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Harnessing the Potential of AI Tools for Student Thesis Research and Writing: An Appreciative Inquiry

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Abstract

This qualitative study examines how students use AI tools for their research and thesis writing, anchored in Constructivist Learning Theory, which holds that learners actively construct knowledge through experience and reflection. Utilizing the 4D model of appreciative inquiry, this study investigated the positive experiences of students using AI chatbots to write their theses, their ideal role in AI, methods to optimize the positive effects of AI chatbots, and approaches to promote a culture that accepts AI technology in research while upholding academic integrity. Using semi-structured interviews and focused group discussions with undergraduate students currently writing theses. The results indicated that students appreciated the productivity and efficiency increases made possible by AI tools such as instantaneous writing feedback and quick literary summarization. However, they were also worried about their potential effects on creativity and critical thinking. This study offers insightful information for academic institutions, faculty, and students. It suggests establishing clear rules and placing faculty training programs to guarantee the ethical and appropriate use of AI technologies in academic endeavors.

Keywords: AI tools, student research, appreciative inquiry, academic integrity

Introduction

Artificial intelligence tools have increased in academic contexts in recent years, changing how students approach writing their theses and conducting research (O'Dea & O'Dea, 2023; Liang, 2023; Storey, 2023). These technologies, which are powered by sophisticated machine learning algorithms and extensive language models, have unmatched capabilities, ranging from automating the process of analyzing academic material to giving students immediate feedback on their writing. However, there are significant concerns about maintaining creativity, fostering critical thinking abilities, and maintaining academic integrity when AI is included in academia (BaHammam et al., 2023; Perkins et al., 2023; Thomas et al., 2023).

Recent research has shown that students are increasingly adopting AI (Balta, 2023; Garrel & Mayer, 2023; Idroes et al., 2023; Storey, 2023). The increasing reliance on AI tools for various academic purposes has been highlighted by recent studies that have concentrated on undergraduate students, particularly in language acquisition and research (Crompton & Burke, 2023; Rožman et al., 2023). In their academic endeavors, students first look for AI solutions that are efficient and efficacious. Artificial Intelligence chatbots like ChatGPT, which provide real-time support and helpful criticism during the writing process, are among the interactive learning and feedback tools they value (Fontenelle-Tereshchuk, 2024; Song & Song, 2023; Steiss et al., 2024).

While discussing AI in academia frequently raises concerns about academic integrity, there is an increasing opportunity to investigate how students might use these tools successfully and responsibly. Existing research focuses mainly on the downsides and limitations of AI in academic settings, with little emphasis on the tactics students employ to maximize their benefits while adhering to ethical research and

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writing standards. Guided by the constructivist framework, this study fills this gap by identifying effective tactics and best practices for AI-assisted research and thesis writing.

The goal of this study was to present the best practices used by students when using AI tools for research and thesis writing, along with their goals, approaches, and ideas on how to utilize them ethically. In accordance with Cooperrider and Whitney's 4D model design of appreciative inquiry (2005), we investigate the advantages of adopting AI, pinpoint best practices, and address the possible obstacles. It aims to respond to the following questions.

1. What positive experiences have students had when using AI tools for thesis writing (Discovery)?
2. How do students envision the ideal role of AI tools in supporting thesis writing (Dream)?
3. What strategies can be developed to maximize the positive impact of AI tools on thesis writing (Design)?
4. How can the academic community foster a culture that embraces AI technology in research while maintaining academic integrity (Destiny)?

This study holds significance for various stakeholders. For instance, students may benefit from learning how to utilize AI tools and features that enhance research efficiency and improve their writing quality. They may also gain insights into how their peers use AI tools to develop their research skills. Furthermore, teachers can gain insights into effective AI integration and make informed pedagogical decisions, particularly regarding the use of AI in research writing. Educational institutions can embrace ethical AI, develop evidence-based policies, and provide support for various writing challenges. By understanding the effects of AI tools, they can create a supportive learning environment that balances creativity and academic integrity.

Literature Review

Incorporating artificial intelligence (AI) into academic research and thesis writing provides a unique opportunity to apply constructivist learning concepts, highlighting that learners actively construct knowledge through experience and reflection (Hein, 1991). Artificial intelligence tools, such as intelligent tutoring systems, enable tailored learning experiences by responding to specific student needs and boosting deeper comprehension and critical thinking. Furthermore, computer-supported collaborative learning settings allow students to engage in meaningful conversations and co-construct knowledge, consistent with the social features of constructivist theory (Bada & Olusegun, 2015).

However, using AI in education has raised concerns about academic integrity and the potential loss of critical thinking skills. Establishing best practices for AI-assisted research that preserve ethical norms and support true learning is crucial. This ensures that AI enhances, not degrades, the educational experience.

Positive Experiences in Using Artificial Intelligence Tools

Students' literature review process can be completely transformed using AI tools. These technologies swiftly scan and summarize large volumes of literature, saving hours spent reading through publications (Garrel & Mayer, 2023; Wang et al., 2023). Concise summaries and insights are provided to researchers, freeing them to concentrate on pertinent materials. Artificial intelligence (AI) systems use Natural Language Processing (NLP) to create content, check grammar, and assist with literature reviews. At the same time, correct citations, tailored research recommendations, and data analysis are made possible using Machine Learning (ML) approaches. It is important for researchers to keep in mind that AI is a tool and not the main author. In a thesis, the individual viewpoint and voice of the researcher are crucial (Typeset, 2023).

Artificial intelligence algorithms can be used to process and analyze large datasets. They

identify patterns, trends, and correlations that may be challenging or time-consuming for humans to detect (Dave & Patel, 2023; Storey, 2023). By integrating AI, students can enhance their data analysis capabilities. AI can streamline the process by exploring survey results, conducting experiments, or analyzing textual data. It is like having an intelligent research assistant that helps the researcher to make sense of complex information.

While some worry that AI tools might impact critical thinking, others argue they can promote it (Garrel & Mayer, 2023; Liang, 2023). Students engage in a thoughtful process by evaluating AI-generated output and refining it. AI-generated research questions, outlines, and paraphrased texts can be the starting points for further exploration. As students interact with AI tools, they develop a deeper understanding of their research topics and refine their ideas (Edufever, 2024).

Students' Expectations for AI in Research

Researchers have surveyed students across diverse academic disciplines to gauge their perspectives on AI-driven research tools (Abbas et al., 2023; Perkins et al., 2023; Zastudil et al., 2023). Studies have revealed that students have specific preferences for such tools. First, there is strong interest in automated literature summaries, with students expressing a desire for AI tools capable of condensing research papers by highlighting key findings and methodologies. In addition, there is a demand for smart citation management systems that can automatically generate citations and efficiently organize references (Zhao et al., 2024). Moreover, students highly value AI-driven writing assistants who provide real-time feedback on grammar, clarity, and coherence as they write. Finally, there is a need for customizable research dashboards that can aggregate relevant research articles and trends based on individual preferences (Typeset, 2023).

Participants in a qualitative study that examined students' ideas of perfect AI thesis writing assistance listed a number of essential characteristics that they would want to see in such a tool (Lin, 2024; Rienties et al., 2024). First, students indicated a high preference for context-aware AI technologies that can comprehend their particular area of study and provide recommendations specifically customized to that topic. They had an idea for an AI helper to actively participate in brainstorming sessions with students, coming up with research questions and hypotheses.

Students emphasized the significance of AI tools that can identify bias in their writing and recommend inclusive language alternatives, demonstrating the utmost importance of ethical issues. Participants also emphasized the value of tools that may produce storyboards or visually outline thesis chapters, offering an organized method of structuring their thoughts (Lin, 2024).

Students' desires for improved tools were reflected in a compilation of the requested AI capabilities that surfaced in an essay synthesizing their viewpoints (Zheng et al., 2024). The most pressing need is for AI systems to include intelligent plagiarism detection features that can spot possible plagiarism and recommend rewording to increase originality. To effectively expand their academic horizons, students also indicated an interest in AI-driven tools that suggest relevant study subjects for investigation. Predictive writing is another desirable feature. This envisions an AI that can predict the following sentence based on the writing context, helping to retain the consistency and flow of their work. Additionally, some students expressed an interest in emotionally supportive AI, which might offer support and encouragement during difficult writing stages (Fontenelle-Tereshchuk, 2024; Song & Song, 2023; Tseng & Warschauer, 2023).

Strategies for Using AI Tools in Research

A handbook for students using AI tools to enhance their thesis writing highlights several aspects (Liang, 2023; Lin, 2024; Storey, 2023). First, students can obtain research support from AI tools, such as ChatGPT, which can help them collect data and develop a deeper understanding

of research issues. In addition, AI-powered plagiarism checkers are essential for upholding academic integrity by identifying and highlighting possible instances of plagiarism. Additionally, resources such as paraphraseonline.io assist students in efficiently rephrasing and improving the readability of their written work (Edufever, 2024).

Furthermore, when it comes to creating great thesis statements, AI writing tools are beneficial. Students can use AI to generate early ideas by suggesting suitable keywords and concepts related to their research topics. Furthermore, AI techniques help refine thesis statements by assessing contextual aspects and ensuring relevance to the topic. By incorporating AI technology into their writing process, students can increase their productivity and simplify the creation of strong thesis statements that effectively explain their research objectives and contributions. These tools make research and writing easier while improving the overall quality and coherence of academic work (Edufever, 2024).

Perceptions of AI Use and Academic Integrity

Researchers have studied whether AI technologies will replace traditional writing courses and have assessed the benefits and disadvantages of this transition (Lin, 2024; Song & Song, 2023). While AI can help with grammar and style, issues remain regarding its impact on creativity and critical thinking (Liang, 2023; Storey, 2023). However, artificial intelligence has not replaced academic writing classes. These courses teach critical thinking, research, citation, argumentation, creativity, originality, and ethics—skills that AI lacks (Carobene et al., 2023; Dong, 2023). A balanced approach incorporating AI support while maintaining essential parts of academic writing instruction appears to be the most effective way to prepare students for various writing issues (Aljuaid, 2024).

The undeclared or unapproved use of AI tools for academic credit or progression (such as student assignments or theses) may lead to academic misconduct. Institutions acknowledge the presence of generative AI and offer advice for maintaining academic integrity. Tauginienė et al. (2018) emphasized the importance of the ethical usage of AI tools to ensure originality and proper citations despite their increased efficiency. Teachers and students view AI tools differently than in traditional writing classes. Although AI can improve specific jobs, concerns regarding its impact on critical thinking and creativity exist. However, incorporating AI into the writing curriculum while emphasizing key abilities ensures a complete learning experience.

Methodology

Research Design

The research design for this study is appreciative inquiry, which focuses on uncovering strengths and positive experiences with artificial intelligence (AI) tools in academic research and thesis writing. Appreciative inquiry's 4D model is a study design that focuses on discovering and harnessing organizational and system strengths. Appreciative inquiry is useful because it allows for a constructive study of what worked effectively with AI technologies to improve research methods and outcomes (Srivastava & Sinha, 2016). It is divided into four stages: discovery (identifying what works well), dream (imagining what could be), design (developing systems and structures based on strengths), and destiny (implementing the proposed design to achieve the desired future) (Cooperrider & Whitney, 2005). This technique is consistent with the research aim of understanding students' perceptions of AI technologies and their integration into academic practice.

Instrumentation

The key research tools employed in this study were focus group discussions (FGDs) and in-depth interviews. FGDs were held with undergraduate students actively involved in thesis writing and had previously used AI tools in their study. In-depth interviews were conducted with students who could not attend FGDs because of schedule conflicts or other circumstances. These

qualitative methodologies were chosen to obtain rich and thorough information about students' experiences, attitudes, and preferences using AI technologies in academic research (Creswell, 2013).

Sampling

The sampling criteria for this study were undergraduate students enrolled in thesis writing at a faith-based college. The participants used AI technologies in their research projects and were eager to share their insights. Purposive sampling was used to identify participants who met these requirements, ensuring that the study included a wide range of opinions on AI tool utilization in academic settings (Patton, 2015). This study included a total of twelve students. Focus group discussions (FGDs) were conducted, each with six participants.

Data Gathering Procedure

The data collection procedure consisted of several steps: (1) recruiting participants via announcements and invitations; (2) conducting FGDs virtually, specifically through Zoom, and face-to-face in-depth interviews using semi-structured guides to explore participants' experiences and perceptions; (3) video and audio recording sessions with participants' consent to ensure accurate data capture; and (4) transcribing and organizing the data for analysis. These processes were meant to acquire extensive data on students' interactions with AI tools in an academic setting.

Ethical Considerations

Ethical issues included guaranteeing voluntary participation, safeguarding participant anonymity, and obtaining informed consent from all participants before data collection (American Psychological Association, 2020). Participants were informed of the study's aim, potential risks and benefits, and their opportunity to withdraw at any time without penalty.

Data Analysis

We used Braun and Clarke's (2006) thematic analysis approach to investigate students' perceptions of the AI tools. This method entailed analyzing patterns, themes, and categories within qualitative data to provide relevant insights into students' attitudes toward AI tools. We conducted theme analysis by familiarizing ourselves with the data through repeated reading and immersion in order to obtain thorough comprehension. We then created basic codes by rigorously locating and categorizing important data pieces and arranging them into early categories.

Next, we looked for themes by clustering similar codes, detecting larger patterns, and constructing overarching motifs. We reviewed these themes and refined them to ensure they appropriately represented the data and occasionally merged or eliminated themes as needed. Subsequently, we identified and named each subject, conveying its essence and relevance to our study question. Finally, we created a report by presenting a clear narrative for each theme, accompanied by data quotes to illustrate it. This technique enabled us to format and present our findings cohesively, emphasizing the key insights from our investigation.

Results and Discussion

This section summarizes the important findings of an appreciative inquiry study on the use of AI technologies in academic research and thesis writing. The findings underline the positive experiences and strengths that students discovered when incorporating AI technologies into their writing processes. Through discovery, dream, design, and destiny, the argument examines the employment of AI tools in college writing, adhering to the 4D cycle of appreciative inquiry.

Discovery phase

The Discovery phase examined how AI tools are used in college-level academic writing, focusing on students' experiences with AI in research writing. This section highlights the key insights from research and real-world appli-

cations to understand AI's impact on the writing process.

Theme 1: Efficiency and Time Management

Previously, research was time-consuming and required significant effort to discover references. However, as one student stated, "It is so easy to find references." Previously, performing research was time-consuming, requiring significant effort to discover references. Another student stated, "the chatbot is doing it for you." One student remarked, "It is basically very convenient. It writes something very quickly. So, if you are exhausted, you cannot think of anything; you cannot construct anything good; it is there. It is like your 'friendly friend' to help you out . . ." The same student mentioned that artificial intelligence techniques improved research efficiency. He said: "If you need to write things quicker, the AI is useful for that." Another student stated that AI chatbots are quite convenient. She says: "AI chatbots help me search for a topic and related articles." Similar research has indicated that students enjoy AI's ability to assist them in swiftly summarizing books (Zhao et al., 2024).

This increased productivity is especially beneficial for students juggling many tasks, as one student notes that AI technologies "make it easy to do our paper," especially when coordinating work or meeting tight deadlines. The ability to respond swiftly to instant assignments indicates how AI boosts productivity and streamlines the study process (Garrel & Mayer, 2023; Wang et al., 2023).

Constructivist learning theory, which emphasizes learning from experience and reflection, is consistent with the efficiency and time management themes. Artificial intelligence (AI) tools serve as scaffolding, assisting students in managing research assignments and effectively accessing materials. This bolsters the notion that technology improves education by simplifying procedures and freeing time for students to concentrate on knowledge construction and critical thinking (Bada & Olusegun, 2015).

Theme 2: Access to Information

AI systems, notably chatbots, have significantly improved the ability to find relevant and specific information for study. Previously, acquiring difficult-to-find data was frequently a huge difficulty, but as one student remarks, "chatbots can actually help us gather information that are hard to find." Increased access to data streamlines the study process, making it faster and more efficient. One student underlined how an artificial intelligence chatbot helped him acquire information: "It gives you a general gist of things, so whenever you need a quick understanding of things... It is good, it is useful." Furthermore, the specificity of the information obtained is noteworthy; as another student points out, "It is very easy to find references, and that is very specific," Ensure that students may find accurate sources customized to their research needs, thereby improving the overall quality and depth of their academic work.

By facilitating rapid access to pertinent sources and summaries, artificial intelligence (AI) can streamline research and reduce the amount of time required for literature reviews (Garrel & Mayer, 2023; Wang et al., 2023). This is reflected in the Access to Information topic. By offering personalized suggestions, AI-powered search engines increase research efficiency while increasing the caliber and depth of scholarly output (Typeset, 2023).

Since AI tools give students on-demand access to knowledge, they can independently investigate research topics, consistent with the constructivist learning theory. AI helps students interact more efficiently with research materials, enhances their understanding, and engages with digital resources by promoting self-directed learning (Hein, 1991; Bada & Olusegun, 2015).

Theme 3: Task Management and Research Assistance

AI tools improve efficiency and help throughout the research process. One student recalls their experience, pointing out that AI "can help me do all the tasks easier," emphasizing how these tools simplify various academic

tasks. AI also plays a crucial role in research assistance by making the research process more manageable. One student commented, "I use it more for proofreading and editing because I tend to overlook things. It is useful to have something check your work…. So, it is useful to have an AI tool that can check for you thoroughly." The same student added: "and also, I struggle mainly with trying to write in an academic style—in an academic tone. So, whenever I feel lost about it, whenever I'm going to creative literary vibes in my writing, I tend to turn to AI…"

Another student mentioned how AI had become her research assistant. She admitted: "I had a free personal research assistant. It improved my writing, refined my structures, and made everything easy." Another student stated, "It makes [a difference], especially in our doing our research," pointing to how AI tools provide valuable support in organizing and conducting research, ultimately improving productivity and reducing workload.

Research assistance and efficiency themes emphasize how AI may improve the research process and make academic tasks easier. Students mentioned how AI technologies helped with editing, proofreading, and maintaining an academic writing style. AI also serves as a personal research helper, enhancing efficiency and boosting writing structure. AI enables students to concentrate more on content creation by lowering the burden and efficiently structuring research (Garrel & Mayer, 2023; Typeset, 2023). Additionally, studies indicate that AI improves academic writing by enhancing coherence and offering feedback (Liang, 2023).

Constructivist learning theory highlights that learning is an active process influenced by reflection and experience (Bada & Olusegun, 2015). This is made possible by AI technologies, which serve as scaffolding mechanisms, helping students write, organize their thoughts, and polish their academic tone. Encouraging self-directed learning enables students to actively develop information and interact more critically with their studies (Hein, 1991; Bada & Olusegun, 2015).

Theme 4: Idea Generation and Support

The participants emphasized how AI tools assist in the creative process, making it easier to develop and organize thoughts. One student agreed that AI "makes things easier" by helping students generate and formulate ideas. This capability provides essential support during the research or brainstorming phase, allowing students to refine their concepts and structure their work quickly. Another student said, "I can use that to summarize what I will write down. I just give it some points about my topic, and it can expound on that. It usually gives me new ideas that I can expound upon." AI tools serve as catalysts for creativity, helping students overcome a writer's block or difficulty in organizing their ideas, ultimately enhancing the quality and flow of their academic work. Another useful use of AI tools is to assist students in developing a title for their research, particularly qualitative research. One student stated, "Title-making was a struggle as well. So, I sometimes use it to brainstorm titles."

The idea generation and support topic emphasizes how AI can assist students in generating, refining, and organizing their ideas, thereby promoting creativity. According to the participants, AI technologies help brainstorming by producing summaries, elaborating on preliminary ideas, and supplying fresh concepts for writing and research. This assistance helps students organize their ideas more effectively, which is especially helpful in the early phases of their academic work. Additionally, AI streamlines the research process and enhances overall coherence by assisting in resolving issues such as the writer's block and title formulation (Garrel & Mayer, 2023; Typeset, 2023).

AI technologies support constructivist learning theory as cognitive scaffolds that help students organize their ideas and expand on existing knowledge. By providing structured training and fostering creative inquiry, AI supports self-directed learning and helps students

develop their research and writing skills (Hein, 1991; Bada & Olusegun, 2015).

Theme 5: Multitasking and Versatility

The themes of multitasking and adaptability stress how AI tools allow students to perform numerous tasks efficiently and simultaneously. One student mentioned that AI enables them to "do my other tasks also," Highlighting how these tools save time and mental energy, making it easier to manage several duties. Another student noted the diverse roles of AI in her thesis. She stated: "While doing my thesis, AI was my grammarian, consultant, and comforter." The adaptability of AI in assisting with many academic duties, from research to writing, enables students to balance their workload better, increase productivity, and lower stress while dealing with several assignments or deadlines.

Versatility and multitasking themes emphasize how AI tools simultaneously help students manage several academic assignments. Students emphasized the time and mental energy saved by AI, stating that it enables them to "do my other tasks also," which is essential for juggling multiple responsibilities (Hein, 1991). AI tools improve productivity and lower stress in a variety of ways, from grammar checking to offering emotional support when writing a thesis (Garrel & Mayer, 2023; Wang et al., 2023). These technologies are essential for contemporary academic work because they process and analyze massive datasets, spot patterns, and offer real-time feedback (Dave & Patel, 2023; Storey, 2023).

AI tools serve as intelligent helpers that facilitate better knowledge construction for students, encouraging critical thinking and deeper understanding. This congruence with constructivist concepts enables students to interact meaningfully with their academic tasks, generating a more dynamic and self-directed learning environment (Hein, 1991; Bada & Olusegun, 2015).

Dream Phase

In the dream phase, students imagined AI tools that would provide a more personalized and seamless user experience based on their specific demands and writing styles. They desired AI systems that could adapt to their preferences, provide tailored feedback and suggestions, and allow more natural and intuitive interactions.

Theme 6: Research Capabilities and Methodology

The participants agreed that AI tools, such as ChatGPT, could be improved to help academic research better. One student described his vision, saying," My ideal vision for GPTS as a research tool is to have the ability to read an entire paper or example, comprehend the methodology used, and then apply that same approach in my own work." This highlights a desire for AI tools to not only process and comprehend all research papers but also replicate their methodologies, making the research process more accessible and efficient.

Another student touches on a limitation they have encountered, explaining, "ChatGPT has limitations. Can it open articles or links like that? I would prefer it if it could also open and access files." A similar point was raised by a student regarding the limitations of ChatGPT. However, he realized that with advancing technology, saying, "I imagine it would be more useful in that sense. It can find resources for me, and I can only compile them. But so far, I have not tried it yet, but maybe I will in my future research." This comment emphasizes the necessity for AI tools to advance in accessing and interacting with other sources such as files and articles to further improve their utility in research activities.

The issues of Research Capabilities and Methodology emphasize how ChatGPT and other AI tools might improve academic research by comprehending and reproducing research paper processes, thereby increasing process efficiency (Garrel & Mayer, 2023; Wang et al., 2023). To fully utilize AI's potential in research endeavors, additional developments are necessary, as evidenced by existing constraints, such as the inability to access external files or publications (Typeset, 2023).

AI technologies facilitate active participation and reflection by offering insights into research methodology, which aligns with the constructivist learning philosophy. AI technologies support a more dynamic and self-directed learning environment by assisting students in comprehending and utilizing these approaches, which is consistent with constructivist concepts (Hein, 1991; Bada & Olusegun, 2015).

Theme 7: Reliability and Credibility

This theme addresses questions regarding the trustworthiness of AI-generated data. One student expressed hope for improvement. "I think it is... I hope that it is reliable and more legit... able to have a fast and reliable they should provide the real reference of that information." This idea highlights the desire for AI tools to offer more accurate and verifiable references, ensuring that the information provided is credible and trusted for academic purposes.

Another student mentioned the reliability and accuracy of the information provided by AI chatbots. She said, "I expect AI chatbots to provide accurate information. Once, I noticed its answer was wrong, and I told him about my doubts about it. Then, he [it] admitted his [its] mistake and recognized mine as the correct answer." She dreams of AI providing accurate and reliable answers in the future.

Another student points to a broader challenge with current AI tools, saying, "One of the struggles of chatbots right now is... It is an AI. So my dream, my envision is that Hopefully someday, they will—the way these chatbots answer questions... becoming more and more human for some reason." This comment reflects the need for AI to evolve in how it communicates, intending to make responses more reliable, accurate, and nuanced, while also resembling human reasoning to a greater extent. This shift could improve AI's credibility and student experience in research.

Concerns with the reliability of AI-generated data are addressed by the theme of Credibility and Reliability. To ensure credibility in academic settings, students express a desire for AI technologies to provide correct and verified references (Garrel & Mayer, 2023; Typeset, 2023). The need for more dependable and human-like responses to improve the overall research experience is reflected in their anticipation that AI would acknowledge errors and increase accuracy (Liang, 2023).

Building knowledge structures requires accurate information based on the constructivist learning theory. This process is aided by AI technologies that offer reliable and accurate data, which allow students to critically assess information and incorporate it into their thinking (Hein, 1991). AI can better support critical thinking and self-directed learning as it develops to provide more complex and human-like responses consistent with constructivist ideas (Bada & Olusegun, 2015).

Theme 8: Customization and Personalization

The participants pointed out the potential of AI tools to adapt to individual students' needs and preferences. One student desired greater personalization, stating, "I also would like to have these chatbots. Be like customized or like personalized... when I want to talk with them academically, they will also answer me academically in a style of academic." This highlights the importance of AI responding in a manner tailored to a specific context, particularly in academic conversations where tone and style matter.

One student emphasized the need for AI to help researchers conduct mundane research aspects, such as condensing and summarizing information, especially in the literature review. He commented, "AI would be great for organizing my thoughts. I often download research in bulk without organizing it, creating a chaotic mess. AI could help by summarizing, rearranging, and highlighting the key points." Students are concerned that repetitive phrases diminish the quality and originality of AI-generated outputs. Students want to control AI responses by providing detailed instructions on formatting and tone. This demonstrates the necessity of

flexibility in how AI builds responses, allowing students to select materials, presentations, and emotions. For instance, a student stated, "When I want to converse academically, AI should adjust its style to be more formal and professional." Students must be able to specify the tone and manner of their responses. They want AI to understand the formality and context of their academic or causal questions. This capability increases the versatility of AI systems, allowing them to respond correctly to a variety of situations.

Another student expressed a desire for simplicity in communication, saying, "Our vision in chatbot is someday they will use the simple tense of English and then human." This suggests a preference for customized AI responses and delivered in a clear, simple language that mimics human interaction, making communication more accessible and natural for a broader range of students. Similar emotions have been discovered in several studies, indicating that users may favor AI-generated materials that are more personal and not overly generic.

The Customization and Personalization subject emphasizes how AI technologies can be tailored to the requirements and tastes of certain students. Particularly in academic settings where tone and style are important, students want AI that can react in a customized manner (Garrel & Mayer, 2023). To improve originality and quality, they see AI helping with routine research chores, such as organizing and summarizing data and giving users choice over the structure and tone of AI-generated outputs (Liang, 2023; Typeset, 2023).

According to constructivist learning theory, personalized learning experiences are crucial for promoting greater comprehension and engagement. This is supported by AI technologies that adjust to different circumstances and preferences, allowing students to actively influence their learning environments (Hein, 1991). AI can improve learning by offering personalized responses and letting students choose the style and format of interactions, which is in line with constructivist ideas and makes learning more efficient and accessible (Bada & Olusegun, 2015).

Theme 9: Human-Like Interaction

The participants emphasized their aspiration for AI tools to communicate in ways resembling a natural human conversation. One student noted, "one of the struggles of chatbots right now is... It is an AI. So my dream, my envision is that hopefully someday, they will—the way these chatbots answer questions . . . becoming more and more human for some reason." This shows that students want AI responses to feel more natural, genuine, and relatable, such as how humans communicate, to improve their student experience.

Another student echoed this vision, stating, "Our vision in chatbot, someday they use the simple tense of English and then human." This suggests that a more human-like AI should replicate natural speech patterns and use a simple, clear language that facilitates easier understanding and engagement, further bridging the gap between human and AI communication (Abedin et al., 2022; Guingrich & Graziano, 2024; Obrenovic et al., 2024).

The significance of meaningful interactions in the learning process is emphasized by constructivist learning theory. The active production of knowledge can be supported by AI technologies that simulate human-like dialog, thus creating a more relatable and interesting learning environment (Hein, 1991). AI can improve students' critical engagement with knowledge by providing them natural and understandable answers. This is in line with constructivist ideas, which encourage self-directed learning and greater comprehension (Bada & Olusegun, 2015).

Theme 10: Variety in Responses

The theme of variety in responses addresses the need for AI tools to provide diverse insights. One student noted, "Seems like, the thoughts are getting more the same and the same. So... you have to like to restart or to create a like

a new question from like from the top so you can get a different perspective." This highlights the challenge of AI responses becoming repetitive, suggesting that students may need to rephrase questions to obtain a broader range of perspectives.

Furthermore, while not directly focused on variety, another student's vision reveals an indirect desire for varied perspectives, stating,

> My dream or ideal we should for that GPTS, like, and as a tool for research is that I would imagine, having that capability to like read an example, or a paper an entire paper. And then understand how it was done or the methodology of how the paper was made and then use that same approach.

This response emphasizes the necessity of AI understanding and applying numerous approaches, which can lead to more diverse and inventive replies in research contexts (Christou, 2024; Cheligeer et al., 2023; Aydin & Karaarslan, 2023; Souter, 2023).

The theme of variation in answers emphasizes the importance of varied viewpoints in enhancing learning experiences within the constructivist learning paradigm. According to constructivist theory, students acquire knowledge through various experiences and interactions (Hein, 1991). In line with the ideas of active and self-directed learning, AI tools that provide a variety of insights help students do this by exposing them to many points of view, encouraging critical thinking, and developing more nuanced knowledge (Bada & Olusegun, 2015).

Design Phase

The participants presented suggestions for addressing the gaps and issues highlighted during the dream phase. Participants expressed a need for AI tools that could deliver a more full and meaningful research experience rather than just obtaining information.

Theme 11: Editing and Humanizing AI-Generated Content

Students appreciated the importance of refining AI outputs by rereading and changing them to make the material more human-like. Manually revising the AI-generated content to remove the robotic or overly formal language provides a more natural final result. This comment underscores the significance of developing AI systems that create more humanized outputs or provide students with easy-to-use tools for adjusting their tone and style. For instance, a student stated, "You have to read it again so that it would sound human-type, not AI." Another student added, "Make sure to delete 'certainly' and 'done,' and do not use words that AI usually uses."

Human-like reactions are an important aspect of students' expectations. AI technologies should strive to answer questions in a more intuitive and relatable manner, especially during casual discussions or scholarly interactions. This could include simplifying responses, changing formality levels, or modifying the language to simulate human interaction. For instance, a student stated, "I hope someday chatbots answer questions... becoming more human for some reason." Another student commented, "It would be better if AI could use simple, conversational English like a human would." This highlights the necessity of human-like communication in AI technologies (Guingrich & Graziano, 2024).

Editing and humanizing AI-generated content within the constructivist learning framework highlights the importance of making AI outputs more approachable and natural. Constructivist philosophy emphasizes that active participation and introspection are key components of meaningful learning (Hein, 1991). Students can interact with the content more naturally and gain deeper comprehension if the AI-generated content is improved to sound more like humans. By empowering students to actively direct and customize their educational experiences, this method promotes critical thinking and comprehension, which is consistent

with constructivist concepts (Bada & Olusegun, 2015).

Theme 12: Techniques for Input Manipulation

Students utilize AI to model their work after successful examples. This strategy emphasizes the importance of AI technologies that can efficiently assess and replicate formats or processes from existing texts. Incorporating a tool that allows students to enter examples and generate unique outcomes based on these models is extremely valuable. A student stated, "I got this paper, and then I asked ChatGPT to follow the same flow but using my own title." Another student commented, "I emulate the structure of well-written papers and ask AI to replicate it with my topic." Students typically utilize AI to change their current study content by inputting relevant examples and tailoring them to their specific needs. AI tools should include seamless customization features that allow students to enter raw text and simply change or reformat it to meet their study objectives. A student remarked, "I copy-paste the research content and customize it by changing the flow or focus." Another student stated, "I use the paper as a base and ask the AI to adjust it according to my new title."

Providing context early boosts AI's capacity to provide correct, personalized responses. This remark highlights the need for a feature in which students can provide an initial job overview to help AI provide more relevant and context-sensitive outputs. One student remarked, "Introduce the AI to what you are doing, like saying 'I'm writing a research paper,' so it knows how to respond." AI technologies have limitations when analyzing large amounts of text. One student advised that, while assessing or summarizing research papers, one paragraph at a time should be used rather than summarizing numerous paragraphs at once. "When it comes to trying to analyze stuff… a large bulk of text, sometimes it can get confused. So, I just tend to put single paragraph and get the idea of that, like summarize it in one sentence … So, I can get a clear glimpse . . ." It also prevents crucial information from being lost. These opinions have been expressed in multiple publications discussing the various facets of AI's function in input manipulation and output customization based on the current models (Christou, 2023; Klenk & Hohmann, 2022; Raghavan & Sinha, 2023).

The approach of employing AI to model work after successful examples emphasizes the value of active participation and reflection within the constructivist learning paradigm. According to constructivist theory, students develop their knowledge by interacting with and modifying preexisting materials (Hein, 1991). Students can actively create their understanding and customize content to meet their individual needs by utilizing AI to evaluate and duplicate formats and processes from exemplary literature. Encouraging students to critically assess and personalize the material promotes deeper understanding and self-directed learning, consistent with constructivist ideas (Bada & Olusegun, 2015).

Theme 13: Effective Prompt Engineering

According to the participants, effective use of AI requires students to ask well-crafted, specific questions. In the design phase, AI should assist students in refining their questions, perhaps by suggesting improvements or clarifying vague queries to ensure high-quality answers. A student mentioned, "The technique I use is to ask the right question, because if you ask the right question, you get the right answer." another student added, "It is important to ask detailed and specific questions to get the most useful responses from AI." Another student said, "I learned from my advisor how to ask AI the best questions to get detailed and useful information." Students value the ability to ask "best" or optimized questions. AI tools could benefit from features that guide students in formulating these optimized queries, perhaps by analyzing previous questions and suggesting more precise alternatives.

Another student mentioned that the type of prompt and keywords can affect the AI's response. For instance, he stated, "Sometimes,

I believe that ChatGPT answers better when I ask it politely. I tend to ask, 'Please, can you help me.' Then, I say 'thank you.' He said that the type of keywords utilized is also important." The student continued: "Keywords are really important when trying to talk to AI." AI tools respond to prompts when appropriate keywords and techniques are used (Bozkurt, 2023; Chen, 2023; Raghavan & Sinha, 2023).

The constructivist learning framework's "effective prompt engineering" theme emphasizes how crucial it is for students to actively direct their engagement with AI. According to constructivist philosophy, knowledge is created through active participation and introspection (Hein, 1991). Students can improve their learning experience by asking AI more deliberate and precise questions, resulting in more pertinent and excellent answers. By encouraging critical thinking and adhering to constructivist principles, this process of improving prompts promotes deeper comprehension and self-directed learning (Bada & Olusegun, 2015).

Destiny Phase

How can the academic community create a culture that values AI technology in research while upholding academic integrity? This step called the Destiny Phase of Appreciative Inquiry, focuses on imagining how AI tools may improve student thesis research and writing while maintaining academic integrity. This entails devising concrete techniques for effective integration, establishing clear targets, encouraging joint efforts to apply these innovations, and improving the research processes.

Theme 14. Education and Guidance

Proper instruction and support are critical when using AI tools for student thesis research and writing. Effective education includes educating students on ethically utilizing chatbots and other AI tools. As one student mentioned, "Through proper education, they educate students on how to use chatbots ethically," This highlights the need to teach technical skills and ethical considerations. Students must learn. "how to use it or, etc.," This implies that education should include practical usage and appropriate deployment of modern technologies. This holistic method ensures that students can efficiently use AI tools while adhering to ethical standards, improving their research and writing ability. Similarly, Aljuaid (2024) stated that a balanced approach to education should include AI support while retaining essential parts of academic writing instruction, which can help prepare students for various writing issues. Furthermore, Abe (2024), Zvirgzdauskaite (2024), and Ghimire (2024) emphasize the transformational potential of artificial intelligence (AI) in higher education, emphasizing its ability to improve individualized learning, increase student engagement, and automate administrative work. They also emphasize the significance of incorporating ethical issues and appropriate AI education to educate students and educators on the changing educational landscape.

The issue of instruction and guidance within the constructivist learning framework emphasizes the importance of incorporating both practical skills and ethical considerations while utilizing AI systems. According to constructivist theory, learning is an active process influenced by experience and introspection (Hein, 1991). Teachers can enable students to interact critically and ethically with AI by offering thorough training on its ethical and practical applications. This all-encompassing approach promotes a more profound and responsible use of AI in research and writing by ensuring that students grasp both its technical and ethical ramifications (Bada & Olusegun, 2015).

Theme 15. Promotion of Proper Usage

Integrating these subjects into the curriculum is an effective way to promote the use of AI tools in student thesis research and writing. As recommended, "I think [the school] can put it in the curriculum," which suggests that adding AI tools to educational programs is important. By including these subjects in the curriculum, "our college can put this as one of the subjects in the college. Students will receive

structured guidance on using AI tools properly." Furthermore, "teaching how to use it properly and ethically" ensures that students are well-informed about AI's technical and ethical aspects, fostering responsible and effective use of these technologies in their academic work.

One student noticed that one of the disadvantages of using AI tools is that they become very dependent on it and do not develop critical thinking skills. He emphasized,

> I would not want my students to just completely rely on AI in their works. However, AI is also a useful tool. So it depends on whether the person using it depends on it or just uses it to maximize their work. If they use AI too much, then they are losing the chance to think for themselves critically.

Ultimately, he believes that AI should help brainstorm, proofread, and edit while students double-check and think about the research direction. A common belief is the elimination of critical thinking when one becomes dependent on AI. However, some studies have shown that AI tools may promote critical thinking (Garrel & Mayer, 2023; Liang, 2023).

Another student promoted the proper use of AI as a supplementary research tool. She said, "I encourage everyone to utilize AI. It is free, educational, very convenient, and makes our paperwork less stressful. But we should be mindful that AI is a supplementary tool, not a replacement for the human mind, effort, and creativity."

Promoting the safe and efficient use of AI tools within the constructivist learning paradigm entails incorporating AI education into the curriculum. Constructivist theory emphasizes active learning via experience and reflection (Hein, 1991). Students can use these technologies as supplements while retaining critical thinking and creativity if they are taught the ethical and technical components of AI. This is in line with constructivist concepts of self-directed learning (Bada & Olusegun, 2015).

Theme 16: Maintaining Academic Integrity

Maintaining academic integrity when employing AI techniques in research is critical. Proper citation is crucial, as demonstrated by "There was a proper citation of those answers," This reduces the chance of plagiarism. The result of "1% similarity on Turnitin" reflects the effectiveness of diligent citation practices. Additionally, "doing that kind of academic integrity when you cite it properly" emphasizes the need to follow ethical norms in research. Ensuring that AI-generated information is properly acknowledged promotes academic honesty and research credibility. To protect academic integrity, institutions should set rules for ethical use, originality, and proper citation of generative AI (Tauginienė et al., 2018).

The academic integrity topic in the constructivist learning framework highlights the significance of moral behavior when utilizing AI tools for research. According to constructivist theory, learning is an active process in which students gain knowledge through experience and introspection (Hein, 1991). Students can preserve the academic integrity and credibility of their work by ensuring that all citations are correct and that ethical standards are followed. By encouraging a responsible and self-directed learning environment in which AI tools complement rather than damage the quality of academic research, this strategy is consistent with constructivist concepts (Bada & Olusegun, 2015).

Conclusion

This study demonstrated that artificial intelligence tools can significantly assist students in their thesis research and writing. By incorporating AI themes into courses, institutions can teach students both the technical abilities and ethical knowledge required to use AI technologies effectively in their studies. This enhances research and writing quality and speed while also encouraging critical thinking and flexibility among students. However, the application of AI in education requires meticulous ethical adherence. There are issues regarding academic integrity, particularly when AI tech-

niques are exploited. To prevent this, schools should establish explicit guidelines for using AI, emphasize the value of original work, and address ethical concerns associated with AI-assisted activities.

Furthermore, AI can sometimes produce wrong or made-up material, known as "hallucinations." If students depend on AI-generated content without verifying it, they risk spreading misleading information, undermining the credibility of their academic work. Students and researchers must carefully analyze AI outputs and rely on trustworthy sources to ensure accuracy. Addressing these difficulties involves collaboration among students, instructors, and researchers. Open discussions regarding the ethical use of AI, exchanging best practices, and developing solid policies will help ensure that AI technologies improve education. This collaborative approach promotes innovation and integrity by viewing AI as a tool for educational advancement, rather than as a source of ethical concerns.

Consequently, while AI provides major benefits in academic research and writing, its application must be weighed with ethical considerations. Promoting the appropriate use of AI in education can enhance academic work quality and honesty.

Recommendations

Based on the findings of this study, the following recommendations are made for universities and colleges:

1. Implement comprehensive education programs that teach students technical skills for using AI tools, ethical considerations, and responsible use of these technologies in research and writing.

2. Integrate AI tools and related topics into the academic curriculum, ensuring students receive structured guidance on leveraging these tools effectively and ethically.

3. Promote and enforce rigorous academic integrity norms, including proper citation procedures, to ensure the credibility and authenticity of student research and writing when employing AI-generated content.

Limitations and Further Study

Although this study provides significant insights into the potential of AI tools to improve student thesis research and writing, more research is needed to explore this topic. Future research might look into the precise AI-powered elements that students find most useful and the long-term effects of AI integration on research, writing quality, and efficiency.

Furthermore, investigating the viewpoints of academics and administrators may shed light on institutional policies and support structures that promote responsible and effective use of AI technology in academic contexts. A thorough examination of these issues would contribute to a more complete understanding of AI's involvement in reshaping the student thesis work environment.

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