

Perception of Generative Artificial Intelligence in Higher Education Research

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ABSTRACT

Integrating Generative Artificial Intelligence (AI) into higher education research holds great promise, but understanding researchers' perceptions and addressing associated challenges is crucial for success. This study investigates how researchers perceive the potential benefits of Generative AI, its ease of use, and the challenges affecting its adoption in higher education research. It aims to uncover diverse perspectives and insights for effective integration. Using a qualitative case study approach, data was collected from 33 researchers in social sciences at one institution through online surveys and interviews. Thematic analysis, guided by the Technology Acceptance Model (TAM), identified recurring themes. The findings reveal significant engagement with AI adoption, with most participants integrating Generative AI into their research. However, readiness to adopt varied, reflecting different levels of enthusiasm and preparedness. Participants' perceptions ranged from recognizing Generative AI's convenience to expressing concerns about potential negative impacts such as becoming overly reliant, aligning with TAM constructs. Additionally, participants stressed the importance of responsible and ethical Generative AI usage through training and awareness initiatives. These findings lay the foundation for strategies promoting Generative AI adoption and responsible integration in higher education research. Implications for institutions aiming to integrate Generative AI effectively emphasize the need to understand researchers' perspectives and address their concerns.

Disclaimer: This study's limitations include a relatively small sample size and reliance on self-reported data. While findings provide valuable insights, further research with larger samples and mixed-method approaches is recommended for a more comprehensive understanding of AI integration's intricacies in higher education research contexts.

Keywords

Generative Artificial Intelligence, Higher education, Researchers' perceptions, Technology Acceptance Model (TAM), Challenges.

Introduction

The rapid advancement of Generative Artificial Intelligence (AI) technologies has ushered in transformative changes across various sectors, including higher education. Generative AI refers to the creation of content which can include images, text, code, models, audio, and more, utilizing AI-powered tools (García-Peñalvo & Vázquez-Ingelmo, 2023). Among the popular tools are ChatGPT, Midjourney, Pictory, Bricasso, and CharacterGPT. As Generative AI continues its evolution and integration into academic settings, its capacity to profoundly impact teaching, research methodologies, and administrative processes cannot be emphasized enough. In the pursuit of optimizing the educational landscape, it is imperative to understand how stakeholders within academia perceive and engage with Generative AI. This qualitative case study delves into the perceptions of Generative AI held by researchers within a singular institution of higher education, employing the Technology Acceptance Model (TAM) as a guiding framework (Davis, 1989).

The integration of Generative AI into higher education is a multidimensional process that entails both opportunities and challenges (Ouyang & Jiao, 2021). Generative AI-powered tools and platforms offer the promise of enhanced data analysis, personalized learning experiences, and streamlined administrative operations. However, the adoption of Generative AI also raises concerns about ethical dilemmas and potential shifts in academic rigor (Chan & Hu, 2023). As researchers are at the forefront of knowledge creation and dissemination, their attitudes toward Generative AI play a pivotal role in shaping its trajectory within academia (Almaraz-López et al., 2023). In this study, the term "researchers" specifically pertains to students who are pursuing postgraduate research programs in the field of social sciences.

The Technology Acceptance Model (TAM) provides a robust framework for understanding how individuals perceive and adopt new technologies (Fearnley & Amora, 2020). The model posits two central constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Perceived Usefulness relates to the extent to which individuals believe that a particular technology will enhance their performance or productivity, while Perceived Ease of Use refers to the perception of the effort required to use the technology effectively (Grover et al., 2019). TAM has been widely employed to examine technology adoption in various contexts and has proven particularly useful in predicting user behaviour and attitudes (Granić, 2023). However, as Generative AI is a multifaceted and evolving technology, it is essential to contextualize the application of TAM within the specific domain of higher education research (Han & Sa, 2021). This study aims to explore the perceptions of Generative AI among researchers, examining the interplay between their perceptions of Generative AI's usefulness and ease of use. By focusing on this intersection, the study seeks to uncover factors influencing researchers' acceptance or resistance toward Generative AI integration. The research gaps this study addresses involve understanding how individuals in higher education perceive Generative AI, which in turn is able to provide valuable guidance for the efficient and responsible implementation of Generative AI technologies (Al-Badi & Khan, 2022). Additionally, by employing the TAM framework, the study contributes to a deeper understanding of the factors that influence researchers' acceptance or resistance to Generative AI integration. As academia stands at the crossroads of technological innovation, these insights hold the potential to inform strategies that foster responsible and effective Generative AI adoption, ensuring that the benefits of Generative AI are harnessed while addressing the challenges it presents.

Research Questions

1. How do researchers perceive the potential usefulness (PU) of Generative AI integration in their research activities?
2. What are the perceived ease of use (PEOU) associated with Generative AI technologies among researchers in the context of higher education research?
3. What are the challenges that impact the acceptance or resistance of researchers toward the integration of Generative AI in higher education research?

Literature Review

As universities and research institutions explore the potential benefits of Generative AI integration, understanding how researchers perceive and interact with this technology becomes imperative. This literature review delves into

existing research to explore the perceptions of researchers regarding the usefulness, ease of use, and acceptance of Generative AI in higher education research.

Perceptions of Generative AI's Potential Usefulness in Research

Researchers' perceptions of the potential usefulness of Generative AI integration in their research activities have been a focal point of investigation. Studies on technology acceptance, highlight the significance of perceived usefulness as a primary determinant of technology adoption (Davis, 1989; Granić, 2023). In the context of higher education research, researchers' beliefs about how Generative AI is able to enhance their performance and productivity are pivotal. Studies on the Technology Acceptance Model (TAM) in Higher Education underscores the role of perceived usefulness in shaping attitudes and intentions towards technology adoption (Kim & Song, 2022; Paiman & Fauzi, 2023). These studies provide a foundation for understanding how researchers' perceptions of Generative AI's utility influence their willingness to embrace it in their work.

Factors Influencing Perceptions and Adoption

Past research suggests that prior experiences with technology significantly impact individuals' attitudes and behaviours (Kim et al., 2021; Mailizar et al., 2021). These works emphasize how prior familiarity plays a pivotal role in shaping perceptions regarding the ease of using technology. Additionally, researchers' technological literacy and disciplinary backgrounds have been identified as influential factors (Ouyang et al., 2022). Individuals with higher technological literacy are more likely to adopt new technologies. Disciplinary backgrounds can also shape perceptions; researchers in fields with extensive technological reliance might view Generative AI integration more favourably.

Challenges of Generative AI Adoption

This study aims to delve into the challenges influencing researchers' acceptance or resistance to Generative AI integration in higher education research. This understanding facilitates the effective implementation of Generative AI by enabling proactive preparation for potential obstacles. Adequate allocation of resources, such as time, budget, and expertise, becomes feasible with a clear grasp of these challenges. Informed decision-making is another benefit, as stakeholders can weigh the advantages of Generative AI against its potential hurdles, ensuring alignment with their goals and resources. Moreover, recognizing these challenges nurtures innovation and research progress, encouraging the development of novel solutions and methodologies (Southworth et al., 2023). Ethical considerations are also addressed, empowering researchers to navigate issues of bias, transparency, and privacy responsibly. By improving the necessary skills, researchers are able to overcome challenges, fostering personal and professional growth. Most importantly, effective risk management, adaptability to evolving technology, and the establishment of a robust foundation for sustainable Generative AI integration further underscore the significance of understanding these challenges (Cain, 2023).

Relationship to Technology Acceptance Model (TAM)

The research questions are anchored in the Technology Acceptance Model (TAM) – Figure 1, which posits that perceived usefulness (PU) and perceived ease of use (PEOU) are primary determinants of users' acceptance of technology. The research aims to investigate how the factors identified in the literature align with the constructs of TAM. Studies such as those by Venkatesh and Davis (Venkatesh & Davis, 2000) have validated TAM's effectiveness in predicting technology acceptance. By further examining how the challenges align with TAM's constructs, the study seeks to contribute to a deeper understanding of researchers' perspectives towards Generative AI in higher education research.

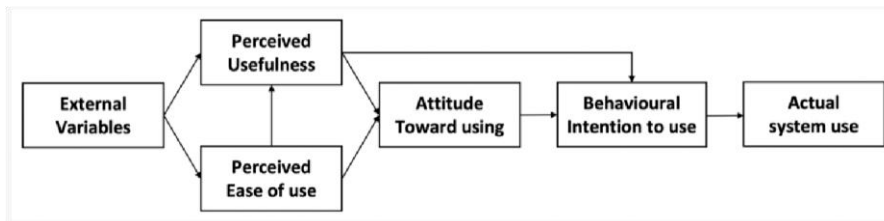


Figure 1. Technology Acceptance Model (TAM)

By exploring the potential usefulness, ease of use, and acceptance or resistance factors through the lens of TAM, the study aims to contribute to a comprehensive understanding of the factors influencing researchers' attitudes and behaviours through their perspectives towards Generative AI integration. This knowledge may offer valuable insights for universities and policymakers as they navigate the path towards responsible and effective adoption of Generative AI in higher education research contexts.

Methods

Through a qualitative case study, this study engages purposive sampling of thirty-three researchers from social sciences disciplines within a single institution. These researchers bring a range of experiences in using Generative AI technologies, including ChatGPT, Coursera, and Google AI. Data collection entails online surveys and individual semi-structured interviews with ten researchers, allowing participants to articulate their attitudes, beliefs, and experiences surrounding Generative AI integration in higher education research. The resulting qualitative data will be subjected to analysis through the lens of Technology Acceptance Model (TAM), offering insights into the reasons that shape researchers' perceptions of Generative AI.

Data Analysis

In this study, data triangulation was employed through a two-step process involving surveys and semi-structured interviews. Initially, a survey was conducted with thirty-three participants to gather quantitative data regarding their familiarity, readiness, and perceptions related to Generative AI. This survey data served as the foundational dataset for the research. Subsequently, semi-structured interviews were conducted to delve deeper into participants' perspectives about the Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of Generative AI. Thematic analysis, following the methodology outlined by Braun and Clarke (2006), was applied to the interview transcripts to uncover recurring themes. The Technology Acceptance Model's (TAM) concepts of PU and PEOU were used as a coding framework, enabling a focused analysis of participants' views on the advantages and disadvantages of integrating Generative AI into their research activities. This two-pronged approach, combining quantitative survey data with qualitative interview insights, provided a comprehensive understanding of the topic, allowing for a nuanced exploration of researchers' perspectives and readiness for Generative AI adoption.

Results

To better understand the potential Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of integrating Generative AI, it's important to determine how familiar researchers are with Generative AI (Kim et al., 2021; Mailizar et al., 2021). Out of the thirty-three participants, thirty-one stated that they have employed Generative AI in their research endeavours. However, there were two respondents who had not incorporated Generative AI (Figure 2).

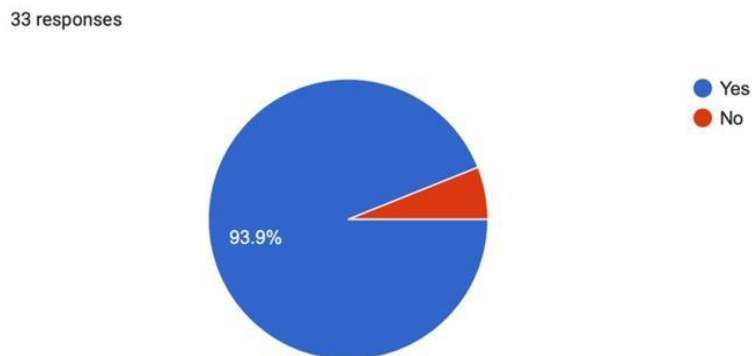


Figure 2. Familiarity with Generative AI in research

Furthermore, the data becomes more intriguing when indicating a disparity in terms of being ready to adopt Generative AI. Among the participants, twenty-one indicated their readiness, while twelve showed partial to minimal readiness – as shown in Figure 3.

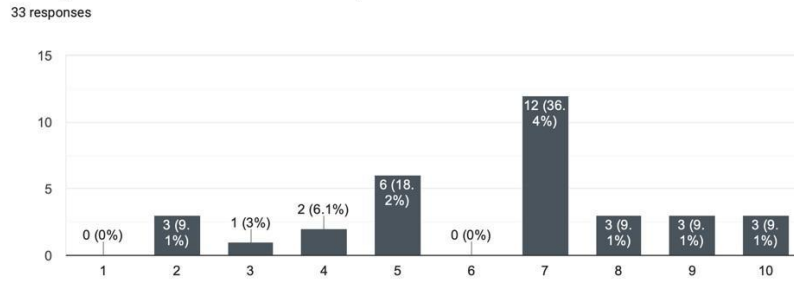


Figure 3. Readiness to integrate Generative AI (1 being not ready at all and 10 being fully prepared)

Next, the study results are presented by specifically addressing the three research questions.

Research Question 1: How do researchers perceive the potential usefulness (PU) of Generative AI integration in their research activities?

To answer the first research question, it is noteworthy that participants who perceive Generative AI as beneficial have been interviewed. These individuals have expressed positive acceptance in using Generative AI due to the convenience it offers, such as improvements in productivity and creativity. – refer to Table 1.

Table 1. Positive attitude towards Generative AI adoption

Quotes, Codes, Sub-theme and Theme	Technology Acceptance Model (TAM)
<p>Quotes: "Generative AI can help me perform various minor tasks quickly, and I don't feel any hesitation in using it." [R10, interview]</p> <p>Codes: quickly, no hesitation Sub-theme: Efficiency and time-saving Theme: Improve productivity</p>	<p>The respondent finds Generative AI helpful in accomplishing tasks quickly and easily, which aligns with the TAM's concept of perceived usefulness. When users perceive a technology as useful in enhancing their productivity or efficiency, they are more likely to adopt it.</p>
<p>Quotes: "I don't use Generative AI to deceive or imitate, but more for brainstorming ideas." [R3, interview]</p> <p>Codes: brainstorming, ideas Sub-theme: Creative Use of Generative AI for idea generation Theme: Facilitate creativity</p>	<p>The respondent sees Generative AI as a tool for a specific purpose—brainstorming ideas. This perspective can also be related to the TAM's perceived usefulness. The user believes that Generative AI serves a valuable purpose in their creative process, which contributes to their intention to use it.</p>

When explained into a TAM framework, participants believe that Generative AI has the potential to improve both productivity and creativity. This reflects their perceived usefulness, which, in turn, contributes to a positive acceptance. Refer to Figure 4.

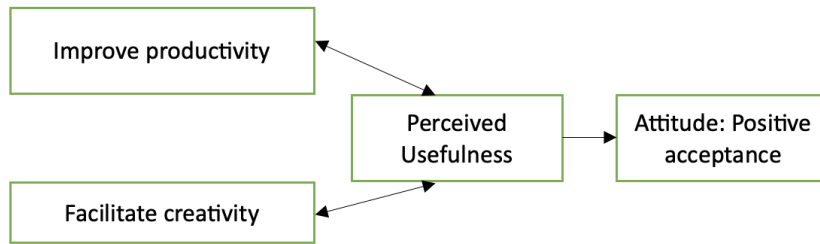


Figure 4. Factors for positive acceptance towards Generative AI

On the other hand, for respondents who were open to the idea but not yet ready to use Generative AI, their concerns revolve around the negative impacts brought about by Generative AI – refer Table 2.

Table 2. Concerns towards Generative AI adoption

Quotes, Codes, Sub-theme and Theme	Technology Acceptance Model (TAM)
<p>Quotes: "I've heard a lot of issues about using Generative AI and I feel it's not necessary to use it yet. Maybe because my field doesn't require its use at the moment." [R19, interview]</p> <p>Codes: issues, not necessary</p> <p>Sub-theme: Caution and relevance in the adoption of Generative AI</p> <p>Theme: Balancing caution with relevance</p>	<p>The respondent is aware of potential issues surrounding Generative AI and does not currently perceive a strong need for its use in their field. This aligns with TAM's concept of perceived usefulness, where users assess the relevance of a technology to their tasks and goals before adopting it.</p>
<p>Quotes: "I'm afraid of becoming dependent and lazy to think if I use Generative AI like ChatGPT." [R30, interview]</p> <p>Codes: afraid, lazy</p> <p>Sub-theme: Concerns about dependency and reduced cognitive engagement with Generative AI</p> <p>Theme: Concerns about becoming overly reliant</p>	<p>The respondent is worried about the long-term impact on his intellectual abilities. This suggests that the user values his own cognitive engagement and might be cautious about adopting Generative AI as he believes it could reduce the perceived value of his own thinking and problem-solving abilities.</p>

In this response, concerns about becoming overly reliant on Generative AI exist. Also, the respondents' points about becoming dependent on Generative AI and the potential impact on their thinking align with the TAM's constructs of perceived usefulness, and consideration of potential negative outcomes. These factors collectively shape the user's negative attitude toward adopting Generative AI technology - refer Figure 5.

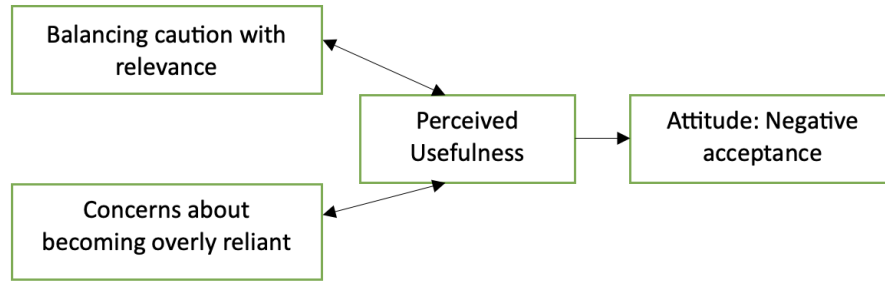


Figure 5. Factors for negative acceptance towards Generative AI

The second research question looks to examine the perceived ease of use (PEOU) associated with Generative AI technologies among researchers.

Research Question 2: What are the perceived ease of use (PEOU) associated with Generative AI technologies among researchers in the context of higher education research?

PEOU is a concept within the Technology Acceptance Model (TAM) that relates to users' perceptions of how easy it is to learn and use a particular technology (Venkatesh & Davis, 2000). In the context of Generative AI adoption, PEOU in this study is closely linked to the support and resources needed to encourage the use of Generative AI. The respondents highlighted the importance of responsible usage and what is needed to encourage the integration of Generative AI - Refer Table 3.

Table 3. Generative AI beyond ease of use

Quotes, Codes, Sub-theme and Theme	Technology Acceptance Model (TAM)
<p>Quotes: "...not that it is hard to use but I believe with proper training we get to understand better on how to use Generative AI effectively and ethically." [R5, interview]</p> <p>Codes: training, effective usage, ethical usage. Sub-theme: Training Enhances Understanding and Ethical Usage Theme: Importance of training for effective and ethical use of Generative AI</p>	<p>This response aligns with the TAM in the sense that it recognizes the importance of perceived ease of use. The respondent suggests that the technology can be understood better and used more effectively with the right training. In other words, her response emphasizes that the perception of ease of use can be positively influenced by access to proper training.</p>
<p>Quotes: "We should teach everyone that Generative AI is just a tool. What really matters isn't just how easy it is to use, but how we use it well, responsibly, and in a way that follows ethical rules. This kind of usage should be acknowledged and appreciated." [R8, interview]</p> <p>Codes: tool, ethical usage, acknowledgement Sub-theme: Emphasizing Generative AI as a Tool and the Importance of Ethical Usage Theme: Promoting responsible and ethical use of Generative AI</p>	<p>While the response does not directly discuss ease of use, it indirectly touches on it by suggesting that understanding how to use Generative AI responsibly and ethically is more crucial than just its ease of use. The response goes beyond PEOU to emphasize ethical considerations, reflecting the broader context of technology adoption. This aligns with the TAM's view that perceived usefulness and ethical aspects play roles in shaping users' attitudes and intentions toward technology.</p>

The results obtained from the interview (Table 3) align with the findings from the survey, where participants highlighted important factors for successful Generative AI integration. Figure 6 illustrates that among the list of requirements, the two most critical needs are training for effective and ethical use of Generative AI and raising awareness by promoting responsible and ethical use of Generative AI - refer Figure 6 and 7.

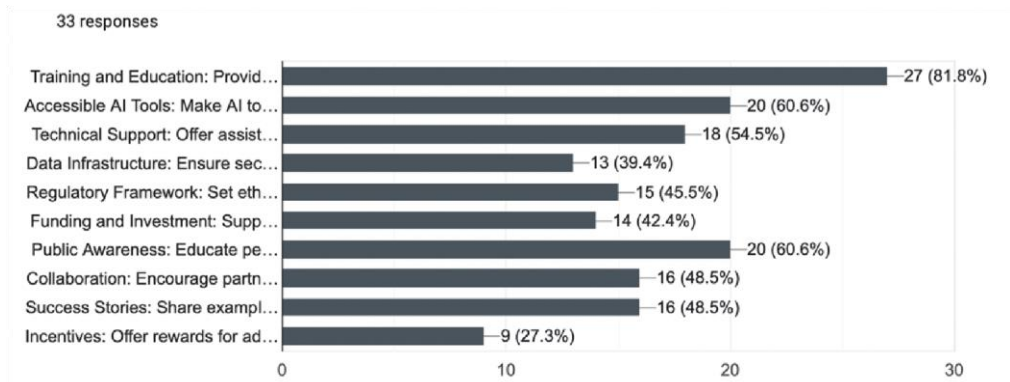


Figure 6. Factors for successful Generative AI integration

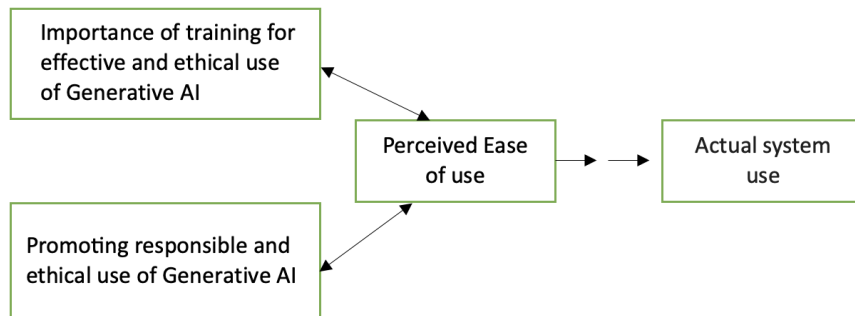


Figure 7. Key factors that promote positive acceptance and, ultimately, the practical adoption of Generative AI.

Next, to address the third research question, participants were queried regarding the challenges they encounter in integrating Generative AI.

Research Question 3: What are the challenges that impact the acceptance or resistance of researchers toward the integration of Generative AI in higher education research?

Referring to Figure 8, the survey results indicate that the top three challenges listed are associated with insufficient expertise to facilitate the incorporation of Generative AI into research. This is followed by concerns about the quality and adequacy of available data for utilization. Furthermore, participants continue to harbour reservations about the privacy and security aspects of Generative AI.

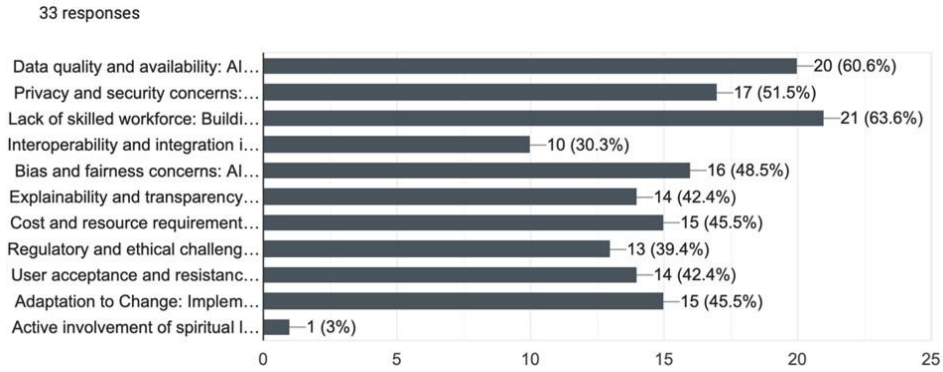


Figure 8. Challenges to integrate Generative AI.

The data collected from both survey and interviews exhibit consistency and mutually support each other in presenting the challenges researchers encounter when adopting Generative AI. Table 4 further elaborates that the participant (R4) perceives the importance of training and expert assistance in enabling more researchers to acquire skills in using Generative AI technology. Additionally, data breaches are emphasized as a challenge that may lead to resistance in the adoption of Generative AI.

Table 4. Challenges affecting researchers' acceptance or resistance to Generative AI.

Quotes, Codes, Sub-theme and Theme	Technology Acceptance Model (TAM)
<p>Quotes: "We're all just using Generative AI on our own, you know...It's a lot of self-exploration. Even though it's good, it doesn't make us experts right away...it would be good to have more Generative AI experts to teach us" [R4, interview]</p> <p>Codes: Self-Exploration, Lack of Expertise, Desire for Expert Guidance</p> <p>Sub-theme: Learning Through Self-Exploration</p> <p>Theme: The Need for Expert Guidance</p>	<p>This challenge demonstrates the interplay between perceived ease of use and perceived usefulness as outlined in the TAM, influencing users' attitudes and intentions toward adopting and integrating Generative AI technology. He recognized that despite Generative AI potential advantages, immediate expertise or mastery is not guaranteed without proper training from the experts themselves. There's a desire for more experts to provide guidance and enhance the learning process in the context of Generative AI.</p>
<p>Quotes:"As much as I'm all for using Generative AI, honestly, I'm also worried about data breaches. So, these concerns need to be addressed if we want Generative AI to be successfully implemented in our institution." [R6, interview]</p> <p>Codes: Concerns about data breaches, call for addressing concerns.</p> <p>Sub-theme: Balancing Enthusiasm with Data Security</p> <p>Theme: Data Security as a Prerequisite for Successful Integration of Generative AI.</p>	<p>This response is related to the TAM in terms of the perceived risk factor. Addressing these concerns and mitigating perceived risks is essential to fostering greater acceptance and adoption of Generative AI, as the TAM framework suggests that lowering perceived risks can positively impact users' willingness to embrace new technologies. Therefore, enthusiasm for generative AI must be balanced with addressing data security concerns to achieve successful implementation in an institution.</p>

Referring to Table 4, two prominent challenges that significantly influence researchers' acceptance or resistance to the integration of Generative AI are the imperative for expert guidance and the paramount concern for data security. Researchers will gain greater confidence in utilizing Generative AI when both of these prerequisites are satisfied, as elucidated in Figure 9.

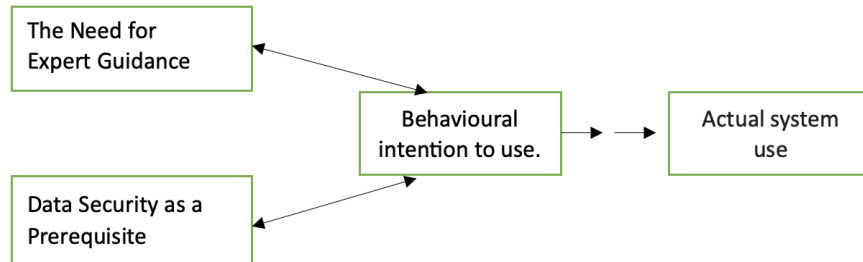


Figure 9. Enhancing Researcher Confidence in Generative AI

With this, findings regarding all three research questions have been presented and will be discussed next.

Discussions

This study sought to explore the potential usefulness of integrating Generative AI into research activities, focusing on researchers' familiarity with Generative AI, their readiness to adopt it, and their perceptions towards its implementation. The findings shed light on key considerations and attitudes that researchers hold towards Generative AI integration. The results indicated a majority of thirty-one acknowledged the incorporation of Generative AI in their research endeavours. This strong presence of Generative AI adoption underscores its growing significance in the research landscape.

Nonetheless, it is noteworthy that a minority of two respondents had yet to embrace Generative AI, indicating that there are still barriers hindering the broader adoption of this technology (Radhakrishnan & Chattopadhyay, 2020). Interestingly, the readiness to adopt Generative AI revealed a nuanced landscape. While a considerable portion of the respondents (twenty-one) expressed enthusiasm and preparedness to integrate Generative AI into their work, a noteworthy proportion (twelve) exhibited only partial readiness. This divergence in readiness levels were attributed to various factors related to negative impacts brought about by Generative AI concerning its relevance with their work and becoming overly reliant.

What is interesting is the issue raised regarding becoming overly reliant, which can be debated more deeply. This also implies the need for clear guidance to AI users on using AI as a tool that assists human thinking rather than a tool that thinks for humans. This matter should not be taken lightly as it may affect the need for an individual's high-level thinking skills. When relied upon excessively or without understanding the underlying processes, it may have a negative impact such as a decline in humans' ability to think critically and independently, and may diminish humans' problem-solving skills and their capacity to think through complex issues (Passi & Vorvoreanu, 2022).

Another interesting finding to discuss relates to researcher perceptions that goes beyond ease of use that emphasizes the importance of providing the necessary support, training, and resources to facilitate Generative AI integration effectively. They also highlight the importance of creating awareness to convey the benefits and ethical use of Generative AI, thus addressing potential apprehensions and encouraging its broader acceptance (Chan, 2023). These insights provide a foundation for designing strategies that enhance Generative AI adoption by addressing challenges, promoting responsible usage, and facilitating the acquisition of necessary skills. Similar findings have also been stated in other research conducted at the Higher Education level in other fields than social sciences (Almaraz-López et al., 2023; Hannan & Liu, 2023). This indicates that efforts to encourage ethical and continuous Generative AI usage still need to be implemented, regardless of the field.

The findings also underscore the need for a holistic approach to Generative AI integration. It's not just about the technology itself but also about the ecosystem surrounding it, including support, training, ethics, and awareness. By addressing these aspects, we are able to harness the full potential of Generative AI while mitigating risks and fostering broader acceptance and responsible usage.

Conclusion

This study has provided valuable insights into the integration of Generative AI into research activities, shedding light on researchers' familiarity, readiness, and perceptions toward its adoption. The findings reveal a substantial presence of Generative AI in the research landscape, underscoring its growing importance. However, it's crucial to acknowledge that barriers to broader adoption still exist, as indicated by a minority of respondents who have not yet embraced Generative AI. This highlights the need for addressing challenges and concerns related to this technology, particularly in terms of its potential to lead to overreliance and a decline in critical thinking skills.

The debate on overreliance on Generative AI prompts a deeper examination of its role as a tool to assist human thinking rather than a replacement for it. Clear guidance for Generative AI users becomes paramount, emphasizing responsible usage to preserve high-level thinking skills. Furthermore, the study emphasizes the importance of providing support, training, and resources to facilitate effective Generative AI integration. Creating awareness about the benefits and ethical use of Generative AI is also crucial for addressing potential apprehensions and encouraging broader acceptance. These insights form a foundation for strategies aimed at enhancing Generative AI adoption, a need that transcends fields of study.

In addition, this research highlights the significance of taking a holistic approach to Generative AI integration, considering not only the technology itself but also the ecosystem surrounding it. Addressing support, training, ethics, and awareness is essential to fully harness the potential of Generative AI while ensuring responsible usage and widespread acceptance.

Limitations and Future Studies

While this study provides valuable insights into the perceptions and challenges surrounding the integration of Generative AI in research activities, there are certain limitations that need to be acknowledged. Firstly, the study's sample size is relatively small, limiting the generalizability of the findings to a broader population. A larger and more diverse sample could offer a more comprehensive understanding of researchers' perspectives on Generative AI integration. Secondly, the study predominantly relied on self-reporting through surveys and interviews, which could be subject to response bias. Future studies could employ more objective measures or observation methods to mitigate this limitation. Furthermore, the study primarily focused on the qualitative aspects of researchers' perceptions, leaving room for more quantitative exploration of the relationships between variables such as readiness to adopt Generative AI, perceived ease of use, and actual integration outcomes. In terms of future studies, it would be beneficial to delve deeper into the specific concerns expressed by researchers who exhibited partial readiness to adopt Generative AI. This could involve targeted interventions or training programs to address these concerns and facilitate a smoother transition to Generative AI integration.

Additionally, a comparative study involving researchers from different disciplines could provide insights into how perceptions and challenges vary across fields. This cross-disciplinary exploration could uncover discipline-specific barriers and opportunities for Generative AI integration. Exploring the long-term effects of Generative AI integration on research outcomes and methodologies could also be a promising avenue for future research. This would provide a more comprehensive understanding of the impact of Generative AI on the research landscape over time.

Acknowledgment

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