

Student Perspectives on the Use of AI Tools in Conducting Research Project at BS Level

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Abstract

This study aimed to investigate the attitudes and perceptions of the BS students regarding the use of Artificial Intelligence (AI) tools in their research project processes. This study sought to investigate students' perceptions of AI tools, understand the benefits and obstacles students face in using these tools in the research process, and gauge students' opinions on the ethical implications of AI use in academic research. A qualitative phenomenological approach was employed within the constructivist paradigm to gain an in-depth understanding of students' lived experiences. Semi-structured interviews were conducted with 10 BS students who were selected by purposive sampling. Thematic Analysis was used to analyze the interview data. Students' Perspectives on the Use of AI Tools in Research Projects, Benefits and Challenges of Using AI Tools During the Research Process, and Impact and Ethical Considerations of AI Tools in Research emerged as the three main themes derived from the findings. The findings showed that the students generally felt that AI tools are useful academic assistants that can enhance the efficiency of research, academic writing, literature review, and learning. However, there were some concerns raised, including the presence of misinformation, fabricated references, plagiarism, and the use of AI-generated content. Students highlighted the need to check facts created by AI, to ensure academic honesty, and to use AI responsibly. The researchers conclude that AI can be a beneficial tool to support undergraduate research ethically and critically. It suggests that universities establish explicit policies regarding AI, implement AI literacy programs, and advocate responsible and ethical use of AI tools to harness their educational potential while upholding academic integrity.

Keywords: Artificial Intelligence (AI), AI Tools, Student Perspectives, Research Projects, Qualitative Research, Thematic Analysis, Academic Integrity, Higher Education.

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Introduction

Artificial Intelligence (AI) is one of the most impactful technological advancements in the 21st century and has revolutionized various industries, including healthcare, business, finance, and education. In recent years, machine learning, natural language processing, and generative AI have given rise to intelligent systems capable of tasks once considered to be within the scope of human intelligence, such as information retrieval, language generation, problem-solving, and decision-making. In higher education, there are more and more applications of AI like ChatGPT, Google Gemini, Microsoft Copilot, Claude, Perplexity AI, Elicit, Consensus, Awhich are being used to facilitate learning and research processes. The tools help students to develop ideas, to carry out a literature search, to summarize research results, to enhance their academic writing, and to gain academic help at once. This has led to the adoption of AI in education and research by educational institutions across the globe, as well as the establishment of policies to promote its responsible and ethical use (Baidoo-Anu et al., 2024; UNESCO, 2023). These skills are intended for students to use in further studies and in work. Nevertheless, many undergraduate students face difficulties for research because of their lack of research experience, methodological knowledge, or the ability to write a research paper. Additionally, many students have a hard time finding, assessing, and combining scholarly sources in their research, which takes a lot of time and relies heavily on their supervisors.

With the advent of generative AI, there are new avenues to help solve many of these issues. Generative AI systems generate contextually relevant responses, explanations, summaries, outlines and writing suggestions based on the users' prompts, as opposed to traditional search engines which are just retrieving information. Students can utilize AI to create a research topic, refine research questions, summarize journal articles, organize literature reviews, improve grammar, paraphrase text, and understand complex concepts. The functionalities have rendered AI an increasingly popular academic assistant that not only streamlines research but also boosts students' confidence (Baidoo-Anu et al., 2024; Kasneci et al., 2023).

With the advent of AI technologies, the landscape of research has undergone significant changes. In the past, undergraduate students would have primarily used textbooks, academic journals, university libraries, and scholarly databases like Google Scholar, Scopus, and Web of Science. These are still very important resources, but finding and combining related literature takes considerable research skills. With the help of AI-powered tools, these can be complemented with functions such as concept explanation, literature retrieval, research summarization, and academic writing improvement. AI has thus become a vital aid during various stages of the research process, including topic selection, literature search, methodology development, analysis of data, referencing and proofreading (Kasneci et al., 2023).

In general, students have a positive attitude towards AI tools since they save time, boost productivity, make complex concepts more understandable, and aid in academic writing. These assistants are particularly useful for students who have English as an additional language, and will be able to assist them in the area of sentence construction, coherence, vocabulary and grammar. Similarly, AI-powered literature search software can assist students in locating pertinent literature more quickly and efficiently, and in managing academic resources effectively. These benefits are especially useful for novice researchers, who may struggle with the research jargon and large amount of literature involved (Chan & Hu, 2023).

While there are benefits to the use of AI in the classroom, there are also some concerns. One of the main concerns is that students are over depending on AI-generated content. With AI now

being able to generate research proposals, literature summaries and methodological explanations within seconds, some students might heavily depend upon AI without critically assessing the information it provides. The dependency may hamper the students' capacity to think independently, analyse and to write academically. Hence, researchers point out that AI should be used as a learning aid and not as a substitute for intellectual work by students (Dwivedi et al., 2023). This is another indication that information literacy and critical evaluation skills are still relevant and important in higher education (Dwivedi et al., 2023).

Ethical concerns around the use of AI have also grown to be a major concern. Academic integrity is the use of original thoughts and credit to sources in a respectful way and demonstrate independent scholarship. But with the advent of AI-generated academic content comes the uncertainty about what's considered acceptable academic practice. To counteract this, universities globally are developing policies in favor of transparency, ethical and responsible use of AI, and the maintenance of originality and critical thinking. UNESCO (2023) urges students to understand the capabilities and limitations of AI and its aim to complement human intelligence.

Digital literacy, prior experience with technology, usefulness of AI, ease of use, institutional support, and trust in AI-generated information can all impact students' acceptance of AI. Based on the Technology Acceptance Model (TAM), Davis (1989) suggests users will be more likely to use technology if they believe it is useful and easy to use. Recent studies indicate that despite the advantages AI provides to students in terms of instant feedback and personalised learning support, students are also concerned with issues such as misinformation, privacy concerns, bias, the ethical use of AI, and overreliance. The findings reveal that students' attitudes involve recognizing the role of AI in education and its perceived shortcomings (Baidoo-Anu et al., 2024).

While many studies across different countries have explored AI's role in education, there is relatively less research that specifically addresses undergraduate students' perceptions of using AI for research, especially in developing nations like Pakistan. Existing research work is focused on AI aided learning, online learning, or even academic writing but not the entire research process, from choosing topic, literature review, developing methodology, data analysis and interpretation, and reporting. Moreover, the findings from abroad may not be applicable to Pakistani universities due to variations in technological infrastructure, institutional policies, and digital literacy (Baidoo-Anu et al., 2024).

AI is being adopted in higher education in Pakistan, with universities promoting technology-driven learning and research methods. Adoption of AI in higher education in Pakistan is rising, with universities fostering digital research practices and technology-enhanced learning. As use of AI tools for literature reviews, proposal writing, proofreading, referencing, and data interpretation grows among undergraduate students, the impact of these tools is becoming more tangible. The impact of AI tools is becoming more real as students are using them for literature review, proposal writing, proofreading, referencing and data interpretation during their undergraduate studies. The use of AI in schools is still at a relatively early stage of development and policies are being drafted and improved. Policies are at an early stage of development, and pupils may be making decisions about how to use AI based on their personal judgement. There are variations across students in their experiences of AI, depending on their digital literacy, internet access, supervisory expectations and familiarity with ethical uses of AI. Although there is an increase in the number of AI applications, the empirical evidence on the attitude of Pakistani BS students towards AI-assisted research is still limited.

Understanding students' perspectives is important because it provides valuable information on how research education and the curriculum can be improved, as well as how the institution can better reflect the needs of students. The evidence can inform teachers about the benefits and the drawbacks of using AI, help them establish ethical guidelines, design AI literacy programs and apply responsible supervision practices. Furthermore, the findings of this study will contribute to policy makers and universities to balance technological innovation with independent competence in the learning process, which are still essential for university success. Hence, the current study aims to explore BS students' perceptions regarding the use of AI tools while performing research projects. It delves into students' perceptions of the usefulness, benefits, challenges, ethical concerns, and overall impact of AI during the student research process, specifically during the undergraduate level. The results will help enrich the existing knowledge base about the use of AI in higher education and give practical recommendations for teaching, overseeing, designing, and managing undergraduate research in responsible ways (Baidoo-Anu et al., 2024; UNESCO, 2023).

There has been significant interest among researchers, teachers and policy makers across the globe regarding the incorporation of AI into higher education. AI is gaining traction in the realm of education as more universities are embracing it not just as a technological advancement but as a tool to enhance learning. As a result, research has focused on clarifying students' acceptance of AI, its educational values, the possible limitations, and the impact of AI on research. A thorough search of the literature offers a theoretical and empirical base for the understanding of the impact of AI on undergraduate research, as well as potential areas for further research.

Concept of Artificial Intelligence

Artificial Intelligence (AI) is the ability of computer systems to carry out tasks that would otherwise take human intelligence, such as learning, reasoning, decision making, understanding language, problem solving, etc. Instead of adhering to a fixed set of rules, modern AI systems analyze vast amounts of information, detect meaningful patterns, and provide contextually relevant answers that assist in decision-making. These abilities have helped AI infiltrate a variety of industries such as healthcare, business, transportation, finance, and education (Russell & Norvig, 2021).

AI was officially coined by John McCarthy at the Dartmouth Conference in 1956. McCarthy later defined AI as the science and engineering of making intelligent machines that can execute tasks for which human intelligence is normally necessary (McCarthy, 2007). From its early days as a rule-based knowledge-based system, AI has matured into sophisticated technologies that rely on machine learning, deep learning, natural language processing (NLP), computer vision, and generative AI.

Machine learning can enable computer systems to learn from data without needing to be explicitly programmed to perform a task, and deep learning is based on artificial neural networks to recognize complex relationships in large amounts of data. Conversational AI like ChatGPT and Google Gemini can be achieved through the power of natural language processing. Likewise, Computer Vision equips computers with the ability to understand and interpret visual information, while Expert Systems model human reasoning in specific areas (Russell and Norvig, 2021). With the rise of generative AI, the range of possibilities for AI has been broadened even more, allowing systems to produce original text, images, programming code and research summaries from user prompts. Generative AI is distinct from traditional AI systems, which are mostly classification or prediction, in that it generates new content that

looks a lot like human writing. These innovations have revolutionized the way students engage with academic content and research at university (Kasneci et al., 2023).

In higher education, AI tools are used in various academic applications, such as intelligent tutoring, adaptive learning, plagiarism detection, automated assessment, academic writing support, and research assistance. AI is being used more and more by students to clarify theory, abstract journal articles, arrange references, enhance writing, and produce research ideas. These applications have enhanced teaching and learning efficiency, and increased students' autonomy in the research process (Zawacki-Richter et al., 2019). AI has transformed education and introduced intelligent systems to the teaching-learning assessment, and research space. AI-powered solutions have also found their way into academic settings, providing tailored learning experiences, streamlining repetitive tasks, and providing instant educational support. AI-driven technologies have also expanded their presence in educational institutions, including the offer of a personalized learning experience, the automation of repetitive tasks in the academic world or the provision of on-demand educational support. Students can get instant feedback, personalised suggestions and adaptive learning experiences based on their own needs through AI-based learning management systems, intelligent tutoring systems, virtual assistants and writing support applications (Luckin et al., 2016).

AI's impact in academia is particularly notable. AI's application in academic research is among the most notable. In undergraduate research, students need to formulate research problems, search for research literature, construct conceptual frameworks, choose research methods, analyses data, interpret results, and write research reports. They take a lot of time, expertise and analysis. AI tools streamline many of these tasks, helping students find relevant information, summarize texts, organize research concepts, enhance academic writing, and elucidate complex research ideas (Kasneci et al., 2023).

Generative AI has gained momentum in higher education in recent years, but the launch of ChatGPT in late 2022 has spurred the increased use of the technology. Since then, students have found that AI tools can help them brainstorm research topics, create a research question, summarize journal articles, provide outlines, enhance language quality, and give methodological suggestions. Conversational AI has been introduced to facilitate access to academic support for students, and tools like Google Gemini, Microsoft Copilot, Claude, Perplexity AI, Elicit, Consensus, and Scite are among the latest examples of this integration, bringing state-of-the-art AI capabilities to the realm of scholarly information retrieval (Dwivedi et al., 2023).

Educational outcomes have been found to be positive with recent studies consistently showing this. The students generally felt that AI was a good learning companion as it added to productivity, shortened the time for academic tasks, and gave them more confidence in their research. AI writing tools are especially handy for learners who don't speak English as their native language as they can enhance grammar, coherence, word choice, and the quality of academic compositions. Likewise, literature search platforms that use AI can help students to find relevant literature more quickly and to present the findings in a more structured format (Chan & Hu, 2023).

Despite all these benefits, researchers warn that AI should not be a substitute for independent study. AI systems sometimes produce erroneous information, invented references and biased outputs, as they do not truly understand what they are producing but are rather using more of a probability based language generation. Accordingly, students are advised to critically analyze AI-generated information before using it in academic writing, as suggested by researchers (Dwivedi et al., 2023; UNESCO, 2023).

New research also shows that AI use in higher education keeps on growing rapidly. A 2025 systematic review indicated that the use of generative AI tools can enhance students' learning efficiency, academic writing, and research productivity when used in the proper context with instructional guidance and ethical use. Yet the review also highlighted the importance of AI literacy, institutional policies, and critical evaluation capabilities, alongside the potential risks of overreliance and misinformation, in maximizing the benefits of AI in education and minimizing its risks (Liu et al., 2025). Generative AI is rapidly evolving, bringing with it a variety of AI-powered tools that assist students in the research process. ChatGPT, Google Gemini, Microsoft Copilot, Claude, Perplexity AI, Elicit, Consensus, Scite, Grammarly, QuillBot, Zotero, and Mendeley are tools that can help undergraduate researchers develop research ideas, locate academic literature, summarize articles, enhance academic writing, reference management, and research interpretation. The applications have considerably shortened the time taken to complete research tasks, and have enhanced students' productivity and efficiency of learning tasks (Kasneci et al., 2023; Van Dis et al., 2023).

The academic benefits of AI, such as instant support to students' work, improving the quality of their writing, helping them to understand difficult concepts, and supporting self-directed learning, have been found to influence students' attitudes generally in a positive way at the university level. The Technology Acceptance Model (TAM) suggests that students will be more inclined to use an AI technology if they believe that it can be useful and easy to use (Davis, 1989). Students can leverage AI tools to get personalized help whenever they need it while conducting their literature reviews, writing their proposals, developing their methodology and preparing their reports, which boosts their confidence and decreases the challenges they face in conducting the research process (Chan & Hu, 2023). There is also recent evidence that when used with proper instructional support and AI literacy training, generative AI can support students in their learning and research productivity (Liu et al., 2025).

One of the main concerns in the world of higher education is the ethical implications of AI in the educational system. Rather than supplanting students' intellectual labor, AI is becoming more crucial to complement it, and universities are emphasizing this more and more. In order to promote academic integrity, students should make sure that the work they are creating is their own, acknowledge the use of AI where appropriate, and critically evaluate any content produced through AI. Other important aspects of AI responsibility include data privacy, preventing plagiarism, and complying with institutional guidelines on transparency and ethical research practices (UNESCO, 2023). In the past few years, research has also highlighted the need for universities to enhance the understanding of AI and set a guiding principle for the responsible use of AI in education and research (Daniel et al., 2025).

Empirical studies have invariably revealed that University students have positive attitudes towards AI. AI is a useful tool for students in education that can help them improve their academic writing, independent learning, and research productivity, according to Chan & Hu (2023). Likewise, Kasneci et al. (2023) reported that while AI has the potential to provide personalized learning assistance and enhance research productivity, it should not replace the critical thinking process. A transformative effect of Generative AI on Higher Education has been observed by Dwivedi et al. (2023), who focus on the need for ethical guidelines for its use, and its applications in literature review, academic writing and research organization. Farrokhnia et al. (2024) also highlighted the importance of institutional policies, AI literacy, and responsible usage for the successful implementation of AI.

Ahmed et al. (2024) and Khan and Mahmood (2024) found that university students were generally supportive of AI in Pakistan, as they believed it would enhance their learning

efficiency and academic performance, but they also had concerns about device plagiarism, misuse of AI-generated content, and the lack of institutional guidelines.

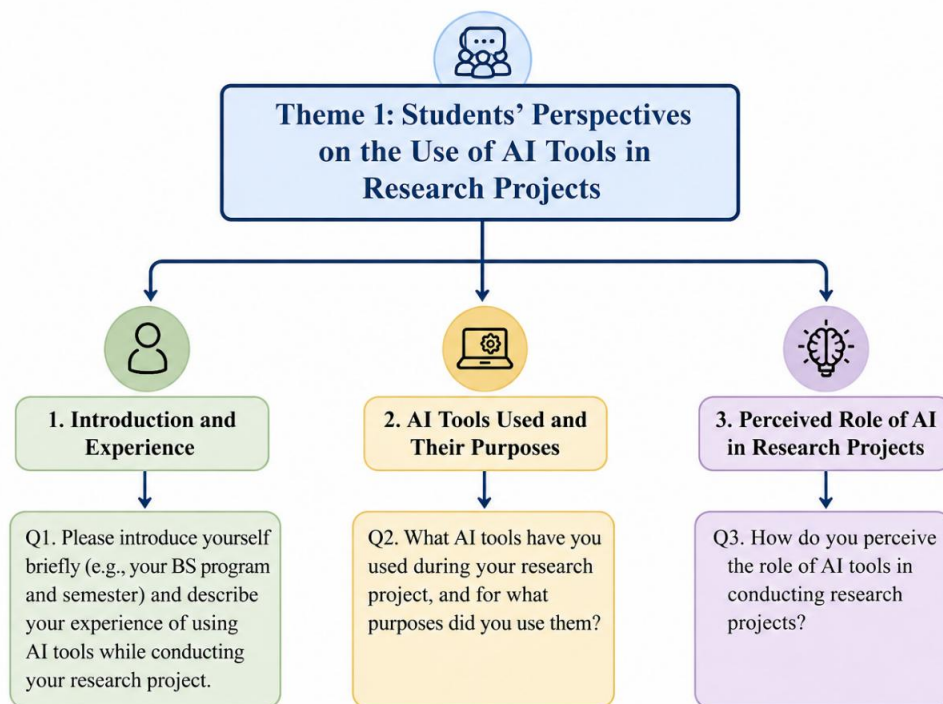
While previous research has shown the educational benefits of AI, there are key areas where further research is needed. Previous research has been largely limited to the use of AI in learning, academic writing or technology acceptance, but not across the entire undergraduate research process. In addition, there is not much empirical evidence available on the perceptions of BS students on the use of AI while selecting the topics, conducting literature review, designing methodology, analyzing data, and writing the report. Hence, the aim of the present study is to investigate the beliefs of the BS students about the application of the AI tools and its usefulness, advantages, obstacles, and ethical issues in their research projects. The results will help support the ethical use of AI in undergraduate research and guide higher education institutions in creating successful policies and AI literacy initiatives (Baidoo-Anu et al., 2024).

Methodology

The study used a qualitative phenomenological research design in a constructivist approach to gain insight into the attitudes of BS students on the use of Artificial Intelligence (AI) tools for research projects. The sample included BS students with prior experience with AI tools (ChatGPT, Google Gemini, Grammarly, Microsoft Copilot, and Elicit) when conducting research. Purposive sampling was used to select 10 participants who have a certain relevance to the study in order to get rich and meaningful insights. Data was gathered from semi-structured interviews on which an interview guide was developed based on the study objectives and literature. Informed consent was obtained and confidentiality assured before data collection and interviews were audio-recorded with permission. Thematic analysis, outlined in the six phases of Braun and Clarke (2006) was used to analyze the collected data: familiarization, coding, development of themes, review, definition and report writing. This methodology allowed the researcher to uncover common patterns and to immerse themselves in the students' experiences, perceived benefits, challenges, and ethical considerations when using the AI tools in undergraduate research.

Data analysis and interpretation

This chapter analyzes collected data from participants using a thematic approach. Thematic analysis is essentially the technique of detecting patterns and themes within qualitative data. The goal of thematic analysis is to identify themes i.e. patterns in the data that are important and interesting, and use these themes to address the research question

Theme 1: Students' Perspectives on the Use of AI Tools in Research Projects

The theme comprises the following three sub-themes:

Sub-theme 1.1: Students' Experience of Using AI Tools in Research Projects

The majority of participants had positive feedback on their research projects with respect to using AI tools. Some pupils had initially struggled to understand how to use the AI tools effectively, but as time went on they felt at ease and began to use the tools in various aspects of their research.

Student (S₁) explained that: *"Before I used AI tools correctly, I began to use ChatGPT to comprehend research concepts and develop ideas."*

Student (S₃) stated: *"Initially, I struggled with how to prompt the AI, but I eventually figured it out and improved the results from the AIs."*

Student (S₄): *"AI tools helped me to research more easily, particularly when I had to break down complex concepts."*

Student (S₁₀): *"I found the AI tools easy to use and helpful in doing research related work more efficiently."*

Overall, students' experiences with AI tools were positive, as evidenced by the responses. Although there were some difficulties at the beginning, the majority of the participants reported that the use of AI tools was a valuable resource for supporting their research activities.

Sub-theme 1.2: AI Tools Used and Their Purposes

In this sub-theme, students will explore the most popular AI tools used by students, such as ChatGPT, Google Gemini, Microsoft Copilot, Grammarly, and other AI tools. The participants described specific functions for the tools they used, such as the selection of topics, literature search, academic writing, paraphrasing, grammar checking, referencing, summarization, and idea generation.

Student (S₁) responded: *"I primarily used ChatGPT to inspire ideas and grasp the ideas behind research."*

Student (S₂): *"I have used Grammarly to improve my grammar, sentence structure and writing in general."*

Student (S4): *"I have attempted to re-word content using AI and improve the academic language."*

Student (S10) answered: *"The most common use I made of ChatGPT was to brainstorm ideas and to assist me in improving my academic writing."*

The results indicate that students frequently employed AI tools like ChatGPT, Grammarly, and Gemini in various ways, including generating ideas, conducting literature reviews, writing papers, paraphrasing text, proofreading, and supporting their research.

Sub-theme 1.3: Perceived Role of AI Tools in Research Projects

This sub-theme explores students' perceptions of the use of AI in research. Most of the participants thought that the use of AI tools was useful and that they would be helpful tools that will help them increase productivity, save time and help with research work. In the meantime, students understood that AI can be used to support their creativity, critical thinking and analysis, but can't do everything for them.

Student (S3) said: *"AI tools increases access to and understanding of information."*

Student (S4) commented: *"They explain concepts in a simple language and are a help towards learning."*

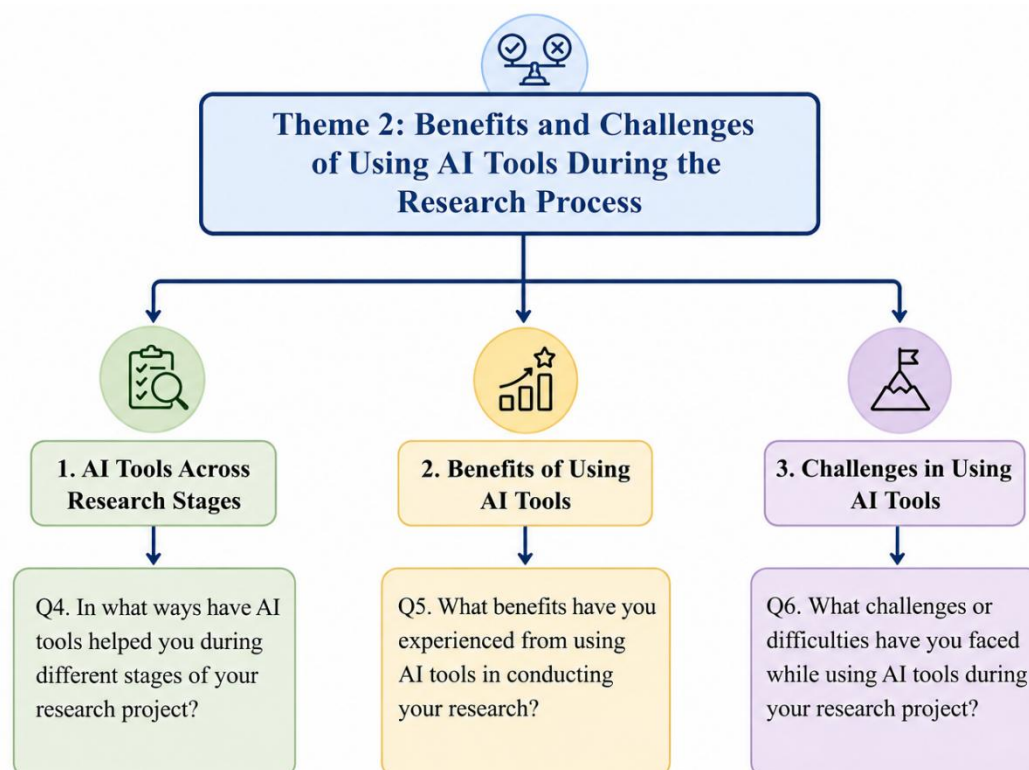
Student (S6): *"They assist the students to become more productive in their research."*

Student (S9): *"AI tools can be very helpful to make research easier but the content should be the student's understanding."*

In general, the participants had a positive outlook on the use of AI tools in research, considering them as valuable resources that can support their work and improve efficiency. But they have said that AI is meant to augment, not supplant, human judgment, creativity, and critical thinking.

Theme 2: Benefits and Challenges of Using AI Tools During the Research Process

This theme will explore how the participants experience the use of Artificial Intelligence (AI) during various stages of the research process and the advantages and difficulties they have faced. The findings indicate that AI tools are emerging as valuable tools for students, supporting their academic productivity, facilitating the writing process, and contributing to complex research tasks. Along with this, participants discussed various issues and concerns, such as the accuracy of information produced by AI, plagiarism, unreliable references, and risk of over-reliance on AI. Three sub themes address the theme.



Sub-theme 2.1: AI Tools Across Different Research Stages

This sub-theme examines the pathway that students travelled in using the AI tools across various phases of their research projects. The students described how AI helped them throughout the process, from selecting the topic to proofreading and preparing a report. Students reported that AI tools helped them to research more efficiently and effectively, as they received immediate guidance and support throughout the process.

Student S₁: "AI tools have helped me to develop my research ideas and focus my topic, while also supporting me to structure my research process from the outset."

Student (S₂): "I have used AI tools in writing a literature review and enhancing academic writing, which made it easier to complete the tasks."

Student (S₈) commented: "AI was mainly used to paraphrase, proofread and enhance the flow of my research report, which boosted my confidence in writing."

Student (S₁₀): "Used AI tools from the initial proposal to the final report, they supported me every step of the way when things got challenging."

The results indicate that students used AI in various aspects of the research process. Participants saw AI as a valuable tool that increased efficiency, organization, and saved time in completing research-related tasks.

Sub-theme 2.2: Benefits of Using AI Tools

In this sub theme students will share their perception of the benefits they gained in their research projects as they used AI tools. AI is a valuable academic support tool that enhances writing, learning, saves time and increases research efficiency, participants said repeatedly. Students also found that AI had a positive impact on their research confidence and decreased research stress.

Student (S₁): "The most significant value was in saving time - AI gave me information and suggestions that I would have taken a long time to find on my own."

Student (S2): *"The quality of my writing was enhanced by AI, as it corrected grammar and made the sentences more academic; and it boosted my confidence."*

Student (S8) responded: *"The AI tools were helpful and enabled me to enhance my academic writing and thinking skills, making them a valuable learning aid."*

Student (S9) stated: *"These tools helped me tackle difficult tasks and research more efficiently, and were a great help to get my project done in time."*

Overall, participants acknowledged numerous benefits of AI tools in conducting research. The results suggest that AI helps to improve academic writing, to complete tasks more efficiently, to better grasp research concepts, and to boost confidence in completing research tasks.

Sub-theme 2.3: Challenges in Using AI Tools

In this sub-theme, challenges participants faced in their use of AI tools for research are emphasized. Though AI has numerous advantages for students, they emphasized the importance of verifying information created by AI and the responsible use of AI. The participants voiced concerns about the accuracy of the content, reference substitution, plagiarism, and the overreliance on AI technologies.

Student S1: *"At times AI provided incorrect information, and I always had to verify any information with reliable academic sources before using."*

Student (S3): *"Getting good prompts to start with was difficult, and if they didn't give them any direction the answers weren't very helpful."*

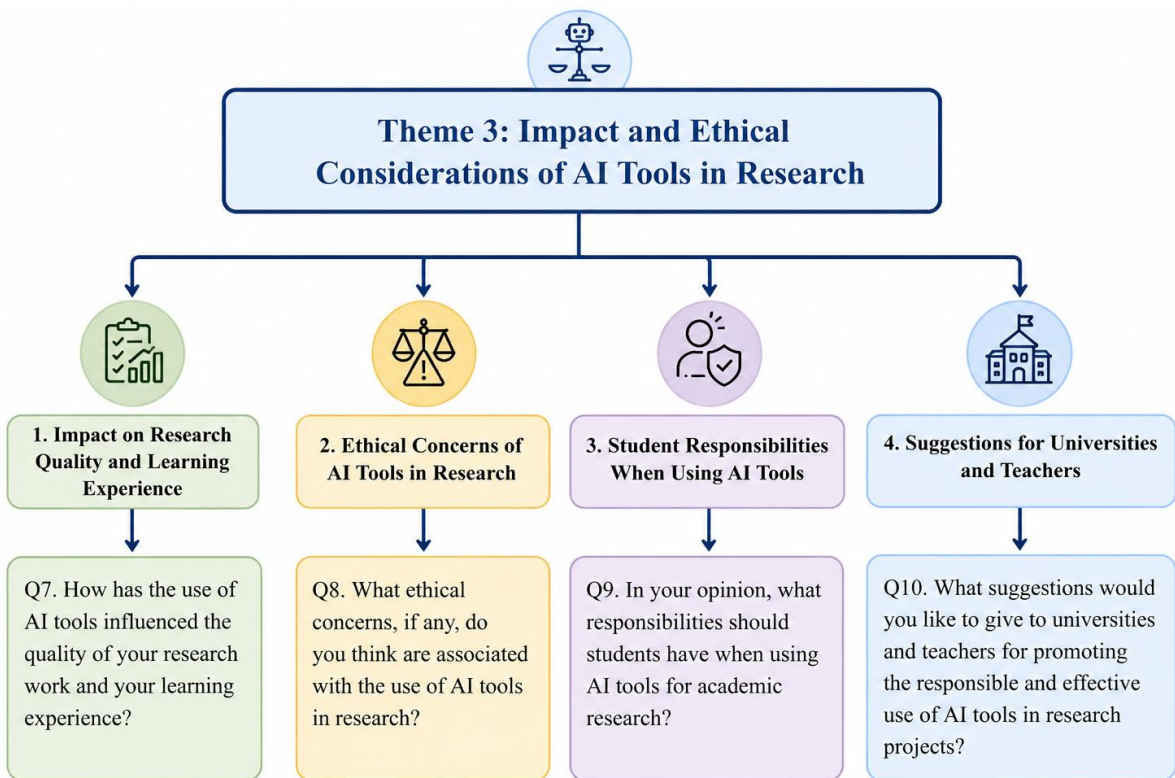
Student (S5) reported: *"AI generated content is not always suitable for academic use and this raised concerns about plagiarism."*

Student (S10): *"AI is an amazing tool, but it is crucial to take the time to review and critically assess results before relying on the output from AI."*

The participants appreciated the AI tools, but there were some challenges as well. The results highlight the importance of using AI as an aid, not a replacement for critical thinking and other research abilities. Pupils pointed to the importance of critically assessing, checking, information and using the information in an ethical way to ensure the quality and credibility of academic work.

Theme 3: Impact and Ethical Considerations of AI Tools in Research

This theme delves into student perceptions of the effect of Artificial Intelligence (AI) tools on the quality of research and on their learning experience, and the ethical implications of using these tools. Participants talked about the impact of AI on their academic activities, on the quality of their research and on learning. Meanwhile, they stressed the need for the principles of academic honesty, responsible use of AI, and institutional policies. The theme includes the following sub-themes: Impact of AI Tools on Research Quality and Learning Experience, Ethical Concerns Related to the Use of AI Tools, Students' Responsibilities When Using AI Tools, and Suggestions for Promoting the Responsible Use of AI Tools in Research.



Sub-theme 3.1: Impact of AI Tools on Research Quality and Learning Experience

This sub-theme focuses on students' perceptions on the impact of AI tools on quality of their research work and learning experience as a whole. The majority of the participants felt that the AI improved their understanding of research concepts, contributed to the quality of academic writing and made learning more interactive.

Student S₁ commented: *"AI made my research more productive by giving me better writing tips and clarifying complex ideas, and also helped me gain confidence in my research work as part of my project."*

Student (S₃) responded: *"AI has helped me to organize my research report and elevate the overall quality of my academic writing."*

Student (S₅) stated: *The use of AI has made it easier for me to undertake complex research tasks and comprehend journal articles effectively.*

Student (S₈) commented: *"I think my writing got better but I would always check the content to ensure it was written in my own understanding.*

Student (S₉): *"I used to be very inefficient using AI instead, I could spend more time analysing information without having to search for it.*

The results show that in general, students had positive views regarding the role of AI in improving the quality of research and learning. Participants found that AI enhances academic writing, can break down complex ideas, and facilitates self-study, but also acknowledged the need to stay updated with their own analytical skills.

Sub-theme 3.2: Ethical Concerns Related to the Use of AI Tools

This sub-theme examines participants' opinions on the ethical challenges of academic research with AI tools. The majority of the participants expressed their support for AI as an aid to learning, not a substitute for them.

Student (S₁): The problem with using AI without proper credit would be an ethical concern and students should make sure that their work is original.

Student (S₅): "AI can be of help, but if students copy AI's responses without sufficient changes, then there is a risk of plagiarism.

Student (S₈): *The students should analyze the information created by AI before using it in their research.*

Student (S₉) replied: *"We must use AI responsibly, honestly, and respectfully, adhering to the principles of academic integrity.*

The results indicated that participants were aware of the moral issues related to the use of AI in research. Originality, academic honesty, information verification, and responsibility were stated as important principles of maintaining research integrity by the students.

Sub-theme 3.3: Students' Responsibilities When Using AI Tools

This sub-theme focuses on students' views regarding their responsibilities while using AI tools in academic research. Participants felt that students' use of AI should be critical, that they should check information with the original source, that they should not plagiarize, and that AI should be used to complement and enhance student knowledge and analytical skills.

Student (S₂): *"Be careful to use AI responsibly and refrain from copying information word for word.*

Student (S₃) stated: *"Students need to know what this content is, rather than relying on the answers that AI has produced.*

Student (S₆): *"Responsible use is when we employ critical thinking while using AI tools as an assistant in our study process.*

Student (S₁₀) said, *"Truly the student is the one with the final authority for the quality and authenticity of the research.*

The results suggest that participants were aware of their role in the ethical and responsible use of AI tools. They highlighted verification, originality, critical thinking and adherence to institutional academic standards.

Sub-theme 3.4: Suggestions for Promoting the Responsible Use of AI Tools in Research

This sub-theme will encourage students to share their opinions on responsible use of AI tools in research with others at universities and among teachers. Educational institutions should provide training, establish guidelines for the use of AI, and promote students and staff to be aware of ethical practices with AI.

Students must be made aware by the universities about the correct and ethical use of AI tools in students' workshops.

Student (S₃) commented: *"Having clear policies in place at universities to understand what is allowed and what is not with regards to AI in academic assignments would be helpful for students."*

Student (S₅) said: *"Student should be made to self-check the accuracy of information generated by Artificial Intelligence, which should be authentic and academic."*

Student (S₆): *"Research methodology classes should have AI classes in them."*

The results indicate that the participants had a strong preference for using AI in higher education with proper guidance and institutional support. Clear policies, training on how to use AI tools responsibly and effectively, promoting ethical awareness, and ongoing teacher oversight were thought to foster responsible and effective use of AI tools in research without compromising academic integrity.

Findings

This study aimed to investigate the attitudes of BS students towards applying Artificial Intelligence (AI) tools for researching a project. Ten BS students who were experienced with using AI tools during their research were selected for semi-structured interviews, employing a qualitative phenomenological approach. Three main themes were identified using thematic analysis.

The initial theme, Students' Perspectives on the Use of AI Tools in Research Projects, indicated a generally positive experience of students with the use of AI tools. While some were hesitant at first to master the use of AI applications, by the end of the training, they had become more comfortable and comfortable with using them in various stages of their research. Students frequently utilized AI tools like ChatGPT, Grammarly, Google Gemini, and Microsoft Copilot in selecting a topic, conducting literature reviews, paraphrasing, editing grammar, writing academic articles, summarizing, and generating ideas. The participants viewed AI as a helpful research assistant, that will boost productivity, assist in learning and make research more easy, but also that AI must serve as a tool to supplement rather than supplant critical thinking and independent research.

The second theme Benefits and Challenges of Using AI Tools During the Research Process showed the use of AI tools throughout various phases of the research process, such as writing research proposals, literature search, data interpretation, referencing, proofreading and report writing. Many advantages emerged from the discussions, such as time savings, better academic writing, research efficiency, better understanding of research concepts and research confidence. However, some of the questions raised by the participants also involve this, including information that might be inaccurate or outdated, potential plagiarism issues, difficulties creating prompts, subscription costs, and the use of AI tools. The third theme, Impact and Ethical Considerations of AI Tools in Research, identified that AI is benefiting research quality, and that students' learning experiences are enhanced by using AI tools, such as facilitating the writing, organizing, and understanding of complex concepts. There were concerns raised, however, on issues of academic honesty, original content, plagiarism and responsible use of AI generated content. Pupils noted the importance of using AI in an ethical manner, verifying information and following institutional guidelines. They also recommended the creation of a policy regarding AI for universities, and the implementation of AI literacy training and information about the responsible use of AI in academic research.

Discussion

The findings of this research indicated that the overall attitude of the BS students towards the use of application of AI tools in research projects is positive. The potential of AI as an academic assistant has been discussed in several facets, including facilitating the research process with immediate information, aiding academic writing, and increasing productivity. The findings revealed that AI tools can significantly enhance the research process for students, making it more efficient, personalized, and educational when used appropriately. This finding is consistent with recent studies that have shown the positive potential of AI technologies in the academic research process (Baidoo-Anu et al., 2024; Daniel et al., 2025; Faheem, Gulab, & Ahmad, 2025). The research also revealed that students frequently used AI tools such as ChatGPT, Grammarly, Google Gemini, Microsoft Copilot, literature research, academic writing, paraphrasing, grammar checking, summarizing, and idea generation. The findings support previous research that has indicated that generative AI is quickly becoming a compelling educational tool that can assist students and teachers with tasks that demand high-order

thinking skills, improve the quality of written assignments and help organize research (Ahmad, Sewani, & Channa, 2025).

The other key takeaway is around the utilization of AI tools in the research process. Participants continually expressed the advantages of AI, including a decrease in workload, saving time, boosting confidence, facilitating learning, and streamlining complex research tasks. The results are consistent with prior studies indicating that AI technologies facilitate independent learning, boost students' engagement, and enhance their academic achievement by providing instant feedback and tailored academic guidance (Ahmad, Noorani, & Channa, 2025). While these are the positive aspects, students also pointed to some difficulties in using AI. Issues that were raised included inaccurate information, bogus references, plagiarism, subscription constraints, and overreliance on AI-generated material (Oad et al., 2024; Ali et al., 2023). The results align with earlier studies that have emphasized the significant educational benefits of AI but indicated that outputs of AI systems come with a risk of providing misinformation or incorrect information (Dwivedi et al., 2023; UNESCO, 2023; Chan & Hu, 2023). Students thus stressed the need to critically assess AI-generated answers and not take them for granted.

The results also indicate that students are well aware of ethical concerns related to the use of AI in research. The participants felt that the principles of originality, academic honesty, transparency and correct verification should be key principles of research practice (Ali, Shah & Ahmad, 2023). Students highlighted the importance of using AI alongside human intelligence, not in place of it, emphasizing the need for human creativity, originality, and analytical skills (Ali, Ahmad, & Sewani, 2022). The results further underpin existing debate in higher education on the creation of responsible AI policies and ethical frameworks that will stimulate the advancement of technology without compromising academic honesty (UNESCO, 2023; Daniel et al., 2025; Liu et al., 2025; Imran et al., 2023; Naeem, Ali, & Ahmed, 2022).

Lastly, they suggested that universities should be proactive in assisting students to meet the need through providing AI literacy training, developing institutional policies, incorporating AI education into course on research methodology, and fostering responsible AI use (Jabeen, Ali, & Ahmad, 2023). The recommendations resonate with the increasing focus on fostering students' ethical and effective use of AI technologies in higher education globally.

Conclusion

The study ends with the valuable contribution of Artificial Intelligence tools to BS students in the research projects. Students believe that AI technologies are useful tools for supporting their learning processes, including research, enhancing academic writing, conducting literature searches, and assisting them in their academic studies. While AI has significant educational value, students understand that they should use AI as a tool rather than a replacement for independent thinking, creativity, and critical analysis. Rather, AI should be considered as a learning tool and supplement to the original knowledge and research capacity of the students.

The findings also showed that whether it is used responsibly, students need to verify the information created by AI, not copy and paste the content generated by AI, ensure academic integrity in the research process, and ensure that the use of AI is ethical. It is the role of the universities to offer suitable guidance, policies and AI-literacy training for students to be able to utilize AI technologies without compromising their academic rigor. The study shows that there are opportunities for increasing the impact of AI on undergraduate research with responsible implementation within the higher education community.

Recommendations

According to the results of this study, the following recommendations are made:

1. Clarify the institutional policy on the ethical use of AI tools for academic research.
2. BS research methodology courses should include AI literacy and Responsible AI use.
3. AI-related workshops, seminars, and training sessions should be held to increase students' understanding of the applications of AI and ethical research.
4. Students should be taught how to utilize AI as an academic resource and not a crutch.
5. Pupils should be taught to check the accuracy of information generated by AI tools by researching it from real academic databases and peer-reviewed publications before using it in research projects.
6. Guidelines should be created by universities regarding the citation, disclosure and responsible use of AI generated content in academic writing.
7. The importance of prompt writing, maximizing the educational value of AI technologies, should be taught to students.
8. Regular orientation sessions and awareness campaigns should be conducted in academic institutions to raise awareness on plagiarism, academic integrity and responsible use of AI.

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