construct, focusing on the mean, median, and standard deviation.

The Transparency (T) construct, assessed through statements T1, T2, and T3, reveals a strong preference among educators for clear and understandable GAI decision-making processes. With means close to 4 (T1: 3.99, T2: 3.97, T3: 3.84) and consistent medians of 4, the data suggests that educators place significant value on the transparency of GAI tools. This preference underscores the importance they place on understanding how GAI influences and guides student decisions. The relatively low standard deviations (T1: 0.71, T2: 0.75, T3: 0.86) indicate a general agreement among participants, reinforcing the critical role transparency plays in fostering trust in educational technologies.

Reliability (R) is another crucial factor for educators, as evidenced by their responses to R1, R2, and R3. These items scored means of 3.77, 3.70, and 3.64 respectively, with all maintaining a median of 4, indicating a robust expectation for GAI tools to deliver consistent and accurate assistance. The standard deviations, hovering around 0.90, reflect a slightly broader range of opinions regarding the reliability of GAI, possibly due to varying subjective experiences with the technology. This variation suggests areas where GAI tools need to enhance their reliability to meet educator expectations fully.

In the Accountability (A) construct, statements A1, A2, and A3 explore the expectations for GAI systems to autonomously monitor and correct unethical behaviors. The means for these statements (A1: 3.71, A2: 3.57, A3: 3.74) with medians at 4, reflect a cautiously optimistic view among educators regarding the accountability mechanisms embedded in GAI tools. The somewhat higher standard

Construct	Statements	Mean	Median	Standard Deviation
T1	I trust GAI tools more when I understand how they guide students in making decisions.	3.98	4	0.71
T2	I can trust GAI tools when their influence on student choices is clear and transparent.	3.97	4	0.74
T3	I can accept the integration of GAI tools in educational settings when I am fully aware of the criteria these tools use to generate outputs for students.	3.84	4	0.85
R1	I trust GAI tools that provide consistent and error-free assistance to students.	3.76	4	0.90
R2	I can trust GAI tools when they deliver accurate information to students without fail.	3.70	4	0.88
R3	I am confident in the ethical use of GAI by students when the tools consistently function as intended.	3.63	4	0.95
A1	I can trust GAI tools equipped with effective mechanisms to monitor and correct unethical behaviors such as plagiarism, cheating, and data manipulation by students.	3.71	4	0.95
A2	I trust GAI tools that can report and rectify misuse by students autonomously.	3.57	4	1.00
A3	I am more confident in the ethical use of GAI tools by students when these tools feature audit trails and alerts for misuse.	3.74	4	0.96
EA1	I can trust GAI tools that reflect high ethical standards aligned with educational principles.	3.93	4	0.81
EA2	My trust in GAI tools depends on their capability to reinforce ethical behavior among students.	3.84	4	0.84
EA3	I value GAI tools designed with strong ethical considerations that reflect our educational values.	3.93	4	0.78
SE1	I can trust students using GAI tools ethically when I feel confident in my ability to oversee and understand these technologies.	4.12	4	0.67
SE2	My competence in using GAI tools correlates with my trust in students' ethical use of these technologies.	3.88	4	0.77
SE3	I am more trusting of GAI technologies overall when I am confident in my ability to use them effectively.	3.96	4	0.86
CC1	I can accept students using GAI tools ethically when these tools are consistent with the learning values upheld by my culture.	3.87	4	0.83
CC2	I trust my students to use GAI tools ethically when these technologies are	3.77	4	0.78

	perceived as beneficial for ethical academic practices within my cultural context.			
CC3	My cultural background's definition of trust, which involves specific ethical behaviors, guides my evaluation of students' use of GAI tools."	3.75	4	0.84

Table 2. Summary of Survey Responses

deviations, especially for A2 (1.01), indicate diverse opinions about the effectiveness of these mechanisms, suggesting that while there is hope for robust accountability, there is also recognition of the challenges it faces.

In the Ethical Alignment (EE) construct, statements E1, E2, and E3 scored the highest means (E1: 3.94, E2: 3.84, E3: 3.94), indicating a strong consensus on the importance of aligning GAI tools with high ethical standards. These scores underscore educators' prioritisation of ethical considerations in GAI applications, reflecting a broad agreement that ethical alignment is paramount for the successful integration of GAI in educational settings.

Responses to the Self-Efficacy (SE) construct through SE1, SE2, and SE3 (means of 4.13, 3.88, and 3.96 respectively) emphasise the strong link between educators' confidence in their ability to oversee GAI and their trust in students using these tools ethically. The relatively low standard deviations indicate a consensus that personal competence in managing GAI technologies is crucial for ethical usage. This suggests that enhancing educator training and familiarity with GAI could further promote ethical practices among students.

Cultural Context (CC), assessed via CC1, CC2, and CC3, highlights how cultural norms and values shape the acceptance and implementation of GAI in education. With all means around 3.8 and medians consistently at 4, there is a clear recognition of the need for GAI tools to align with cultural learning values. The standard deviations suggest moderate variability in how educators from diverse cultural backgrounds perceive these issues, indicating a need for culturally sensitive approaches in the deployment of GAI technologies.

The descriptive analysis of the survey data reveals not just surface-level perceptions but also deeper patterns that relate directly to the research question and conceptual framework. For example, higher means in Transparency and Reliability indicate a general positive perception of GAI's functionality, aligning with the conceptual framework's emphasis on these factors as foundational to trust. Meanwhile, the

variability reflected in the standard deviations, especially within Accountability and Cultural Context, highlights diverse educator experiences and perspectives, suggesting that trust in GAI is influenced by both system attributes and external cultural factors. This complexity supports the inclusion of Cultural Context as a key construct in the framework. Moreover, correlations observed between GAI Self-Efficacy and trust in students' ethical use of GAI underscore the interdependence of educators' confidence in using GAI and their trust in students, directly linking the descriptive statistics back to the core research question. In summary, this analysis sheds light on the complex landscape of educators' perceptions regarding GAI, highlighting the crucial areas of transparency, reliability, accountability, self-efficacy, cultural context, and ethical alignment.

4.3 Thematic Analysis

The thematic analysis of educator responses gathered from the open-ended questions provides deep insights into the various constructs influencing their perceptions of GAI tools in education. The analysis followed an inductive coding approach, where responses were first open-coded to identify recurring ideas. These initial codes were then grouped into broader themes related to trust dynamics and ethical considerations. To ensure consistency, the coding process was reviewed and refined iteratively. Each comment reflects nuanced views that educators hold based on their experiences, expectations, and the theoretical underpinnings of GAI usage. Educators' discussions about the transparency of GAI tools reveal a complex interplay between the desired openness and the practical limitations of technology. The themes identified include *conditional trust*, *ethical implications*, and *practical implementation*. They express a *conditional trust*, encapsulated by remarks such as, "GAI can be trusted to a large extent but should not be 100%," highlighting the impossibility of achieving complete transparency with current technology. This notion is further reinforced by skepticism about whether GAI processes can ever be fully transparent, with one educator noting, "The problem is that this kind of transparency is not currently available."

Responses also delve into the *ethical implications* of transparency in GAI usage. Educators question the impact of transparency on ethical behavior and decision-making processes. Comments like, "There are too many ethical issues around GAI and its outputs for transparency alone to affect my levels of trust in these tools," illustrate the broader concerns regarding how transparency intersects with ethical

considerations. Educators are wary of over-reliance on technology, fearing it may lead to complacency or misuse, particularly among students who might exploit the system's transparency.

Educators also expressed concerns about the *practical implementation* of transparency, pointing out that even when GAI tools are designed to be open, they may not fully account for the nuances of human interaction or educational needs. For instance, one comment, "Due to laziness students prone to use GAI tools as they procrastinate to study and have no choice," suggests that transparency in GAI tools is not enough to ensure their effective and ethical use. This sentiment is echoed in broader discussions about the need for GAI tools to be designed in ways that support holistic educational goals and foster genuine understanding and engagement among users.

The reliability of GAI tools is a significant concern for educators, with *accuracy* and *consistency* of these technologies in educational settings emerging as the key themes. One educator captured the essence of this concern, stating, "How accurate are the GAI tools? How many students realise the GAI is not 100% correct." This skepticism underscores a broader apprehension about the potential errors and the unforeseen consequences of relying too heavily on automated systems. The inherent uncertainty in GAI outputs, as noted by educators, challenges the trust educators place in these tools to perform flawlessly.

The accountability construct underpins the theme of *functional reliability*. Educators elaborate extensively on their concerns regarding the accuracy and *functional reliability* of accountability mechanisms within GAI tools. A common theme is the hypothetical scenario where these tools could autonomously detect and manage ethical breaches. As expressed by one educator, "If they were, theoretically, 100% able to spot plagiarism, then I might trust them." This comment highlights the ideal yet currently unattainable standard that would foster greater trust among educators. Educators also delve into the practical challenges of implementing accountability in GAI systems. They voice concerns about the lack of current solutions that could effectively manage the broad spectrum of potential ethical issues. For example, one educator pointed out, "There is nothing that currently works in this space," indicating a significant gap between the desired and actual capabilities of GAI tools. Another comment, "It's very difficult to agree that I would trust these sorts of mechanisms when I have no idea what would be considered inappropriate use," underscores the uncertainty and unease regarding the scope and effectiveness of accountability

measures. "They shouldn't be trusted as much as they pretend to be," one educator remarked, questioning the integrity and reliability of the AI's ethical judgments. This skepticism is rooted in a realistic assessment of current GAI capabilities, coupled with a cautious outlook on the potential future developments in GAI governance. Many educators are concerned about the impact of these accountability issues on educational outcomes. They emphasise the need for robust systems that can not only recognise ethical breaches but also educate and guide students effectively.

As for the Ethical Alignment construct, the thematic analysis reveals a theme advocating for establishing clear *ethical guidelines and frameworks* that guide the development and deployment of GAI tools in education. Educators stress the importance of these frameworks in helping design GAI tools that meet educational goals and adhere to ethical standards. This is seen in discussions about the necessity of GAI tools to be designed with strong ethical considerations that reflect educational values, ensuring that their deployment supports a fair and equitable educational environment.

Educators' responses on GAI Self-Efficacy construct reflect mixed feelings about their capability to effectively use and understand GAI tools. The key themes derived are *confidence* and *capability.* This construct relates to educators' *confidence* in managing and leveraging GAI in educational settings, which directly influences their trust in these technologies. Many educators' express uncertainty about their *capability* to keep pace with evolving GAI technologies, with comments like, "It's difficult for me to predict how my trust will go up or down as I get more expert, as I am currently at such a low skill level." Educators feel that as their understanding of GAI grows, so does their awareness of its limitations and potential ethical issues, which in turn affects their self-efficacy. The complexity of GAI systems and the constant evolution of these technologies can be daunting, leading to feelings of inadequacy in fully grasping their implications.

The cultural context construct highlights the *diverse and complexity* theme in how different educational environments perceive and integrate GAI tools. Educators' responses highlight the *complexity* of applying a uniform technological solution across varied cultural landscapes. Some educators expressed uncertainty and difficulty in defining how cultural context influences trust in GAI, with remarks like, "I'm not sure that my working definition of Trust (i.e., can a person explain their reasoning to me) is a cultural feature, though I'm sure it might be." Responses also delve into the

challenges of ensuring that GAI tools align with the cultural values and educational norms of different regions. Educators from various cultural backgrounds bring unique perspectives that influence their trust in and acceptance of GAI tools. This is particularly evident in comments reflecting on how cultural differences can affect the perception of technology's role in education. For example, one UK-based educator remarked, "This as a UK-based academic - learners will see cultural bias in outputs," indicating concerns about how universally GAI technologies can be applied without reinforcing existing biases or creating new disparities. Educators discuss the wide-ranging ethical implications of GAI, which extend beyond just the immediate educational applications. They highlight the complexities involved in aligning GAI tools with ethical standards that reflect broad educational and societal values. Comments like, "Since 'tools' covers a lot of variety, i.e., some that have processes embedded in them, and others that are more neutral, I have difficulty in thinking about their ethical alignment," express the challenges of ensuring GAI tools adhere to diverse ethical expectations. Many educators' express skepticism about the ability of GAI tools to inherently support ethical educational practices. Questions arise about whether the programming of GAI can adequately reflect ethical guidelines or if it merely serves functional purposes without deeper ethical considerations. Comments such as, "I'm not sure how GAI tools are expected to reflect or align with these values. In their programming? Their output?" highlight the ongoing debate about the role of GAI in reinforcing or undermining ethical standards in education.

5.0 Discussions

This research aims to explore how educators' trust in students' ethical use of GAI influences the integration and efficacy of these technologies within HE settings. In this research, descriptive analysis plays a pivotal role in unpacking the statistical dimensions of educators' responses to the students' ethical use of GAI in educational settings. The descriptive analysis of the survey responses reveals insights into educators' trust in the ethical use of GAI by students, closely aligning with themes discussed in the literature. For instance, the high mean scores for transparency-related items (T1, T2, T3) suggest that educators value clarity about how GAI tools operate and influence student decision-making. This finding resonates with literature emphasising transparency as crucial for fostering trust in educational technologies it

highlights transparency being a cornerstone for trust, where educators must understand how GAI tools function to fully endorse their use in educational practices (Haenlein & Kaplan, 2019; Jobin et al., 2019). Similarly, the reliability scores (R1, R2, R3) underscore the importance educators place on the consistent and error-free performance of GAI tools, aligning with studies that highlight reliability as a foundational element for trust in technology (Lacey & Smith, 2023). The accountability dimensions (A1, A2, A3) also showed robust mean scores, indicating that features like monitoring and correcting unethical behaviour are critical for educators' trust. This mirrors academic discussions that advocate for robust accountability mechanisms in GAI systems to ensure ethical usage (Tan et al., 2024; UNESCO, 2023). Furthermore, the significant scores related to GAI self-efficacy (SE1, SE2, SE3) highlight that educators' confidence in using GAI tools effectively influences their trust in students' ethical use of these technologies, confirming research that connects self-efficacy with technology adoption (Nazaretsky, Cukurova, et al., 2022).

Addressing the intricacies of the cultural context in GAI use in education, the thematic analysis highlights significant educator confusion and the need for a culturally nuanced understanding, as evidenced in participant comments. The analysis reveals a significant variation in perceptions across different age groups. For instance, participants aged 61 and older exhibit a higher trust in GAI's ethical alignment and self-efficacy, with means peaking at 4.33 and 4.22 respectively, suggesting an optimistic acceptance potentially due to their extensive experience and possibly greater exposure to varied technological transitions. Conversely, younger educators, particularly those between 21-30 years, show higher receptivity towards transparency and self-efficacy in GAI tools, indicated by their respective means of 4.03 and 4.00. This demographic's higher engagement with technological innovations might explain their comfort with and trust in transparent and self-efficacious GAI tools. Culturally, the insights gleaned from international educators point toward significant disparities. Educators in Japan and Spain rate their trust in the ethical alignment of GAI exceptionally high, possibly reflecting cultural nuances that favor technological integration and ethical compliance. In contrast, educators from the Netherlands and Norway present lower averages across constructs like self-efficacy and cultural context, which might stem from different educational priorities or societal values about technology usage in education. On the other hand, the cultural context appeared

as a significant factor, with diverse responses showing that the cultural alignment of GAI tools affects their acceptance and effectiveness. This variability across cultural settings shows the importance of designing GAI tools sensitive to the cultural and regional nuances of the educational environments they are intended to serve. Lastly, teaching experience itself modulates trust in GAI, with those having less than two years of experience showing higher enthusiasm for ethical alignment and reliability of GAI tools, possibly due to their recent exposure to and training in newer educational technologies during their formative years. In contrast, educators with over ten years of experience might rely more on traditional methods or exhibit cautious optimism toward innovative technologies. As per the comparative analysis, a notable variation is revealed across different age groups. For instance, participants aged 61 and older exhibit a higher trust in GAI's ethical alignment and self-efficacy, with means peaking at 4.33 and 4.22 respectively, suggesting an optimistic acceptance potentially due to their extensive experience and possibly greater exposure to varied technological transitions. Conversely, younger educators, particularly those between 21-30 years, show higher receptivity towards transparency and self-efficacy in GAI tools, indicated by their respective means of 4.03 and 4.00. Culturally, the insights gleaned from international educators point toward significant disparities. Educators in Japan and Spain rate their trust in the ethical alignment of GAI exceptionally high, possibly reflecting cultural nuances that favor technological integration and ethical compliance. In contrast, educators from the Netherlands and Norway present lower averages across constructs like self-efficacy and cultural context, which might stem from different educational priorities or societal values regarding technology usage in education. Lastly, teaching experience itself modulates trust in GAI, with those having less than two years of experience showing higher enthusiasm for ethical alignment and reliability of GAI tools, possibly due to their recent exposure to and training in newer educational technologies during their formative years. In contrast, educators with over ten years of experience might rely more on traditional methods or exhibit cautious optimism toward new technologies.

6.0 Conclusion

6.1 Research Implications

The contributions of this research are twofold. From a theoretical perspective, this study identifies key constructs that provide a structured approach to understanding various facets of trust in GAI within educational settings, which is essential for its ethical use. Consequently, this research adds to the body of knowledge on responsible AI in information systems, covering both social and technical perspectives in line with Vassilakopoulou et al. (2022). From an empirical perspective, this research proposes specific trust-enhancement guidelines aimed at fostering a deeper understanding and acceptance of GenAI technologies within educational environments (see Table 3).To fully realise the potential of GAI in education, it is critical to establish strategic standards that assure ethical and trustworthy application. These ideas seek to improve the integration of GAI technologies, creating an environment in which both instructors and students may receive help from sophisticated technical resources while following high ethical standards. Trust stays a cornerstone of successfully deploying GAI tools in educational settings, needing the development of comprehensive guidelines to enhance this trust among educators, administrators, and students. These guidelines should focus on improving transparency, reliability, and ethical standards to ensure that GAI tools align with educational values and meet the needs of all stakeholders effectively.

6.2 Limitations and Future Work

One key limitation of this research is the reliance on self-reported data, which introduces potential biases and may not fully capture the complexities of educators' trust dynamics. Additionally, the rapidly evolving nature of GAI technology and its applications in education may affect the longevity of these findings. Future research could address these limitations by incorporating more objective data collection methods and continuously updating the research framework to align with technological advancements. Furthermore, longitudinal studies could track changes in educators' trust in GAI over time, providing deeper insights into the temporal dynamics of trust development. Further exploration of the impact of socio-economic factors on GAI adoption, along with comparative studies across different educational

systems and cultural contexts, could enhance understanding of global perspectives on GAI, particularly from the trust perspective.

Guidelines	Descriptions
Comprehensive Educator Training	Develop detailed training programs for educators that focus on the ethical use of GAI, understanding potential biases, and the critical integration of GAI tools. This education enhances trust by increasing educators' control over and competence with these technologies.
Transparent Reporting and Feedback Mechanisms	Establish clear transparency guidelines that include mechanisms for educators to provide feedback on GAI tools. This helps in refining the tools based on actual user experiences, thereby improving their reliability and trustworthiness.
Ethical Standards and Regulation Development	Advocate for and help develop ethical standards that address crucial aspects like data privacy, algorithmic transparency, and fairness in GAI outcomes. Setting these standards builds trust by ensuring GAI tools are safe and fair for educational use.
Regular Updates and Continuous Learning	Encourage ongoing updates and learning opportunities about the latest developments in GAI. Keeping educators informed helps maintain their confidence in using these technologies, thus enhancing trust.
Stakeholder Involvement in GAI Development	Include a broad range of stakeholders in the development and evaluation of GAI tools to ensure these technologies are well-suited to the educational contexts they will be used. Participatory design processes increase trust by aligning the tools more closely with user needs and expectations.

Table 3. Trust-Enhancement Guidelines for the Ethical use of GAI in Higher Education

A key limitation of this study is the overrepresentation of respondents from India (46.75%), which may introduce cultural bias into the findings. This skew could affect the generalizability of results, particularly in trust perceptions influenced by cultural norms. Future research should aim for a more balanced sample through targeted outreach and stratified sampling to capture diverse cultural perspectives. Additionally, the age range of respondents (21–30 years) presents a potential limitation, as it is unclear whether all younger participants held formal teaching roles. Without specific validation of respondents' academic positions, there is a possibility that some responses came from individuals in supporting roles, such as teaching assistants or graduate students involved in instructional activities. This may have introduced variability in the perspectives on GAI use in higher education. Further research should aim for a more balanced sample through targeted outreach and stratified sampling to capture diverse cultural perspectives and ensure clearer respondent validation.

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